Breeding Birds in the Wider Countryside: their conservation status 2010

Baillie, S.R., Marchant, J.H., Leech, D.I., Renwick, A.R., Joys, A.C., Noble, D.G., Barimore, C., Conway, G.J., Downie, I.S., Risely, K. & Robinson, R.A.

BTO Birds Science People

Breeding Birds in the Wider Countryside: their conservation status 2010

Trends in numbers and breeding performance for UK birds

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Red Kite has been added to the report this year (along with Common Crossbill) because numbers counted on BBS squares are now sufficient for annual monitoring

Using this web site

This web site is a one-stop shop for information about the population status of our common terrestrial birds. It is based on data gathered by many thousands of volunteers who contribute to BTO-led surveys. With one web page per species, users can quickly find all the key information about trends in population size and breeding performance over the period 1966–2009, as measured by BTO monitoring schemes.

The **summary of key findings** provides a brief overview of our main findings this year. For each species, we provide:

- General information concerning species' conservation listings and UK population sizes
- A brief summary of observed changes in the size of the population and information concerning the possible causes of these changes
- A series of graphs and tables showing the trends and changes in population size and breeding performance over the past 41 years
- Trends calculated from BTO/JNCC/RSPB Breeding Bird Survey (BBS) data, not only for the UK as a whole but also for each of its constituent countries (England, Scotland, Wales and Northern Ireland)
- Alerts that highlight population declines in any census scheme of greater than 25% or greater than 50% that have occurred over the past 5 years, 10 years, 25 years and the maximum period available (usually 41 years).

Other pages provide details of the field and analytical **methods** that were used to produce the results for each species and of the methods used to identify **alerts**. We **discuss** overall patterns of trends in abundance and breeding success, and compare the latest trend information and alerts with the *Birds of Conservation Concern* list (**Eaton *et al.* 2009**). Four **appendices** list alerts and population changes by scheme, and there is also a facility to select and display your own **tables of population change**. A detailed **references** section lists more than 300 of the most relevant recent publications, with onward links to abstracts or full text where freely available, and is a valuable key to recent scientific work by BTO and other researchers.

You can navigate your way around the site using links from the **contents page**, from the **species index**, and between sections. Alternatively, use the drop-down menus accessible from the menu bar at the top of each page. 'Species quick links', on the right-hand side of the menu bar, provides a drop-down list (in taxonomic order) with quick access to the species accounts.

The website covers the majority of British breeding birds, 117 species in total, but excludes (with a few exceptions) colonial seabirds, which are well covered by the JNCC's **Seabird Monitoring Programme**, and the rare species that are included in the reports of the **Rare Breeding Birds Panel** (e.g. **Holling & RBBP 2007b**, **2008**, **2009**, **2010a**, **2010b**).

We value your comments on this report and particularly any suggestions on how it can be improved.

Email your comments

Authors

This report was written by Stephen Baillie, John Marchant, David Leech, Anna Renwick, Andrew Joys, David Noble, Carl Barimore, Greg Conway, Iain Downie, Kate Risely and Rob Robinson. The formal citation for the report is given in the page footer.

Next page – Key findings

Key findings

• **Declining species**	• **Reduced breeding success**
• **New alerts**	• **Increased breeding success**
• **Positive changes**	• **Early breeding**

Declining species

In the current report, there are 24 species for which the best long-term trends provide alerts to statistically significant population declines of greater than 50%.

These are **Grey Partridge**, **Lapwing**, **Snipe**, **Woodcock**, **Redshank**, **Turtle Dove**, **Cuckoo**, **Little Owl**, **Lesser Spotted Woodpecker**, **Skylark**, **Tree Pipit**, **Yellow Wagtail**, **Whitethroat**, **Willow Warbler**, **Spotted Flycatcher**, **Willow Tit**, **Marsh Tit**, **Starling**, **House Sparrow**, **Tree Sparrow**, **Linnet**, **Lesser Redpoll**, **Yellowhammer** and **Corn Bunting**.

CBC/BBS indicate with high confidence that the Starling breeding population in England has decreased by around 85% since 1967

Except for **Little Owl**, which as an introduced species is not eligible for conservation listing, all these rapidly declining species are already red or amber listed on the recently revised Population Status of Birds (**PSoB**, **BoCC3**) list. Despite ostensibly meeting a red-list criterion for population decline, the following species are, for various reasons, listed only as amber: **Snipe**, **Woodcock**, **Redshank**, **Whitethroat** and **Willow Warbler**. For several of the species listed, long-term trend data are available only for England, where BTO has more volunteers to record information. Different long-term trends could be operating in other parts of the UK. Data for **Lesser Redpoll**, **Tree Pipit**, **Snipe** and **Woodcock**, are particularly limited geographically.

