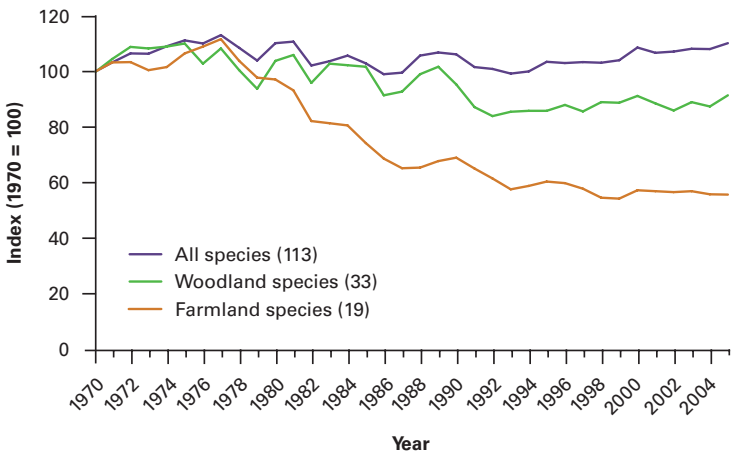
The state of the UK'S BIRDS 2006

RSPB BTO WWT SCOTTISH NATURAL HERITAGE DUALCHAS NADAIR NA H-ALBA

How are the UK's birds faring?

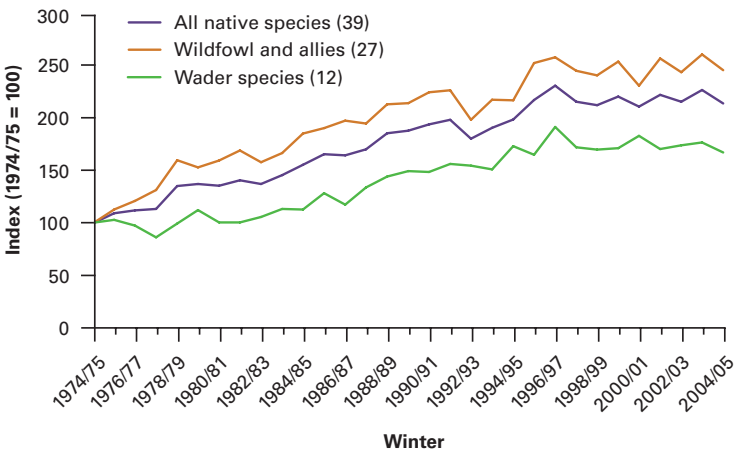
The Quality of Life indicator shows trends in 113 species of common breeding bird in the UK since 1970. Overall, bird populations have remained stable over this period. However, farmland birds declined substantially in the 1970s and '80s and, although stable in recent years, have yet to show signs of recovery. The indicator for woodland birds reveals a more recent decline, in the 1980s and early 1990s, principally in woodland specialists and long-distance migrants. See pages 12-13 for trends of common breeding birds.

UK wild bird populations framework 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 pages 20-23 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.

Red-throated diver numbers are up

Danny Green (rspb-images.com)

The headlines

- This year sees the publication of a new list of priority species under the UK Biodiversity Action Plan. The list has expanded from 26 to 59 birds, and reflects new conservation concerns such as the declines in woodland birds, and long-distance migrants, as well as the long-standing problems such as those faced by farmland birds.
- We report good news from a suite of species surveys – numbers of **red-throated** and **black-throated divers**, **woodlarks** and **Dartford warblers** have all increased since they were last surveyed.
- Our huge over-wintering waterbird populations are one of the UK's greatest contributions to global biodiversity, and we report on the latest trends. Although many species have increased over the last three decades, we are beginning to detect declines in a few, such as dark-bellied **brent geese**, **shelducks**, **ringed plovers** and **turnstones**. The redistribution of populations as they adjust to climate change poses a challenge to their conservation.
- The protection of birds through a network of designated sites is a cornerstone of nature conservation in the UK. We report on the monitoring of these sites, from the far north of Scotland to the south-western tip of England, through site surveys and the Wetland Bird Survey (WeBS) Alerts system.

Shelducks are showing signs of decline

Mark Hamblin (rspb-images.com)

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 the 86 species of least concern are **green-listed**. This assessment did not cover non-native species, or those in the UK's Overseas Territories, so such species are not colour-coded.

Introduction

This is the eighth *The state of the UK's birds* report, published in 2007 and containing results from annual, periodic and one-off surveys and studies from as recently as 2006. It draws on many sources of information to give 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 2006 is produced by a partnership 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), Environment & Heritage Service (Northern Ireland) (EHS), Natural England (NE) and Scottish Natural Heritage (SNH).

This report should be referenced as Eaton MA, Austin GE, Banks AN, Conway G, Douse A, Grice PV, Hearn R, Hilton G, Hoccom D, Musgrove AJ, Noble DG, Ratcliffe N, Rehfisch MM, Worden J and Wotton S, 2007. *The state of the UK's birds 2006*. RSPB, BTO, WWT, CCW, EHS, NE and SNH, Sandy, Bedfordshire.

Andy Hay (rspb-images.com)

Andy Hay (rspb-images.com)

A special thank you to volunteers

Bird monitoring in the UK is led by NGOs in collaboration with the Government, but is dependent on the support of many thousands of volunteers, without whom most of the knowledge that bird conservation in the UK is based upon would be unattainable. *The state of the UK's birds* gives us the opportunity to recognise and celebrate the massive role of volunteers in bird monitoring, and to thank them for the time and effort they devote to the schemes described within the report. If this is you, then thank you; if not, why not consider joining one of the schemes outlined at the back of the report? Through participation in simple and enjoyable birdwatching activities you will be able to make a valuable contribution to nature conservation.

Song thrush numbers are recovering

Chris Gomersall (rspb-images.com)

Birds in the UK Biodiversity Action Plan

UK BAP species, 1995-2006

In 1995, 26 bird species were identified as being deserving of the highest priority within the UK Biodiversity Action Plan (UK BAP), because of either threat on a global scale or population declines of 50% or more in the UK in the preceding 25 years. Every year we report on the fortunes of these birds in *The state of the UK's birds*, but this year we also include the results of the recent revision of the list, to identify new priority species.

All of the 26 priority species on the UK BAP in 1995 were breeding species in the UK, except for the globally threatened **aquatic warbler**, which is a rare but regular autumn passage visitor to a few wetland sites on the south coast of England and occasionally elsewhere.

Bullfinch numbers have halved since 1970

Sue Tranter (rspb-images.com)

The aquatic warbler was the only species that didn't breed in the UK to feature in the 1995 UK Biodiversity Action Plan

Mike Lane (rspb-images.com)

Trends and population size of existing UK BAP species

Species	Long-term trend (%)	Short-term trend (%)	Population	Year of population estimate
Bittern	-39[1]	300[6]	44[2]	2006
Common scoter	-29[3]	na	95[1]	1995
Black grouse	decline[na]	-22[4]	5078[2]	2005
Capercaillie	decline[na]	-10[5]	1980[3]	2003/04
Grey partridge	-88[1]	-37[1]	72,500[1]	2000
Corncrake	58[4]	78[6]	1145[2]	2006
Stone-curlew	13[5]	105[6]	338[1]	2006
Red-necked phalarope	11[1]	-26[2]	31[2]	2006
Roseate tern	-89[1]	98[2]	107[1]	2006
Turtle dove	-83[1]	-61[1]	44,000[1]	2000
Nightjar	119[2]	35[3]	4606[1]	2004
Wryneck	decline[na]	occasional breeder	0[1]	2006
Woodlark	1180[6]	89[2]	3084[1]	2006
Skylark	-53[1]	-15[1]	1,785,000[1]	2000
Song thrush	-50[1]	17[1]	1,144,000[1]	2000
Marsh warbler	-94[1]	-84[6]	5[1]	2006
Spotted flycatcher	-82[1]	-29[1]	64,000[1]	2000
Red-backed shrike	decline[na]	occasional breeder	0[1]	2006
Tree sparrow	-93[1]	97[1]	68,000[1]	2000
Linnet	-53[1]	-24[1]	556,000[1]	2000
Bullfinch	-50[1]	-28[1]	166,000[1]	2000
Cirl bunting	118[7]	54[7]	697[1]	2003
Reed bunting	-34[1]	39[1]	202,000[1]	2000
Corn bunting	-89[1]	-39[1]	10,400[1]	2000

Long-term trends
1=1970-2005
2=1981-2004
3=1973-1995
4=1978/79-2005
5=1970-2005
6=1986-2006
7=1970-2003

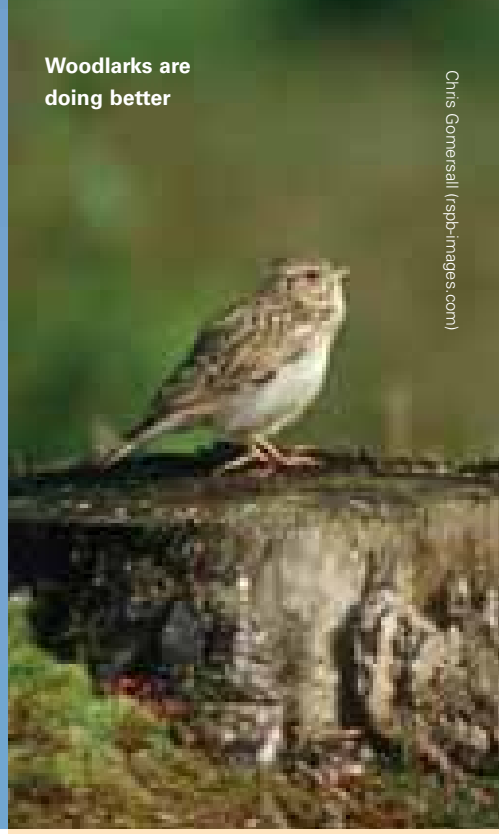
Short-term trends
1=1994-2006
2=1997-2006
3=1992-2004
4=1995/96-2005
5=1992/94-2003/04
6=1995-2006
7=1998-2003

Population units
1=Breeding pairs
2=Singing, displaying or breeding males
3=Individuals

na = not available

Reed buntings have shown increases in the short-term

Mike Richards (rspb-images.com)



Woodlarks are doing better

Chris Gomersall (rspb-images.com)

Common and widespread UK BAP species

Ten of the UK BAP species are still relatively common and widespread, and their long- and short-term trends are available from the Common Birds Census and Breeding Bird Survey. All 10 species have declined dramatically over the last 30 years, but three, the **song thrush**, **reed bunting** and **tree sparrow**, have shown short-term increases which give some reason for optimism. However, six have continued to decline, most obviously the **turtle dove**, **grey partridge** and **corn bunting**.

Scarce and rare UK BAP species

There are mixed trends amongst this group of species. Of those monitored regularly, **corncrakes** increased again in 2006, but the number of **bitterns** dropped slightly for the second successive year. **Red-necked phalaropes** declined, with 31 males recorded in comparison with 39-40 in 2005, and **marsh warblers** declined yet again with only 5-6 pairs recorded. As in most recent years, there were apparently no breeding **wrynecks** or **red-backed shrikes** in 2006.

Other species are only surveyed every few years, and results are discussed in *The state of the UK's birds* reports following these surveys and are summarised in the table. **Woodlarks** were surveyed in 2006 (see right). Other surveys in recent years have shown ongoing declines in **black grouse**, possible partial recovery in **capercaillie**, and an increase in **nightjar** numbers. Recent research has confirmed the species status of the **Scottish crossbill**, and the first survey will be carried out early in 2008.

Woodlarks in 2006

The third national survey of **woodlarks**, in 2006, estimated a breeding population of 3084 territories in the UK (95% confidence limits 2483–3726), an increase of 89% since the 1997 survey. The UK BAP target of maintaining a population of 1500 territories has been met, and there have been signs of a range expansion since 1997. In 2006, **woodlarks** were found in 131 10-km squares, an increase of 46%. **Woodlarks** are now established in Yorkshire, and Wales has been recolonised. Most are found in lowland heathland and forest plantations; improved conditions and re-creation of heathland and sympathetic management of forest plantations has benefited the **woodlark**. A small but increasing number breed on farmland, with expansion into new areas of farmland habitats in the south, particularly in Hampshire, as well as the established farmland population in Devon.

The new UK BAP priority species list

The last couple of years have seen a new process to identify those species that should be the focus of a revised UK BAP. Under the direction of the Biodiversity Reporting and Information Group (BRIG), a number of expert groups covering all UK species and habitats have applied a set of objective criteria to identify the animals, plants and habitats that qualify for a revised priority list. This list will be used to determine the best way to deliver conservation action in the UK and, as such, serves as an indication of likely future priorities for bird conservation in the UK.

It was decided that the assessment for UK birds should operate at the taxonomic level of race (subspecies). This is a new development for conservation priority setting in the UK, which has traditionally been based at a species level. Setting conservation priorities at a lower taxonomic level allows action to be targeted more accurately, recognising that some races may deserve priority status while others of the same species face no threat. It is a step towards targeting conservation effort at genetic and ecological diversity within species. It also allows the highlighting of the importance of conserving the UK's endemic races, some of which face severe threats, such as the endemic races of the **black grouse**, **lesser spotted woodpecker** and **willow tit**.

Four criteria were used to identify the races that qualify for the candidate list:

1. Races designated as being at risk of extinction in Europe.
2. Races for which the UK has at least 25% of the European population and which have declined by at least 25% in the UK over the last 25 years (moderate decline and international importance).
3. Races that have declined in the UK by at least 50% over the last 25 years (severe decline).
4. Races for which there are other valid reasons for qualification, including a lack of recovery from the declines that led to inclusion on the UK BAP priority list in 1995.

The new UK BAP priority bird species list

Name	Race[1]	Current UK BAP	Criteria 1	2	3	4	Comments
Bewick's swan	*bewickii*	N	✔				All UK birds are of this race, except vagrant *columbianus*
Greenland white-fronted goose	*flavirostris*	N	✔				European race, *albifrons*, is listed separately
European white-fronted goose	*albifrons*	N			✔		Greenland race, *flavirostris*, is listed separately
Dark-bellied brent goose	*bernicla*	N	✔				Excludes light-bellied race, *hrota* and vagrant *nigricans*
Scaup[2]	-	N	✔				
Common scoter[2]	-	Y			✔	✔	
Red grouse	*scoticus*	N		✔			All UK birds are of this endemic race
Black grouse	*britannicus*	Y	✔	✔	✔	✔	All UK birds are of this endemic race
Capercaillie	*urogallus*	Y			✔	✔	All UK birds are of this race
Grey partridge	*perdix*	Y	✔		✔	✔	All UK birds are of this race
Black-throated diver	*arctica*	N	✔				All UK birds are of this race
Balearic shearwater[2]	-	N	✔				
Bittern	*stellaris*	Y				✔	All UK birds are of this race
Corncrake[2]	-	Y				✔	

Continued overleaf

Name	Race[1]	Current UK BAP	Criteria 1	2	3	4	Comments
Stone-curlew	*oedicnemus*	Y	✔			✔	All UK birds are of this race
Lapwing[2]	-	N	✔		✔		
Black-tailed godwit	*limosa*	N	✔				Rare, southern breeders; excludes wintering *islandica*
Curlew	*arquata*	N		✔			All UK birds are of this race
Red-necked phalarope[2]	-	Y				✔	
Arctic skua[2]	-	N			✔		
Herring gull	*argenteus*	N		✔	✔		Excludes wintering *argentatus* from Scandinavia
Roseate tern	*dougallii*	Y			✔	✔	All UK birds are of this race
Turtle dove	*turtur*	Y			✔	✔	All UK birds are of this race
Cuckoo	*canorus*	N			✔		All UK birds are of this race
Nightjar	*europaeus*	Y				✔	All UK birds are of this race
Wryneck	*torquilla*	Y			✔	✔	All UK birds are of this race
Lesser spotted woodpecker	*comminutus*	N	✔	✔	✔		All UK birds are of this endemic race
Woodlark	*arborea*	Y				✔	All UK birds are of this race
Skylark	*arvensis, scotica*	Y			✔		These two races include all UK birds
Tree pipit	*trivialis*	N			✔		All UK birds are of this race
Yellow wagtail	*flavissima*	N		✔	✔		Near endemic; vagrant races excluded
Fair Isle wren	*fridariensis*	N	✔				Only this race and St Kilda wren listed
St Kilda wren	*hirtensis*	N	✔				Only this race and Fair Isle wren listed
Dunnock	*occidentalis*	N		✔			Excludes Hebridean *hebridium* and migrant *modularis*
Ring ouzel	*torquatus*	N			✔		All UK birds are of this race
Hebridean song thrush	*hebridensis*[3]	Y	✔			✔	Hebrides only; *clarkei* listed separately
Song thrush	*clarkei*	Y		✔		✔	Excludes *philomelus*; *hebridensis* listed separately
Grasshopper warbler	*naevia*	N			✔		All UK birds are of this race
Savi's warbler	*luscinioides*	N			✔		All UK birds are of this race
Aquatic warbler[2]	-	Y	✔		✔	✔	
Marsh warbler[2]	-	Y			✔		
Wood warbler[2]	-	N			✔		
Spotted flycatcher	*striata*	Y			✔	✔	All UK birds are of this race
Willow tit	*kleinschmidti*[3]	N	✔	✔	✔		All UK birds are of this endemic race
Marsh tit	*palustris, dresseri*[3]	N		✔			These two races include all UK birds
Red-backed shrike	*collurio*	Y			✔	✔	All UK birds are of this race
Starling	*vulgaris*	N			✔		Excludes Shetland's breeders *zetlandicus*
House sparrow	*domesticus*	N			✔		All UK birds are of this race
Tree sparrow	*montanus*	Y			✔	✔	All UK birds are of this race
Linnet	*cannabina, autochthona*[3]	Y				✔	These two races include all UK birds
Twite	*pipilans, bensonorum*[3]	N		✔			Breeding races; wintering *flavirostris* excluded
Lesser redpoll[2]	-	N			✔		
Scottish crossbill[2]	-	Y				✔	UK's only endemic species

Name	Race[1]	Current UK BAP	Criteria 1	2	3	4	Comments
Bullfinch	*pileata*	Y		✔		✔	All UK birds, except rare migrant *pyrrhula*
Hawfinch	*coccothraustes*	N			✔		All UK birds are of this race
Yellowhammer	*citrinella*	N			✔		All UK birds are of this race
Cirl bunting[2]	-	Y				✔	
Reed bunting	*schoeniclus*	Y				✔	All UK birds are of this race
Corn bunting	*calandra, clanceyi*[3]	Y	✔	✔	✔	✔	These two races include all UK birds

[1]For eight species, more than one UK-occurring race qualified for the candidate list. However, in some cases (eg *arvensis* and *scotica* **skylarks**) these have been lumped together, as for conservation purposes they would be treated together, either because of current uncertainty over the taxonomy of one or both races, or practical considerations in distinguishing the two races.
[2]Species is monotypic: there are no races, thus the listing covers all individuals of this species in the UK.
[3]Race is endemic to the UK.

One issue that became apparent through the UK BAP review process was how little we know about some of our endemic races in the UK, despite centuries of ornithological studies by amateurs and professionals alike. The taxonomic status of some races recognised on the British Ornithologists' Union's 'official' list (the principal starting point for the UK BAP review) is unclear – for example, does the *autochthona* race of **linnet** actually exist, or are the differences between this and the nominate race so slight as to be non-existent? A similar question exists for **corn buntings**, and if the *clanceyi* race is valid it should be a high conservation priority: once present over the west of Scotland and the Inner and Outer Hebrides, it is now down to around 150 singing males on the Uists.