A further nine species trigger lower-level alerts, as a result of statistically significant long-term declines of between 25% and 50% over periods of 25 to 41 years. These are **Common Sandpiper**, **Meadow Pipit**, **Grey Wagtail**, **Dipper**, **Dunnock**, **Song Thrush**, **Mistle Thrush**, **Goldcrest** and **Bullfinch**. All of these species are on the current amber list on account of their population declines, except for **Song Thrush**, which remains red listed, and **Dipper** and **Goldcrest**, which remain on the green list.

In addition, **Little Grebe** (-39% since 1975), **Curlew** (-35% since 1967) and **House Martin** (-61% since 1967) have also declined by more than 25%, but raise no alerts because the confidence intervals around their change estimates are too wide.

Three additional species monitored only over shorter periods have also decreased by more than half. **Nightingale**, which has long been amber listed, is on course to meet red-list criteria, having decreased by

53% since 1995). **Whinchat** has decreased by 57% and **Pied Flycatcher** by 50% over the same period. These two species, along with **Swift** (-29%) were newly amber listed for population declines at the 2009 review but are now showing 13-year changes so severe in BBS squares that red listing may be warranted.

Discussion sections **4.2** and **4.3**

Recent alerts and alert changes

Long-term data on Snipe breeding along waterways show an estimated decline of 93%. BBS data show recent increase within the remaining range.

There are few changes to the alerts that were raised by the 2009 version of this report and all are listed here.

The decision has been taken to include the long-term WBS/WBBS trends for **Snipe** in this report. These easily exceed the threshold for a high alert for both the 33-year and 25-year periods. **Little Owl** now raises a high alert for the 25-year period, its percentage decline now being just greater than 50%. **Goldcrest** becomes an alert species in this report, because its 25-year decline is now just over the 25% threshold. It should be noted, though, that this species has a history of wide population fluctuations and that long-term estimates of its trend are rather unstable.

CES trends for **Lesser Redpoll** and **Yellowhammer**, which both raised high alerts in last year's report, have now been dropped because of dwindling sample sizes. The CES trend for **Willow Tit** no longer raises a high alert, the percentage decline having moved from >50% into the 25–50% range. CBC/BBS data for all these three species continue to raise high alerts.

Discussion section **4.2.3**

Positive changes

For eight species that meet red or amber criteria for population decline over the long term – **Little Grebe**, **Lapwing**, **Skylark**, **House Martin**, **Meadow Pipit**, **Grasshopper Warbler**, **Bullfinch** and **Yellowhammer** – decline has started to level off, or has ceased, during the recent ten-year period.

Six formerly declining species – **Grey Wagtail**, **Dunnock**, **Song Thrush**, **Whitethroat**, **Tree Sparrow** and **Reed Bunting** – have shown significant positive trends over the last ten years. Where the earlier decline had been steep or long-lasting, however, as for the red-listed **Tree Sparrow**, population levels remain severely depleted despite recent increase.

The recent increase in the red-listed **Song Thrush** is particularly encouraging. **Reed Bunting** was also red listed until 2009, but its recent postive trend has allowed it to move to the amber list. It is no longer clear that the species meets any Birds of Conservation Concern listing criteria.

Buzzard heads the table of fastest long-term increases, with growth in the English population estimated at 606% since 1967

Although falling short of the 24 species that have at least halved over the long term, there are 18 species that have more than doubled over similar periods (usually 41 years). These are **Mute Swan**, **Canada Goose**, **Shelduck**, **Mallard**, **Tufted Duck**, **Sparrowhawk**, **Buzzard**, **Stock Dove**, **Woodpigeon**, **Collared Dove**, **Green Woodpecker**, **Great Spotted Woodpecker**, **Reed Warbler**, **Blackcap**, **Great Tit**, **Nuthatch**, **Jackdaw** and **Carrion Crow**.

Five additional species monitored only over shorter periods have more than doubled (while three equivalent species have more than halved). **Stonechat** has increased by 168% in the UK since 1995, and **Cetti's Warbler** by 244% since 1998. Three species that have benefited from introduction have shown some of the most rapid increases: **Greylag Goose** (+410% since 1993), **Red Kite** (+418% since 1995) and the non-native **Ring-necked Parakeet** (+696% since 1995).