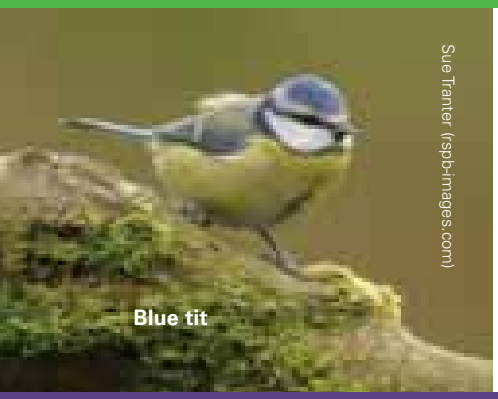
A large proportion of the birds in this list are familiar conservation priorities in the UK: races belonging to the 26 existing UK BAP species are retained, and 37 of the races belong to species red-listed by *The population status of birds in the UK: birds of conservation concern*. However, a number are new to such priority-listings. They include wintering waterbirds such as Greenland and European **white-fronted geese**, dark-bellied **brent geese** and **Bewick's swans**, sub-Saharan migrants such as **cuckoos**, **tree pipits**, **wood warblers** and **yellow wagtails**, and a number of races that are endemic to the UK, including Fair Isle and St Kilda **wrens** (but not other races of wren in the UK), **red grouse** and Hebridean **song thrushes**. There are also birds for which the candidate status is due to the current risk of extinction within Europe, such as **black-throated diver**, **scaup** and **Balearic shearwater**, with the latter designated as critically endangered globally.

The production of the new UK BAP priority species list has taken a considerable amount of time and effort from many conservationists in the UK. Urgent consideration now needs to be given to the effective delivery of conservation action for this new list of priority species.

The yellow wagtail is a new addition to the UK BAP priority list

Mike Lane (rspb-images.com)

Trends in common breeding birds



Blue tit

The Breeding Bird Survey (BBS) continued to grow in 2006, for the first time covering over 3000 1-km squares across the UK. As a result, over 100 species can be monitored annually. 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 those 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 % (1970–2005)	BBS trend % (1994–2006)		Long-term trend % (1970–2005)	BBS trend % (1994–2006)
Mute swan	168[1]	8	Ring-necked parakeet	na	302
Greylag goose	na	235	Cuckoo	-45[1]	-30
Canada goose	na	161	Little owl	-17	0
Shelduck	248[1]	0	Tawny owl	-27[1]	-43
Mallard	99	20	Swift	na	-26
Tufted duck	37[5]	94	Kingfisher	-1[5]	24
Red grouse	na	-18	Green woodpecker	119	44
Red-legged partridge	-9	36	Great spotted woodpecker	284	130
Grey partridge	-88	-37	Lesser spotted woodpecker	-73[1,2]	na
Pheasant	74[1,4]	38	Skylark	-53	-15
Little grebe	199[1]	72	Sand martin	-9[5]	115
Great crested grebe	na	157	Swallow	25	36
Sparrowhawk	108[1,5]	-1	House martin	-32[1]	19
Buzzard	515[1,2,4]	49	Tree pipit	-75[1]	-21
Kestrel	-28[1]	-25	Meadow pipit	-38[1]	-16
Hobby	na	-9	Yellow wagtail	-65[2]	-29
Moorhen	-2	21	Grey wagtail	-22[5]	20
Coot	97[1]	66	Pied wagtail	50	17
Oystercatcher	na	-10	Dipper	-7[5]	8
Golden plover	na	27	Wren	65	11
Lapwing	-47[1]	-17	Dunnock	-26	25
Woodcock	-79[1]	na	Robin	42	18
Snipe	na	14	Redstart	18[1,2]	30
Curlew	-53[1]	-37	Whinchat	na	-22
Redshank	na	-21	Stonechat	na	177
Common sandpiper	-22[5]	-11	Wheatear	na	13
Feral pigeon	na	-12	Blackbird	-17	18
Stock dove	88[1,4]	5	Song thrush	-50	17
Woodpigeon	109[2]	20	Mistle thrush	-41	-13
Collared dove	398[1,5]	39	Grasshopper warbler	na	49
Turtle dove	-83	-61	Sedge warbler	-19	0

Yellowhammers are not as common as they once were

Andy Hay (rspb-images.com)

	Long-term trend % (1970–2005)	BBS trend % (1994–2006)
Reed warbler	136[1,2]	37
Blackcap	142	67
Garden warbler	-3	-11
Lesser whitethroat	-1	-16
Whitethroat	-3	37
Wood warbler	na	-66
Chiffchaff	26	8
Willow warbler	-45[1]	-7
Goldcrest	-15[1,3]	37
Spotted flycatcher	-82	-29
Pied flycatcher	na	-44
Long-tailed tit	46[3]	1
Blue tit	35	20
Great tit	82	54
Coal tit	43	8
Willow tit	-87	-69
Marsh tit	-60	-10
Nuthatch	168	64
Treecreeper	1	30
Jay	-9	1
Magpie	97	-1
Jackdaw	101	27
Rook	na	-7
Carrion crow	80	21
Hooded crow	na	-28
Raven	na	57
Starling	-72[1]	-27
House sparrow	-64[2,7]	-6
Tree sparrow	-93	97
Chaffinch	38	17
Greenfinch	34	49
Goldfinch	50	21
Siskin	na	-15
Linnet	-53	-24
Lesser redpoll	-89[1]	4
Crossbill	na	-52
Bullfinch	-50	-28
Yellowhammer	-54	-16
Reed bunting	-34	39
Corn bunting	-89[2]	-39

Data are derived from Common Birds Census (CBC) plots from 1966 up to 2000 and the Breeding Bird Survey (BBS) from 1994 to 2006, except for long-term trends for **tufted ducks**, **grey wagtails**, **sand martins**, **dippers**, **kingfishers** and **common sandpipers**, which come from the Waterways Bird Survey (WBS 1974-2006). 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 2005 – 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 overall 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 2006.

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 2005.
6 Long-term trend 1972 to 2005.
7 Long-term trend 1977 to 2005.

More details on the BBS, including *The Breeding Bird Survey 2006* report, can be found at **www.bto.org/bbs**

Problems with migrants

In last year's report, we mentioned the worrying declines since the 1980s of long-distance migrants such as **garden warblers**, **willow warblers**, **wood warblers**, **redstarts**, **spotted flycatchers** and **tree pipits**, as revealed by the results of the Repeat Woodland Bird Survey. The long-term CBC-BBS trends reported here show that with the exception of **redstarts**, most of those declines continue. Moreover, other long-distance migrants such as **cuckoos**, **turtle doves**, **yellow wagtails**, **pied flycatchers**, **lesser whitethroats** and **whinchats** also exhibit significant long- or medium-term declines in numbers in the UK.

The suggested causes of declines among this group of species include habitat loss or deterioration on the wintering grounds, loss of staging areas, hunting pressure in southern Europe and north Africa, and climate change. Declines in a number of migrant warbler species, especially **whitethroats**, in the late 1960s were attributed to severe drought in the Sahel region of Africa where these species spend the winter. Analyses of current European population trends (as published in *Birds of Europe 2*) found that long-distance migrants that winter in arid, open habitats seem to be particularly affected, and it is suggested that reduced food availability and habitat degradation may have reduced over-winter survival. A complication is that many migrants may also be adversely affected by conditions on their breeding grounds in the UK, through loss of nesting or foraging habitat and reductions in food supply and availability, and these may be the true causes of decline. A number of research studies are underway to determine the relative roles of these factors and to identify the most effective conservation measures. Climate change is an over-riding force with a variety of effects on both the breeding and wintering grounds (including changes in food supply, changes in the timing of key events and through its effects on other species, such as competitors) as well as during migration. Moreover, because different species (or populations within a species) migrate through and winter in different areas, the impact of climate change is likely to vary widely.

Spotted flycatcher – a long-distance migrant of high conservation concern

Andy Hay (rspb-images.com)

Andy Hay (rspb-images.com)

Breeding hen harriers are still rare in England

Upland birds

Concerns have been raised about the status of upland birds in the UK, and a number of species (eg **peregrine**, **ring ouzel**, **hen harrier**) have been the subject of periodic surveys and reported in recent *The state of the UK's birds* publications. A re-survey of upland sites from 2000-2002 revealed significant declines in wading birds such as **curlews**, **dunlins** and **lapwings**, as well as **ring ouzels** and **twites**, since the 1980s. In addition, surveys of designated sites have identified declines in the numbers of some species on some of our most important upland sites (see pages 30–31). Low numbers of upland raptors such as **hen harriers** (see page 17), as well as a continuing decline in **black grouse** (as reported last year), remain a concern, although trends across the UK vary. Many of these species, along with species such as the **tree pipit**, are on the new UK BAP priority list (page 9).

The causes of declines in upland birds vary between species, with problems potentially arising from increased grazing pressure, changes in land use (for example, changes from heather grouse moors to grassland, land abandonment and afforestation) and climate change. A lack of long-term monitoring is a severe limitation in identifying causal links. To improve this situation, a new broad-scale survey aimed at upland birds was started in 2006. Initially only being run in some of the more remote areas of England, the Upland Breeding Bird Survey (UBBS) uses BBS methods (line transects in random 1-km squares). The results will be combined with the core BBS to produce reliable population trends for a much wider range of species than is currently possible – from **whinchats** to **golden plovers** – across the UK and within its constituent countries. A key aim is to combine these species trends to produce an upland bird indicator to lie alongside the well-established farmland, woodland and seabird indicators.

The Rare Breeding Birds Panel

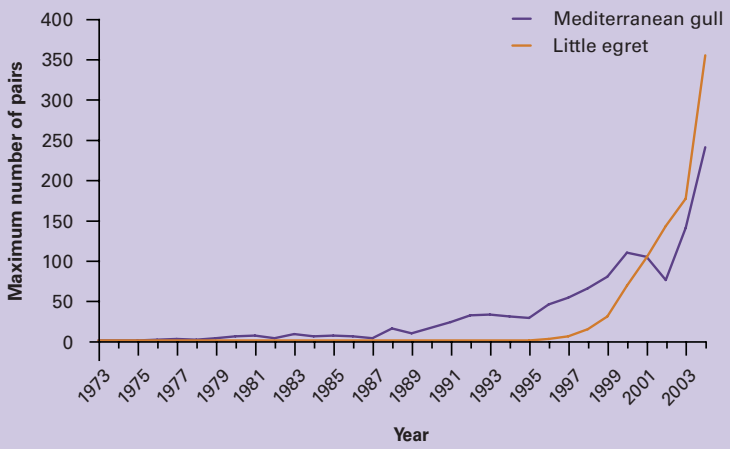
The Rare Breeding Birds Panel (RBBP) is an independent body that collects, collates and reports on rare breeding birds in the UK. The RBBP was formed in 1972 and has reported annually since 1973. The panel works in collaboration with county bird clubs and societies, raptor study groups and other specialist groups. The RBBP is the only source of national monitoring data for many of the UK's breeding birds.

A number of species covered by RBBP have shown a large increase in recent years. For example, the rapid growth in the number of nesting pairs of **little egrets**, from 1999 onwards (following first breeding in 1996), continues. By 2004, there were up to 357 pairs in the UK, with most of the increase within established colonies along the east and south-east coasts of England. There has been a modest increase or stability elsewhere, with breeding reported in Wales from 2003 onwards. The largest colonies in 2004 were at Foulness, Essex, with 51 pairs and Northward Hill, Kent, with 45 pairs.

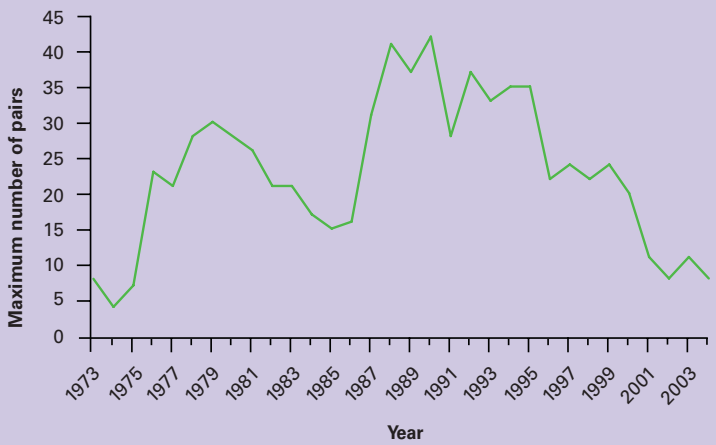
Similarly, although **Mediterranean gulls** first bred in the UK in the late 1960s, the population remained very small for many years. However, the number of breeding pairs started to climb in the late 1990s and reached record levels in 2004, following a slight dip in 2001–02. A maximum of 241 pairs bred in 2004 in England and Northern Ireland (the latter where the species has just started to breed in small numbers), although the number of occupied sites has remained relatively stable since the late 1990s. The largest colony in 2004 was at Langstone Harbour in Hampshire, where 57 pairs bred.

One RBBP species that has shown a steep decline in recent years is the **golden oriole**. The population peaked in the late 1980s but numbers are now just a fifth of what they were in 1990. Two large between-year drops, in 1996 and 2001, have contributed to much of the decline. Since 2001, the population has apparently stabilised at 8-11 pairs, at a similar number of sites.

Little egret and Mediterranean gull trends



Golden oriole trends



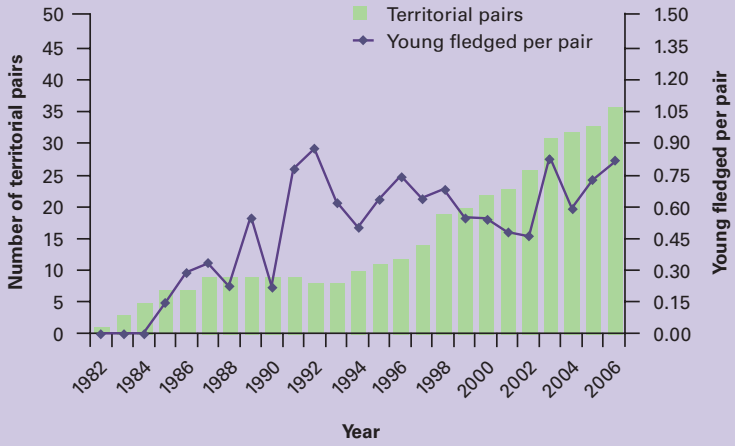
Raptor round-up

Birds of prey provide some of the greatest conservation success stories of recent times. Legal protection has played a major role in enabling most populations to recover, while carefully constructed reintroduction programmes have helped some species.

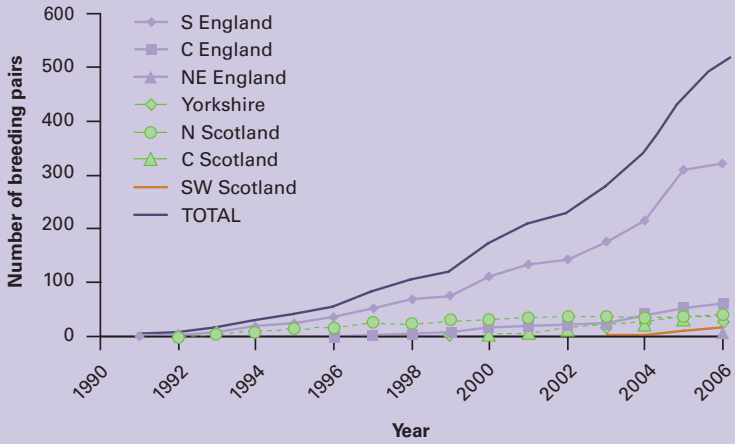
White-tailed eagles were reintroduced to western Scotland from 1975 (first by the former Nature Conservancy Council and latterly by SNH, in association with the RSPB). The population is slowly increasing, with 36 territories occupied in 2006. Further reintroduction projects are planned in eastern Scotland (led by the RSPB, with SNH) and eastern England (led by Natural England). A long-running species protection initiative has seen the Welsh population of **red kites** increase from the point of extinction in the early 20th century to around 500 pairs today. Just one or two breeding pairs remained during the 1930s, and a slow increase in numbers and range began after the Second World War. A reintroduction programme began in England and Scotland in 1989. The southern England population is now in excess of 350 pairs but the northern Scotland population remains around 40 pairs, with illegal poisoning thought to be preventing population growth.

Although the 2004 survey of breeding **hen harriers** showed that numbers had increased, particularly in the north and west of the UK, to over 800 pairs, they had continued to decline in some regions. The **hen harrier** remains a rare breeding bird in England. Small numbers have bred in the north of England, primarily in the Forest of Bowland, Lancashire, and Geltsdale, North Pennines, since returning from previous extirpation in 1958. The population in England declined between 1970 and 2000, when just five pairs bred successfully. Numbers have fluctuated since then, reaching a high of 15 successful pairs in 2005. In 2006, just 12 pairs were known to have nested successfully, kept well below the potential carrying capacity of available habitat by illegal persecution; it is estimated that English moors are capable of holding over 200 breeding pairs.

Trends in white-tailed eagle numbers and productivity



Trends for reintroduced red kite populations



Other recent surveys

The fourth national survey of Dartford warblers, in 2006, estimated the UK population to be 3208 territories (95% confidence limits 2899–3576), an increase of 70% since the previous survey in 1994. There were an estimated 3135 territories in England, and an estimated 71 in Wales, which is a good increase since the first breeding record there in 1998. A further 85 territories were found in the Channel Islands, mainly on Jersey. There has been a startling range expansion in England, with a 114% increase in the number of occupied 10-km squares since 1994.

Surveys of **red-throated** and **black-throated divers** in Scotland in 2006 revealed good news for both species.

Red-throated divers have increased by 34% since the last survey in 1994, with an estimated 1255 breeding pairs (95% confidence limits 1026-1544). Numbers have remained stable in the Shetland stronghold, with the increases coming in the rest of the range, especially in the Hebridean islands.

The survey of **black-throated divers**, again the first full survey since 1994, estimated there were 217 summer territories (95% confidence limits 190-252), the highest total ever. This is a significant increase of 16% from the previous survey (based on a re-analysis of the 1994 data). Increases were detected throughout the Scottish range, particularly noticeable in the Outer Hebrides, with a population increase of over 50%.

2006 saw the highest total of black-throated divers ever recorded

Danny Green (rspb-images.com)

Dartford warblers are doing well

Mike Read (rspb-images.com)

Breeding seabirds

2006 was an unremarkable year for seabird productivity when viewed against the widespread failures of 2004. Most species experienced productivity at or marginally below their long-term average in most regions of the UK.

The exception was the west coast, where productivity was the lowest on record for **cormorants**, **shags**, **Arctic skuas**, **kittiwakes** and **guillemots**. These failures were evident from Handa, in the far north-west of Scotland, down to Rathlin Island off the northern tip of Northern Ireland. Monitoring in the Republic of Ireland showed that the failures extended farther south along the west coast into Donegal, but productivity returned to normal levels to the south of there and along the eastern shores of the Irish Sea.

Atypically large post-fledging wrecks of **guillemots** occurred along western coasts in August, suggesting that the survival rates of those birds that did manage to fledge was low. **Guillemots** also had their worst breeding season on record on the east coast, but most other species in the region achieved average productivity.

The failures appeared to be related to poor food availability, with large numbers of **guillemot** chicks being unattended by adults and dying on the ledges or in the water under the colony: events that had not been witnessed prior to 2005. Recent research suggests that **guillemots**, being single prey loaders (they carry single prey items at a time), are more sensitive to variations in prey quality rather than abundance, which may explain why they have suffered failure on the east coast while multi-prey loaders (which can carry many prey items together) achieved average success.

JNCC, the RSPB, SNH and the Centre for Ecology and Hydrology are currently developing a seabird indicator based on productivity rather than population trends: initially being developed for Scotland, this approach will be extended to the UK. Given the longevity of most seabird species, catastrophic failures in breeding success may take many years to become apparent in conventional population indicators, hence these new productivity-based indicators may prove a more responsive barometer of the fortunes of our breeding seabirds. We hope to be able to report on this work in next year's report.

Guillemots had the lowest productivity on record on both the west and east coasts

Danny Green (rspb-images.com)

Wintering waterbirds in the UK

Dunlin

Sue Tranter (rspb-images.com)

The UK supports massive 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 a 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.

Trends in wintering waterbirds

The latest wintering waterbird indicator on page 2 of this report shows trends in overall numbers for 39 species or populations. Whilst this represents the overall pattern of change for waterbird abundance over the last three decades, the trends for individual species or populations differ.