Discussion section **4.4**

Reduced breeding success

Reproductive output has decreased for the red-listed Nightjar

A new summary figure, Fledglings Per Breeding Attempt (FPBA), introduced in the 2009 report, represents the mean number of young leaving each nest in a given year. Ten species exhibit negative trends in FPBA over the past 20 years or more, indicating that reproductive output has decreased over time, including four **BoCC3** red-listed species (**Nightjar**, **Spotted Flycatcher**, **Linnet**, **Yellowhammer**), four amber-listed species (**Dunnock**, **Willow Warbler**, **Bullfinch**, **Reed Bunting**) and two green-listed species (**Great Tit**, **Chaffinch**). While productivity of **Nightjar**, **Willow Warbler**, **Great Tit**, **Reed Bunting** and **Linnet** has been falling since the mid 1960s, declines in breeding success of the remaining five species have occurred over the last 15–20 years.

Productivity declines in the migrant **Nightjar**, **Willow Warbler** and **Spotted Flycatcher** may be driven by changes in habitat and/or climate on the African wintering grounds or by declining insect numbers in the UK. Alternatively, climatic warming may have resulted in a developing asynchrony between laying dates and the availability of insect prey on the breeding grounds. Long-distance migrants are thought to be particularly susceptible to such disjunction but residents may also be affected, which may explain the falling productivity of **Great Tit** and **Chaffinch**, although the possibility of a density-dependent decline cannot be excluded for these rapidly increasing species.

Studies of declining **Linnet**, **Reed Bunting** and **Yellowhammer** populations have identified winter food availability as a key factor, and loss of condition during the winter could depress subsequent breeding success. These species, along with **Dunnock** and **Bullfinch**, may also have suffered from a loss of scrub habitat mediated at least in part by increasing numbers of deer.

CES ringing data indicate that productivity has fallen by more than 30% for eight of the species monitored by this scheme (**Blackbird**, **Song Thrush**, **Garden Warbler**, **Sedge Warbler**, **Blue Tit**, **Great Tit**, **Goldfinch**). Declines in FPBA for both **Great Tit** and **Reed Bunting** suggest that the reduced numbers of juveniles are the result of a reduction in the productivity of individual attempts rather than of changes in the number of breeding attempts or in post-fledging survival rates. Three species (**Song Thrush**, **Sedge Warbler** and **Reed Bunting**) have experienced significant population declines, either on CES sites or more widely.

Discussion section **4.5**

Increased breeding success

Increasing breeding performance may be helping to drive population expansion of a number of rapidly increasing species: the predatory **Sparrowhawk** and **Buzzard**; the columbid **Stock Dove**; the corvids **Jackdaw**, **Magpie** and **Carrion Crow**; the resident insectivores **Pied Wagtail**, **Grey Wagtail**, **Robin**, **Long-tailed Tit** and **Nuthatch**; and the migrant insectivores, **Redstart** and **Reed Warbler**. Six further species (**Kestrel**, **Skylark**, **Dipper**, **Starling**, **House Sparrow** and **Tree Sparrow**) are exhibiting significant increases in productivity as populations decline, which may be due to density dependence.

Discussion section **4.5**

Breeding success is improving for Stock Doves

Early breeding

On average, Magpies are now laying 30 days earlier than in 1968

Data from the Nest Record Scheme provide strong evidence of shifts towards earlier laying in a range of species, linked to climate change. We have now identified 39 species that, on average, are laying between 5 and 30 days earlier than in the mid 1960s. The species involved represent a wide range of taxonomic and ecological groups, including raptors (**Kestrel**– 8 days), waterbirds (**Moorhen** – 5 days), waders (**Oystercatcher** – 6 days), migrant insectivores (**Pied Flycatcher** – 11 days, **Swallow** – 9 days), resident insectivores (**Robin** – 8 days, **Blue Tit** – 8 days), corvids (**Magpie** – 30 days) and resident seed-eaters (**Greenfinch** – 15 days).

For some species these shifts towards earlier laying may be insufficient to track seasonal advances in food availability. Recent research has shown that significantly stronger phenological responses to climate change are displayed at lower than at higher trophic levels, increasing the potential for disjunction and resulting population declines (**Thackeray *et al.* 2010**).

Discussion section **4.5.3**

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1. INTRODUCTION

Since its formation in 1933, BTO has been deeply committed to gathering quantitative information on the bird populations of the UK. Its nationwide network of skilled volunteers, many of whom are long-term contributors to survey schemes, provides the ideal way to monitor the bird populations that are widely distributed across the countryside. BTO data, from such schemes as the **Common Birds Census**, **Nest Record Scheme** and **BTO/JNCC/RSPB Breeding Bird Survey**, have been increasingly influential in determining nature conservation policy in the UK. The partnership between JNCC and BTO has ensured that these schemes are operated and developed so as to provide high-quality information for nature conservation.