Of most concern are those species showing sustained declines. Seven species (European **white-fronted goose**, **shelduck**, **mallard**, **pochard**, **ringed plover**, **dunlin** and **turnstone**) have all declined over both the long-term and in the last 10 years. Here, we present species trends produced using a new, more advanced method of modelling; some of the differences from those reported in previous reports will be due to this change.

Whilst the precise reasons for decline of each species vary (and some are not yet well understood), a common theme appears to be one of climate change. As winter weather ameliorates, and areas closer to the breeding grounds become more habitable year-round, the need for some of these species to migrate as far as the UK to winter is decreasing.

Trends in wintering waterbirds

Species/population	Long-term trend %	Ten-year trend %
Mute swan	124	39
Bewick's swan	38	-12
Whooper swan	220	167
Pink-footed goose	256	25
European white-fronted goose	-63	-45
Greenland white-fronted goose	n/a	-3
Icelandic greylag goose	19	-6
Re-established greylag goose	>1000	121
Canada goose	223	49
Greenland barnacle goose	n/a	50
Svalbard barnacle goose	233	79
Dark-bellied brent goose	21	-29
Canadian light-bellied brent goose	n/a	17
Svalbard light-bellied brent goose	256	92
Shelduck	-20	-17
Wigeon	58	25
Gadwall	432	80
Teal	55	16
Mallard	-32	-13
Pintail	-15	17
Shoveler	26	11
Pochard	-23	-19
Tufted duck	17	18
Goldeneye	30	-8
Red-breasted merganser	16	-25
Goosander	53	-11
Ruddy duck	569	81
Little grebe	n/a	58
Great crested grebe	n/a	13
Cormorant	n/a	25
Coot	n/a	16
Oystercatcher	17	1
Avocet	>1000	156
Ringed plover	-14	-18
Grey plover	144	-17
Knot	29	-4
Sanderling	-13	14
Dunlin	-15	-15
Black-tailed godwit	389	132
Bar-tailed godwit	2	11
Curlew	46	-1
Redshank	25	10
Turnstone	-13	-25

Greylag goose

David Kjaer (rspb-images.com)

Trend figures are derived from the Wetland Bird Survey and Goose & Swan Monitoring Programme.

Lower coverage of non-estuarine habitats means that trends for species found largely on open coastlines (eg **sanderlings**) 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 1978/79 and 2003/04.

Ten-year trends are the percentage changes between the smoothed index values for 1993/94 and 2003/04.

Calculation of smoothed indices by use of a generalised additive model is detailed further at **www.bto.org/webs/alerts/alerts**

National monitoring of Greenland **white-fronted 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 10-year trends are shown.

Wading birds

The UK is of vital international importance for many species of wader, with estuaries being of key importance to most of these. The indicator for 12 key wader species shows that, on average, abundance has increased by about 70% over the last three decades. However, this overall pattern hides a wide range of variation between species.

Wintering black-tailed godwits have increased in number

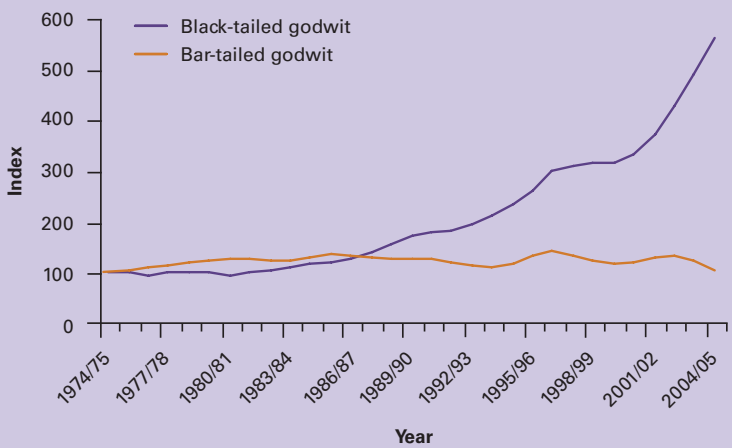
Roger Wilmshurst (rspb-images.com)

Avocets and **black-tailed godwits** have increased dramatically, and continue to do so, whilst **redshanks** are increasing at a more modest pace.

The increase in wintering numbers of the Iceland-breeding **black-tailed godwit** is in contrast to the relatively stable numbers of **bar-tailed godwits** that winter in the UK, coming here from northern Scandinavia and Russia (see graph below left).

However, a number of species show trends with an initial increase in numbers but subsequent declines. For example, wintering **grey plovers** increased in numbers sharply from the mid-1970s to their peak in the mid-1990s, since when a substantial decline has occurred. The decline in **turnstones** is not so rapid but has been steady since the late 1980s.

Trends in wintering black-tailed godwits and bar-tailed godwits



Andy Hay (rspb-images.com)

Grey plover

David Tipling (rspb-images.com)

Pochard

The Wetland Bird Survey Alerts

The online Wetland Bird Survey (WeBS) Alerts system is establishing itself as the first port of call for those with an interest in waterbird trends, with trends at over 80 Special Protection Areas (SPAs) and 50 Sites of Special Scientific Interest (SSSIs) considered in detail, as well as national trends for species. The UK government has a legal obligation to monitor SPAs and to ensure that they remain in favourable status – see pages 29-31 for examples of how this is done for breeding birds.

Site accounts include trends and percentage changes over 5, 10 and 25 years in the wintering waterbird species for which each protected site was designated (species features). In order to put these site-specific trends into perspective, comparisons are made to regional and national trends. Alerts are triggered when the percentage change over a given timeframe equates to declines in excess of 25% (medium alert) or 50% (high alert). The purpose of these alerts is to focus attention towards trends that may give cause for concern; such alerts can precipitate focused site-based or wider investigation and subsequent conservation action.

Previous WeBS Alerts reports have highlighted very large declines in the numbers of **pochards**, **goldeneyes**, **tufted ducks** and **scaups** overwintering on Loughs Neagh and Beg, Northern Ireland. Although there is continued evidence for a decline in **pochard** numbers on these loughs, declines in the numbers of **goldeneyes** and **tufted ducks** seem to have abated (although **tufted ducks** remain at low levels) and the numbers of **scaups** in 2004/05 were the highest on record. Another potential story of conservation concern highlighted in the current WeBS Alerts report is of a precipitous decline in **pintails** on the Mersey Estuary, triggering a 25-year high alert. Up to the mid-'80s, nearly 20,000 **pintails** regularly overwintered on the Mersey but now as few as 200 are present.

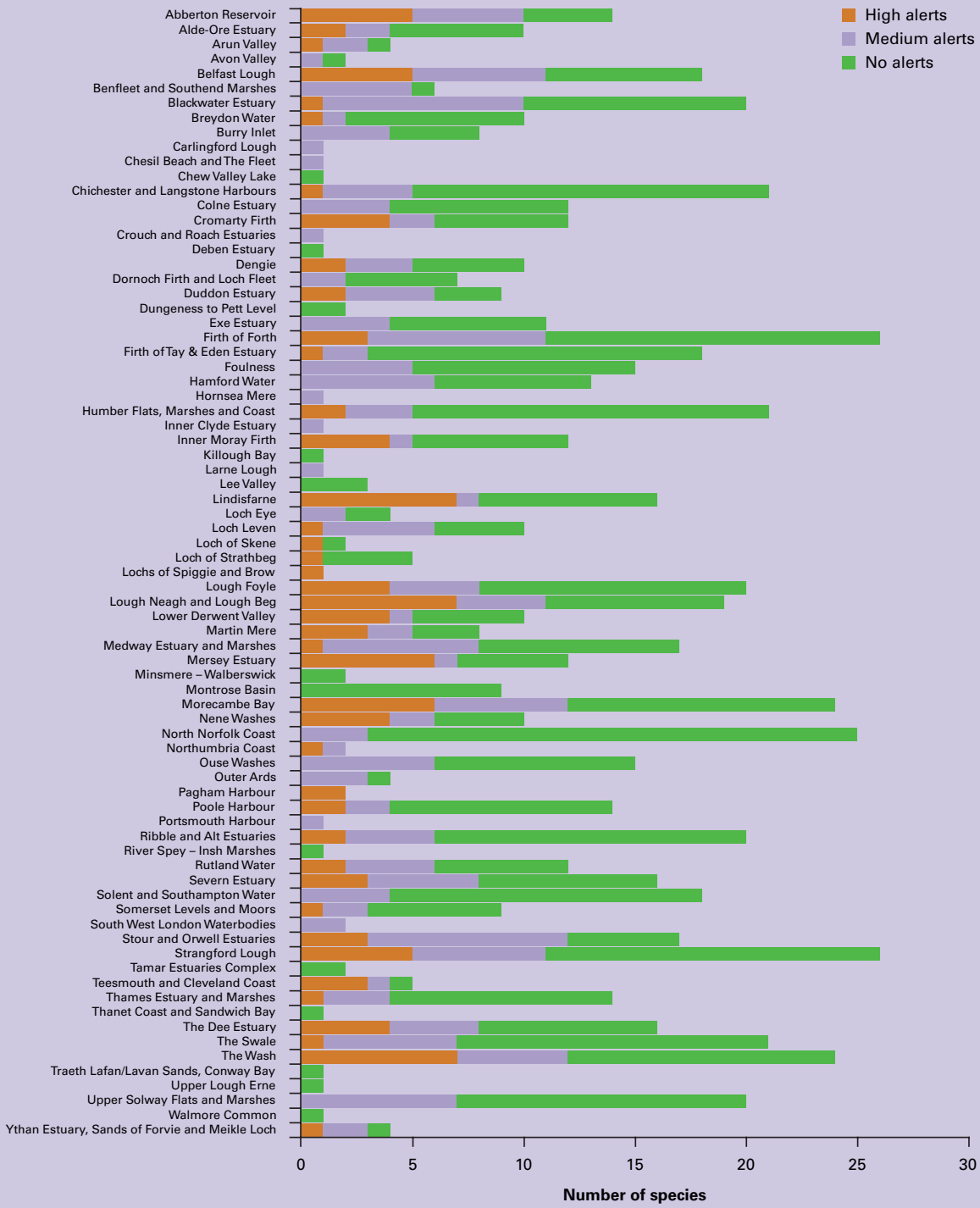
The figure, right, summarises the alerts status on a site-by-site basis for all the species features of the SPAs considered. SPAs giving particular cause for concern include Abberton Reservoir, Belfast Lough, Loughs Neagh and Beg, and the Stour and Orwell Estuaries, all of which have been assessed for 10 or more species and for which alerts have been triggered for more than half of those species.

Trends across SPA suites

Alert assessments are also made across the entire suite of SPAs. These assessments help us to understand how the SPA network as a whole is contributing to the conservation of a given species. For example, whereas there has been a 25-year decline in the number of **pochards** overwintering in the UK, numbers recorded across the SPA suite have increased over the same period so that the proportion recorded on the SPA suite has risen from 10 to 20%; this indicates that the SPA network is increasingly important for the conservation of this species.

The WeBS Alerts system reports on waterbird trends for countries and for designated sites and can be found online at **www.bto.org/webs/alerts/alerts**

WeBS Alerts status of SPAs in the UK



The International Swan Census

The International Swan Census is conducted every five years and provides the most comprehensive counts of Icelandic **whooper swans** and north-west European **Bewick's swans**, both in the UK and elsewhere on their respective flyways. Results of the most recent census, carried out in January 2005, show differing trends for these species within the UK.

Icelandic **whooper swans** (which winter mostly in Britain and Ireland) have undergone a period of sustained growth in numbers since the mid-1990s. The total counted in the UK in January 2005 was the highest to date (15,062), representing a 42% increase on the previous census in January 2000, and a 93% increase since 1995. The overall census total across the range also mirrors this increase, with an average annual rate of change of 4.8% since 2000, and a 66% increase in total numbers (15,842 to 26,366) between 1995 and 2005.

Since 2000, numbers have increased in all UK countries except Wales, with the largest growth in England. The large rise in numbers is almost completely accommodated at just two sites: Ouse Washes in Norfolk, and Martin Mere in Lancashire, which together held 86% of the UK census total in 2005.

It is possible that the increasing numbers of **whooper swans**, particularly in eastern England, may be inflated somewhat by an increasing proportion of birds from the north-west European population wintering in Britain. This population breeds in Fenno-Scandia and north-west Russia and winters in continental Europe, but the occurrence of marked birds has confirmed that a small number also winter in Britain.

In contrast, the number of north-west European **Bewick's swans** wintering in the UK has been relatively stable at just over 7000 birds since the mid 1990s. Eastern England continues to hold the largest concentrations, with the Ouse Washes regularly holding internationally important numbers, and accounting for 77% of all **Bewick's swans** in Britain and Ireland during the census. Although annual fluctuations occur at the Ouse Washes, numbers have continued to rise with a 7% increase between January 1995 and January 2005. By contrast, numbers in the rest of Britain fell by 39%.

As a whole, this population (including those on the continent) underwent a substantial increase from 16,046 to 29,277 between 1987 and 1995, mostly in the Netherlands. Subsequent census data from elsewhere in north-west Europe have yet to be published, but numbers have declined in the Netherlands, where the majority of the population occurs. These results will help to determine whether declining numbers in parts of Britain and Ireland reflect a wider decline at the population scale, or whether changing climatic conditions (warmer winters) are encouraging more swans to remain closer to their breeding grounds.

Numbers of whooper and Bewick's swans in the UK, January 2005

Country	Number of whooper swans	Percentage change 2000-2005	Number of Bewick's swans	Percentage change 2000-2005
Northern Ireland	4331	18	13	-62
England	6495	64	6980	-3
Wales	94	-16	12	-
Scotland	4142	45	0	-
UK total	15,062	42	7005	-3
International census total	26,366	26	na[1]	-

[1]International total not yet available; UK and Republic of Ireland total is 7216.

Non-native bird species and the environment

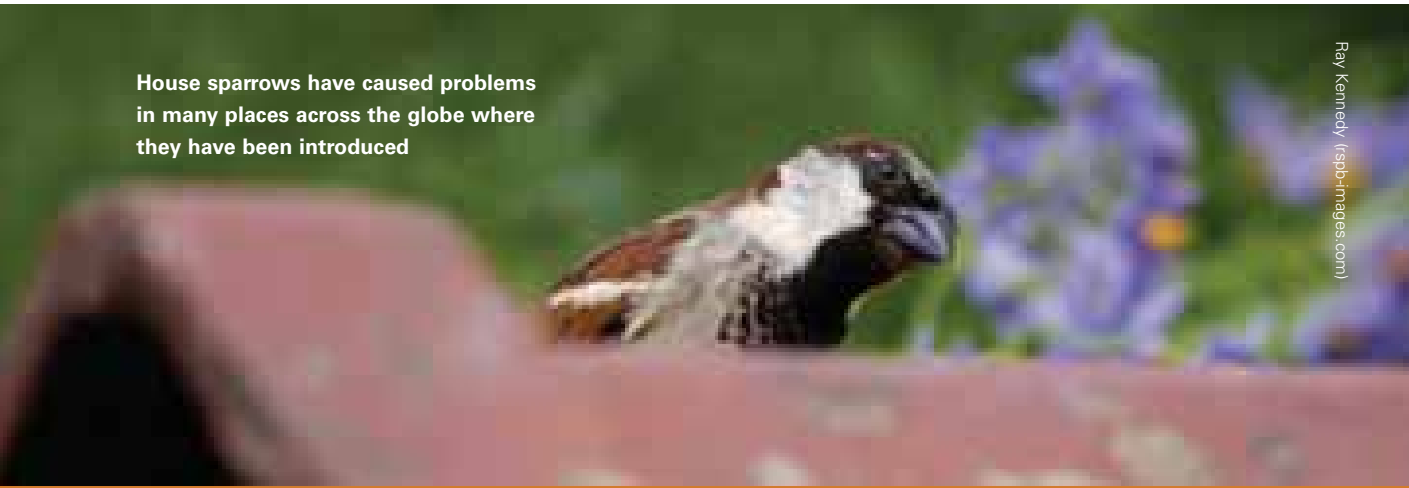
Whether deliberate or accidental, the introduction of species beyond their native range is a major cause of biodiversity loss throughout the world, as well as causing economic damage to agriculture, forestry, aquaculture and other human activities. In the United States alone, economic damage attributable to non-native species is estimated to have cost $97 billion. Within the UK Biodiversity Action Plan, non-native species are cited as threatening factors in 17 habitat action plans (23% of action plans) and 46 species action plans (12%), with effects including competition (62%), habitat loss or degradation (18%), predation (12%) and disease (8%).

An example can be seen in the spread of the **house sparrow** around the world; a species popular in its native range (indeed, a cause for conservation concern currently), which has shown the ability to cause problems when introduced elsewhere. By 1850, the sparrow had been introduced into the US and Canada as a biological control agent for a geometrid moth that was defoliating trees. It failed to destroy the moth but, by making use of grain spilled from horses' nosebags and aided in its dispersal by paddle steamers and rapid urbanisation, in one year it expanded its range by 1.25 million km^2. By 1920 it was the commonest breeding bird in many parts of the US and a real pest, causing massive agricultural damage and affecting 70 native species.

The **house sparrow** has also had a major impact in other countries where it has been introduced, causing agricultural damage in Brazil and New Zealand, for example. In South Africa, expansion was inhibited initially by interspecific competition with the indigenous **Cape** and **grey-headed sparrows** but now the **house sparrow** has ousted the **Cape sparrow** from much of its original habitat. In the Cape Verde Islands, the introduction of the **house sparrow** led to the local extinction of **Spanish sparrows**.

The requirement to prevent the introduction of non-native species that threaten native biodiversity, or to control those already established, is expressed in the EU Birds and Habitats Directives and the Biodiversity, Bern and Bonn Conventions. Under the Bonn Convention, which seeks to conserve migratory species, a questionnaire survey asking Government and local ornithologists to identify the number of introduced waterbird species in over 110 states demonstrated the scale of the problem.

For example, the UK held 72 introduced waterbird species, Switzerland 43, the United Arab Emirates and South Africa 24 each, Germany 21, The Netherlands 20, France and Italy 17, Austria 16 and Belgium 15. Despite the threats they pose being well recognised, little is known about the effect that even common introduced species have on the wider environment in Britain apart from largely anecdotal evidence (see next page).



House sparrows have caused problems in many places across the globe where they have been introduced

Ray Kennedy (rspb-images.com)

Greater Canada geese

There are around 90,000 **greater Canada geese** in Britain (the smaller **lesser Canada goose** is a rare vagrant to the UK) and their numbers are increasing by 9% per year. The species is not globally threatened and has been widely released in Europe; in the UK, it was first introduced in the 17th century for wildfowl collections, food and hunting.

Large numbers of **greater Canada geese** can dominate the breeding avifauna of some lowland freshwater ecosystems and can contribute to water eutrophication and ground erosion; they can also be agricultural pests. In the African-Eurasian Waterbird Agreement's *Draft conservation guidelines on avoidance of introductions of non-native migratory waterbird species* **greater Canada geese** are listed as being of medium biodiversity risk, as 'negative impacts on biodiversity [are] little understood, but [there is] some evidence of local problems through grazing, competition and eutrophication of wetlands'.

Canada geese – increasing by 9% a year

Ben Hall (rspb-images.com)

Green and gold: ring-necked parakeets and golden pheasants

The non-native species best known to the public are those that cause obvious problems. **Ruddy ducks** threaten the rare and endangered **white-headed duck** through hybridisation and potentially competition, and are subject to an eradication programme in the UK.

The **ring-necked parakeet** is an agricultural pest in many countries where it has been introduced, and could become so in the UK. Although breeding was recorded in the UK as far back as the 19th century, it was not until 1969 that birds began breeding in Kent, and then spread to much of the London area: the population now numbers several thousand birds and **ring-necked parakeets** are a familiar sight to many people. Parakeets may compete directly with native species for nest holes, and research to establish the scale of any effect is needed urgently.