The value of the monitoring work undertaken by the BTO was recognised in the Government's Biodiversity Steering Group report (**Anon. 1995**). The BTO's results, particularly those regarding declining farmland species, are highlighted as an example of the way in which broad-scale surveillance techniques can identify important new trends. More generally, the report states that monitoring is essential if the broad aims, specific objectives and precise targets of the Government's Biodiversity Action Plans are to be achieved. It notes that:

- baselines must be established;
- regular and systematic recording must be made, to detect change; and
- the reasons for change should be studied, to inform action.

The BTO's monitoring schemes fulfil a considerable portion of these needs for a wide range of bird species in the UK.

The current system of **alerts** derived from the BTO's census and nest record data ensures that conservation bodies are quickly made aware of important demographic changes. Multi-species **indicators**, making extensive use of BTO census data, track how bird populations are faring generally across the countryside, UK-wide and within specific regions or habitats. These indicators were developed in association with Government and some have been adopted by them as policy drivers. More recently, indicators have been developed on the European scale (**click here**).

1.1 The BTO's monitoring of breeding birds in the UK

The Integrated Population Monitoring Programme has been developed by the BTO, in partnership with JNCC, to monitor the numbers, breeding performance and survival rates of a wide range of bird species. It has the following specific aims (**Baillie 1990**, **1991**):

(a) to establish thresholds that will be used to notify conservation bodies of requirements for further research or conservation action;

(b) to identify the stage of the life cycle at which demographic changes are taking place;

(c) to provide data that will assist in identifying the causes of such changes; and

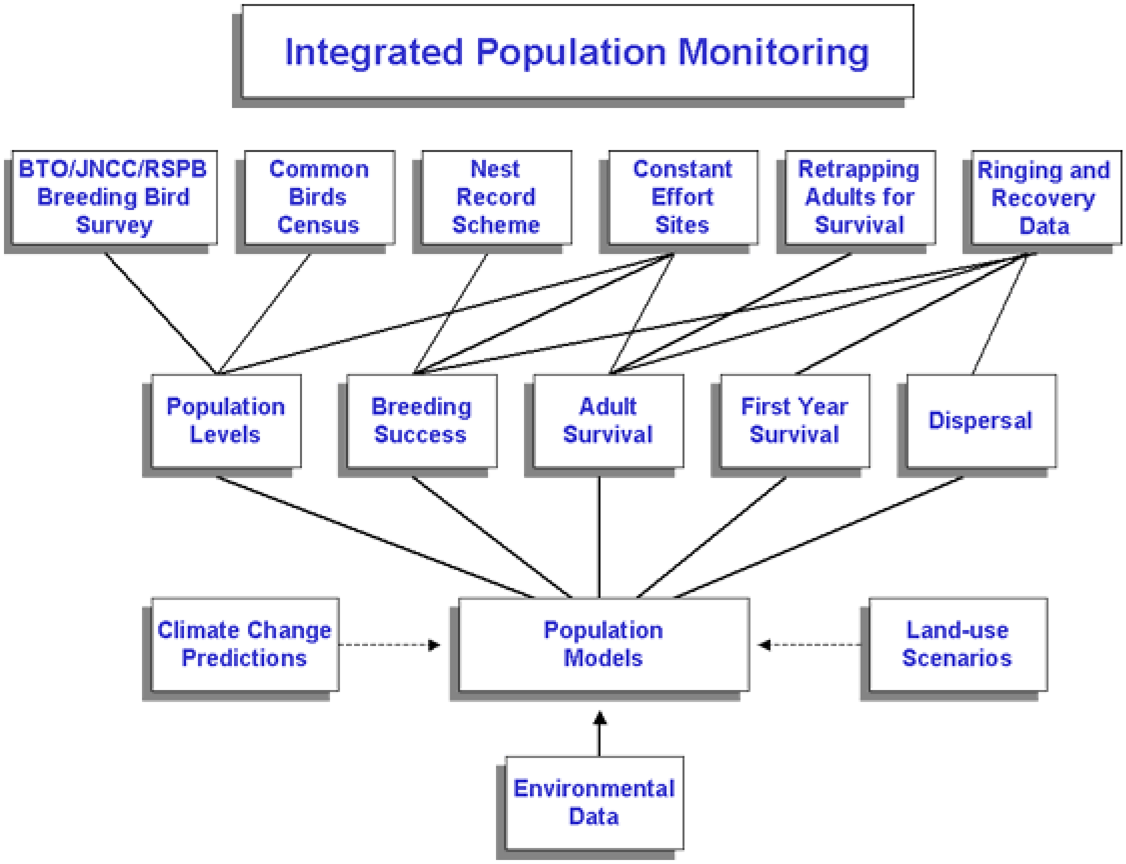
(d) to distinguish changes in population sizes or demographic rates induced by human activities from those that are due to natural fluctuations.