In contrast, although the shy and retiring **golden pheasant** was introduced into Britain in the mid 19th century, the general public is largely unaware of it. Originating from China, this exotic species established itself in several areas of Britain, but numbers are now falling. Up to 100 males were seen in Thetford Forest, Norfolk, in the 1950s, but it is now unusual to see more than a couple together and it is probably extinct in Scotland. It is remarkable how little is known about a species so long established in the wild, and demonstrates the lack of research into introduced species at present.

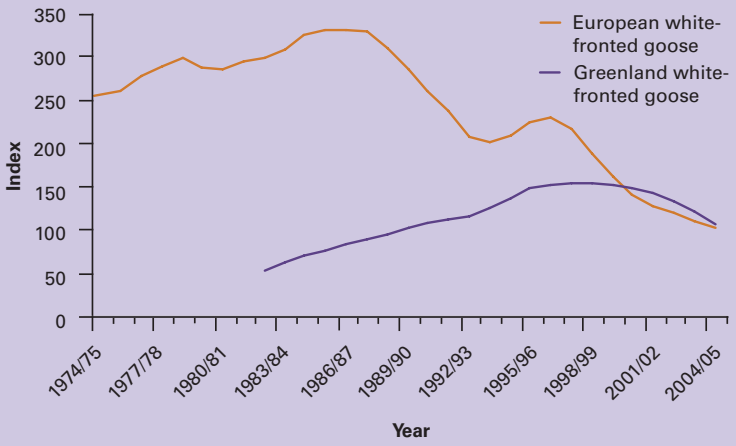
Ring-necked parakeets are now fairly common in London

Mike Lane (rspb-images.com)

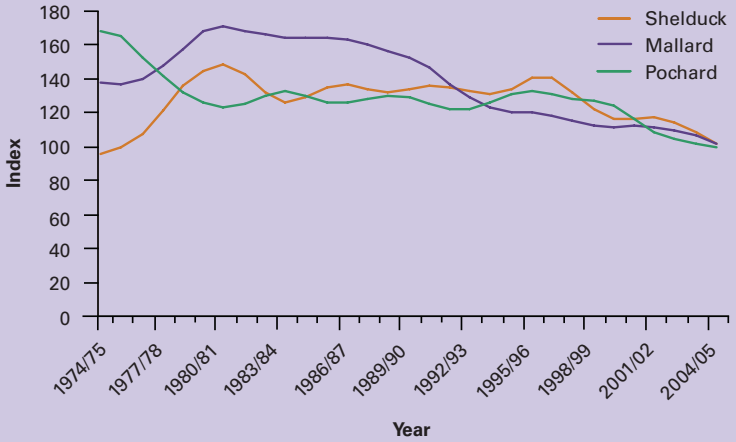
Wildfowl and allies

Overall, populations of wintering wildfowl in the UK have increased substantially over the last three decades, with the wildfowl indicator showing there to be about 2.5 times as many birds present now as there were 30 years ago. As with the waders, however, closer examination reveals there to be major differences between species.

Trends in wintering white-fronted geese



Trends in wintering shelducks, mallards and pochards



Many goose populations, both wild and introduced, are showing sustained increases. However, the two populations of **white-fronted geese** (see graph left), as well as the dark-bellied **brent goose**, are currently in a state of decline. Whilst the reduction in wintering numbers of European **white-fronted geese**, which breed in Russia, is due to the birds remaining in mainland Europe for the winter, recent reductions in Greenland **white-fronted geese** reflect the decline in the entire world population of this sub-species (which only winters in the UK and Republic of Ireland).

Amongst the ducks, **gadwalls** continue to increase strongly and numbers of **wigeons**, **teals**, **shovelers** and **tufted ducks** are all at a high level. The consistent decline in **mallard** and **pochard** numbers continues, however, and **shelducks** have reached their lowest level since the mid-1970s. **Goldeneye**, **red-breasted merganser** and **goosander** numbers have also declined sharply since the mid-1990s. The rapid increase of the introduced **ruddy duck** appears to have been reversed very recently, as a result of control measures being implemented as part of the conservation effort to safeguard the globally threatened **white-headed duck**.

For more details on the Wetland Bird Survey, visit **www.bto.org/webs**. For more details on the Goose & Swan Monitoring Programme, visit **www.wwt.org.uk/research/monitoring**

Monitoring birds on designated sites

Information from surveys plays a pivotal role in safeguarding the UK's important areas for birds. Bird survey data underpin the designation of sites of national and international significance as Sites or Areas (in Northern Ireland) of Special Scientific Interest (SSSIs/ASSIs) and Special Protection Areas (SPAs), and are central to their subsequent management, allowing the impacts of proposed activities or developments to be assessed.

In 1999, the UK's statutory conservation agencies began to develop a monitoring programme for designated sites which will regularly assess the condition of interest features (species, habitats and earth science features) at a site level. This approach, known as Common Standards Monitoring, has two main benefits. At the site level, it enables the success of management measures to be assessed, while at broader scales it can help to review the effectiveness of legislation and policies affecting designated sites.

Twite

Andy Hay (rspb-images.com)

Birds are an interest feature of many designated sites. Around two-fifths of the area covered by SSSIs and ASSIs are SPAs because of birds.

Such features can be broadly described under three categories:

- **aggregations of breeding birds** such as seabird colonies or concentrations of breeding waders;
- **assemblages of breeding birds** associated with particular habitats (eg upland moorland);
- **aggregations of non-breeding birds,** typically wetlands supporting concentrations of overwintering waders and wildfowl.

Some of these features are monitored routinely by existing site-based bird surveys, most notably WeBS whose system of site-based Alerts has been designed to feed directly into the site monitoring programme (see page 24).

However, dedicated site-based surveys are usually necessary for habitats or areas that are difficult to survey with volunteer-based schemes, for example, remote uplands or coastal/maritime areas. In such cases, these surveys might be the first to completely cover a site since the original data underpinning site selection were collected. Overleaf, we look at the results of three recent surveys of birds in designated sites.


Wheatear

Sue Tranter (rspb-images.com)

The South Pennines

A systematic survey back in 1990 led to the designation of over 66,200 hectares of moorland as the South Pennines SPA. New surveys in 2004 and 2005 allow a comparison to be made with the 1990 baseline across the whole area (see table below).

Changes in the numbers of key breeding birds in the South Pennines SPA between 1990 and 2004-05

Species	Number of breeding pairs 1990	2004-05	% change
Golden plover	720	720	0
Lapwing	159	286	80
Redshank	45	26	-42
Curlew	773	1010	31
Snipe	203	235	16
Dunlin	147	100	-32
Common sandpiper	29	62	114
Short-eared owl	22	33	50
Wheatear	166	75	-55
Whinchat	107	127	19
Ring ouzel	128	104	-19
Twite	417	66	-84

This suggests that the birds here have experienced mixed fortunes over the last 15 years, with very worrying declines in **redshanks**, **dunlins**, **wheatears** and especially **twites**, and encouraging increases in **lapwings**, **curlews**, **common sandpipers** and **short-eared owls**. The numbers of **golden plovers** were exactly the same in both survey periods. Subsequent analyses of the Peak District data in relation to habitat structure and management suggest that no single factor is responsible for these changes, which were probably due to a combination of on- and off-site factors.


Fulmar

Andy Hay (rspb-images.com)

The Isles of Scilly

The breeding seabirds of the Isles of Scilly have been periodically censused since 1969. Data from the last national survey of seabirds, Seabird 2000, were used as the basis for designating Scilly as an SPA. In 2006, Natural England and the RSPB undertook another survey of the islands' seabirds, the results of which are compared to the Seabird 2000 data in the table right. Whilst there had only been a gap of six or seven years between the surveys of each species, there

Lewis Peatlands

The Lewis Peatlands SPA is one of the most important designated sites for breeding waders in the UK. Recent monitoring has attempted to re-evaluate the site's importance and determine what changes have occurred over the years since its designation.

Changes in the numbers of key breeding birds in the Lewis Peatlands SPA between 1994-96 and 2004

Species	Number of breeding pairs Surveys for designation (1994-1996)	Common Standards Monitoring (2004)	% change
Red-throated diver	80	57	-29
Black-throated diver	13	12	stable
Golden eagle	5	5	stable
Merlin	20	24	20
Golden plover	1800	1602*	-11
Dunlin	3400	4386*	29
Greenshank	140	109*	4

*Estimates based on plot counts within Lewis Peatlands SPA

The table, left, shows that for most species, numbers have been maintained at the levels they were at when the site was designated, or in some cases have increased. There is a suggestion that the figure for **golden plovers** (which is a mean of changes on a number of plots) is not representative; previous repeat upland bird surveys suggested that **golden plover** numbers have increased on the SPA, as do data from the environmental assessment for the Lewis wind farm.

Such survey data are important for casework (such as assessing the impact of proposed Lewis wind farms which would cover a significant proportion of the SPA) as well as indicating whether current management is appropriate. SNH's Lewis Peatlands Management Scheme is the main means for supporting appropriate management on the Lewis Peatlands, and appears to be effective in delivering favourable conditions for the site's breeding birds.

Changes in the numbers of key seabirds breeding in the Isles of Scilly SPA between Seabird 2000 and 2006

Species	Number of breeding pairs Seabird 2000	2006	% change
Fulmar	183	279	53
Manx shearwater	201	171	-15
Storm petrel	1475	1398	-5
Shag	1108	1286	17
Lesser black-backed gull	3608	3335	-8
Herring gull	903	715	-21
Great black-backed gull	808	901	12
Kittiwake	281	266	-6
Common tern	96	78	-19

have been some interesting changes in numbers. Some of these changes are a continuation of longer-term trends, such as the decline in **herring gulls** and the increase in **fulmars**, while others may show the start of new trends. There were also differing trends between islands, with the declines of gulls, in particular, a major concern on Annet which may be linked to colonisation by rats. Although the numbers of **kittiwakes** were similar to those recorded in Seabird 2000, their complete failure to produce young across all the islands in 2006 is also of concern (see also page 19).

Birds in the UK's Overseas Territories

Henderson fruit-dove

Michael Brooke

Murphy's petrel

Michael Brooke

The UK Overseas Territories (UKOTs) include some extremely out of the way places. Tristan da Cunha claims to be the most remote inhabited island on earth, and South Georgia has no permanent inhabitants at all. This has important implications for conservation. In some cases, threats are lessened by the sheer distance from centres of human population, but this is not the case for problems such as climate change and unsustainable fishing practices. A particular issue is the difficulty of conservation management and monitoring in places that have very small human populations and which are extremely difficult to visit. Here we focus on new initiatives in two Territories that have globally important yet very poorly known bird populations.

Pitcairn

The Pitcairn group lies in the central Pacific, and is best known for its association with the *Bounty* mutineers. The group comprises four islands, including Pitcairn (5 km^2), the only inhabited island, and Henderson, a 37 km^2 raised atoll, a World Heritage Site and arguably the most pristine such island in the Pacific. Nine bird species of global conservation concern, six of which are endemic, occur. The Territory also supports 14 seabird species, and is one of the world headquarters for gadfly petrels (*Pterodroma*), with five breeding species. Considering its global importance, remarkably little ornithological work has been conducted on the Territory, with most data coming from an expedition in 1991-92.

As with most UKOTs, conservation issues in the Pitcairn group revolve primarily around invasive non-native species (see also page 27). Kiore (Pacific rats) have been present on all four islands for several centuries, apparently arriving with Polynesian mariners.

The 1991-92 expedition discovered that breeding success of gadfly petrels on Henderson Island was close to zero, due to predation of chicks by kiore. Given the long co-existence of petrels and kiore on the islands, and the persistence of large populations of both, it was not clear at the time whether this was an unusual year.

A kiore eradication programme took place on Pitcairn, Oeno and Ducie in 1997 and 1998; it was successful on the latter two, but failed on Pitcairn. A repeat visit was made to Henderson in 2003, to investigate further the rat predation on petrel chicks. Predation rates on **Murphy's petrel** chicks were again extremely high, with video evidence confirming that kiore were the predators. The tentative conclusion is that petrel populations on Henderson are not self-sustaining; they are either in long-term decline or are sustained by immigration from other sites. This creates a major conservation concern for this otherwise undisturbed island, and the feasibility of kiore eradication is being assessed in 2007.

Henderson Island

Michael Brooke

Status of birds of global conservation concern that occur in the Pitcairn Group

Species	Red List status	Global distribution	Distribution & abundance on Pitcairn group
Phoenix petrel	EN	Kiribati, French Polynesia, Pitcairn	12-20 pairs Oeno Disappeared from Ducie in 20th century
Henderson petrel	EN	Endemic to Henderson according to current information	c16,000 pairs
Murphy's petrel	NT	French Polynesia, Cook Islands, Pitcairn	12,500 pairs Oeno; 250,000 pairs Ducie 2500 pairs Henderson
Bristle-thighed curlew	VU	Breeds Alaska, winters Pacific islands	Up to 50 Henderson; Up to 100 Oeno
Henderson crake	VU	Endemic to Henderson	Common throughout; 6200 individuals
Henderson fruit-dove	VU	Endemic to Henderson	Common throughout; 3140 individuals
Henderson lorikeet	VU	Endemic to Henderson	Patchily distributed; 720-1820 individuals
Henderson reed-warbler	VU	Endemic to Henderson	Common throughout; 9500 individuals
Pitcairn reed-warbler	VU	Endemic to Pitcairn	Pitcairn only; common & widespread, estimated 1500 individuals

EN = Endangered VU = Vulnerable NT = Near Threatened

Red-footed booby

Richard Revels (rspb-images.com)

Changes in counts of seabirds in the British Indian Ocean Territories, 1996-2006

Species	Breeding pairs 1996	Breeding pairs 2006	% change
Audubon's shearwater	582	183	-69
Wedge-tailed shearwater	3400	2863	-16
White-tailed tropicbird	13	7	-46
Brown booby	29	685	2262
Masked booby	525	171	-67
Red-footed booby	7165	8156	14
Lesser frigatebird	85	239	181
Great frigatebird	12	164	1267
Great crested tern	60	52	-13
Roseate tern	20	4	-80
Black-naped tern	29	69	138
Little tern	4	6	50
Bridled tern	15	6	-60
Sooty tern	73,000	82,208	13
Brown noddy	28,533	6433	-78
Lesser noddy	29,505	2682	-91
Common white tern	521	603	16

British Indian Ocean Territories

The British Indian Ocean Territories (BIOT), or Chagos Archipelago, comprises approximately 67 small, low-lying atolls and a vast area of submerged reefs at the end of the Maldives-Laccadives-Chagos ridge. It was inhabited until the late 1960s, but now has no permanent population, although it hosts the Diego Garcia military base.

The Territory is of enormous importance for its seabird colonies: over a hundred thousand pairs of at least 17 species nest each year. As with Pitcairn, while the marine environment is one of the most pristine on earth, the presence of rats on most islands is a serious problem; most of the islands with rats have few seabirds.

There is no formal monitoring scheme for birds in BIOT, but great progress has been made in the last two years. A survey of the Barton Point Important Bird Area (IBA) on Diego Garcia Island was conducted in 2005, with the intention that this monitoring will become annual. Observers were able to estimate the **red-footed booby** colony in the IBA at 4370 pairs, with **lesser and brown noddies** and **common white terns** also breeding. The booby colony appears to have been expanding since access to the colony area was restricted in the 1970s. A rolling programme of IBA surveys is also in development.

Complementing this localised monitoring scheme, an expeditionary survey of 26 of the islands was conducted in early 2006. This repeat of surveys in 1996 allows some intriguing comparisons to be made (see table above). There were notable increases in both frigatebird species, and an enormous growth in the **brown booby** population. Conversely, there were massive falls in the populations of both **brown noddies** and **lesser noddies**, amongst others.

The breeding phenology of tropical seabirds is complex, and in BIOT is poorly known; it is possible that the changes in counts reflect shifts in the timing of breeding, rather than in actual numbers. Without further monitoring it is impossible to know whether these changes represent trends, or just normal between-year variation; there is thus an urgent need for more systematic monitoring. Major changes may be happening on the islands, including some worrying declines, but with the current state of knowledge it is impossible to know for sure.

The value of volunteers in bird monitoring

Tree sparrow

Andy Hay (rspb-images.com)

Corn bunting

Chris Gomersall (rspb-images.com)

The invaluable contribution of volunteer birdwatchers to bird research and conservation in the UK is obvious from the sources of most of the information reported in *The state of the UK's birds* every year. However, this represents only part of the effort put in by volunteer birdwatchers on a variety of surveys and initiatives underway in the UK.

Firstly, garden bird surveys – the BTO/CJ Garden BirdWatch and the RSPB's Big Garden Birdwatch – collect information on birds in hundreds of thousands of gardens across the UK. These data are already used to assess bird abundance in towns and gardens in England for the Government's Biodiversity Indicators and to study differences in bird populations in urban, suburban and rural environments. Developments are currently underway to assess their use for monitoring rarer species and escaped exotics.

Another big player is BirdTrack, a year-round web-based survey that captures the species lists made by birdwatchers to regular birding haunts, and helps birders to manage their own birdwatching records, as well as feeding these records through to county bird recorders. Through BirdTrack (the full-year successor to Migration Watch), the seasonal movements of migrants can be tracked (and followed online with animated maps of weekly coverage) from first arrival on the south coast to the most northerly regions of Scotland.

BirdTrack is also being used as a key mechanism for collecting data on farmland and woodland species of conservation concern in the Bird Conservation Targeting Project. In this joint initiative, BirdTrack data, along with information provided by county bird recorders and bird clubs, and other national schemes such as the BBS, is used to identify areas with the most viable populations of key species of conservation concern, such as **tree sparrows** and **corn buntings**. The presence of key farmland or woodland species in the area can then be used to target Environmental Stewardship or Woodland Grants. Although current use focuses on England, it is planned to extend this approach to the rest of the UK. Examples of maps showing target areas for each species can be viewed on the BirdTrack website (**www.birdtrack.net**), and the full range of maps and further information for farmland birds can be accessed through Natural England's interactive website, Nature on the Map (**www.natureonthemap.org.uk**).

The large project on the horizon is the next UK Bird Atlas, organised by the BTO. Covering both the breeding and wintering field seasons, atlas work is planned to run from winter 2007/08 to summer 2011. An important element of the atlas fieldwork – essential for comparing the distributions and relative abundances of all species to those of 20 years ago – is timed visits to random tetrads in each of the UK's 10-km grid squares. However, the main aim is to obtain accurate breeding species lists for each 10-km square, and for this a wide variety of data sources can be used. Birdwatchers visiting any area during the atlas period will be encouraged to submit their records using any of the main web-based portals or national schemes.

What you can do to help

Current and planned surveys

The information summarised in *The state of the UK's birds 2006* is drawn from 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 on page 38.

The **Breeding Bird Survey** (BBS) is the monitoring scheme for common and widespread breeding land 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 RSPB and 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 (EHS) [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 & 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 design (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 BirdWatch 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].

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. **Common scoters** are being surveyed in 2007, whilst **Scottish crossbills** and **merlins** are likely to be surveyed in 2008 [contact the RSPB].

Bird Atlas, 2007-2011. Twenty years since the last breeding atlas, and 25 years on from the last winter atlas, the BTO, BirdWatch Ireland and Scottish Ornithologists' Club are teaming up to produce the next landmark atlas to document the changing distribution of the avifauna of Britain and Ireland. This atlas will combine winter and breeding season fieldwork and will start in the winter of 2007/08 and the breeding season of 2008. More details can be found at **www.birdatlas.net** [contact the BTO].

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Monitoring of birds in the UK, such as that 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.

Finally, 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.

Lesser spotted woodpeckers are still declining

Danny Green (rspb-images.com)

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

The state of the UK's birds 2006 is also available online on the websites of the BTO, the RSPB and WWT (see addresses left).

Mute swan

David Osborn (rspb-images.com)

The RSPB is the UK charity working to secure a healthy environment for birds and wildlife, helping to create a better world for us all. 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 records 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 **Environment and Heritage Service (Northern Ireland)** is to protect and conserve 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: cuckoo by Peter Cairns (rspb-images.com)

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