The programme brings together data from several long-running BTO schemes.

- Changes in numbers of breeding birds are measured by:
  - the **BTO/JNCC/RSPB Breeding Bird Survey (BBS)** – which began in 1994 and replaced the CBC (below) as the major monitoring scheme for landbirds, after a seven-year overlap. BBS is based on around 3,000 1-km squares, within each of which birdwatchers count and record birds in a standardised manner along a 2-km transect. Because the survey squares are chosen randomly, the results are not biased towards particular habitats or regions. Combined **CBC/BBS** indices now provide long-running and ongoing population monitoring for many common birds.
  - the **Common Birds Census (CBC)** – which ran from 1962 to 2000. This scheme mapped the breeding territories of common birds through intensive fieldwork on 200–300 mainly farmland and woodland plots each year, averaging about 70 and 20 ha respectively.
  - the **Waterways Breeding Bird Survey (WBBS)** – which began in 1998 and replaced the WBS (below) as the major monitoring scheme for breeding birds along rivers and canals, after a ten-year overlap. It is a transect scheme akin to BBS but with the transects running alongside linear waterways. Transects comprise up to ten 500-m sections and cover typically 3–3.5 km of bird-rich habitat. Around 250–300 sites are covered each year, mostly randomly selected. Combined **WBS/WBBS** indices now provide long-running and ongoing population monitoring for many common waterside birds.
  - the **Waterways Bird Survey (WBS)** – which ran from 1974 to 2007. WBS observers mapped the territories of birds along rivers, streams and canals on 80–130 plots each year, each on average 4.5 km long. Around 70 of these sites are currently incorporated within WBBS.
  - the **Constant Effort Sites Scheme (CES)** – which began in 1983 and is based on breeding-season bird ringing at over 100 sites. The catching effort is kept constant at each site during each year, so that changes in numbers of birds caught will reflect population changes and not variation in catching effort.
  - the **Heronries Census** – through which counts of 'apparently occupied nests' have been collected from a high proportion of the UK's heronries every year since 1928.
- Changes in breeding performance are measured by:
  - the **Nest Record Scheme** – which began in 1939 and collates standardised information on up to 35,000 individual nesting attempts per year. This allows the measurement of:
    - laying dates
    - clutch sizes
    - brood sizes
    - nesting success during egg and chick stages
    - fledglings per breeding attempt (integrating success across all nesting stages).
  - the **CES** (see above) – which provides information on overall productivity for a range of species by measuring the ratio of juveniles to adults caught each year.
- Changes in survival are measured by:
  - the **British and Irish Ringing Scheme** – which provides information on the finding circumstances and longevity of ringed birds found dead by members of the public.

- The **CES** also provides information on survival rates, based on the recapture of ringed birds at constant-effort sites. In future, further information on survival rates will be provided through the **Retrapping Adults for Survival** (RAS) scheme.

The ways in which the schemes fit together are shown in the diagram below, which also demonstrates the way in which the BTO aims to combine all this information to understand the mechanisms behind changes in population sizes using population models.



Next section –1.2 The value of combining results from different monitoring schemes

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1.2 The value of combining results from different monitoring schemes

Monitoring the changes in the size of a population does not in itself provide sufficient information on which to base an effective conservation strategy (**Goss-Custard 1993**, **Furness & Greenwood 1993**). Concurrent monitoring of breeding performance and survival rates is necessary to allow changes in population size to be properly interpreted (**Temple & Wiens 1989**, **Crick *et al.* 2003**) and, for long-lived species, can provide early warning of impending conservation problems (**Pienkowski 1991**).

Where good long-term data sets for breeding performance and survival are lacking, conservation action might have to be taken without an adequate understanding of the mechanisms involved or might need to wait years for detailed research to be undertaken. For many species, however, BTO already has the necessary data, collected by its volunteers over periods of several decades (**Greenwood 2000**).

For a long-lived species, a decline in population may not begin until a long period of low survival or reduced reproductive output has already passed. The classic example is that of the **Peregrine**, which in the UK suffered from poor breeding performance during the 1940s and 1950s due to sub-lethal DDT contamination. This decreased the capacity of the non-breeding population to buffer the severe mortality of breeding adults that occurred due to cyclodiene poisoning from the mid 1950s onwards (**Ratcliffe 1993**). Monitoring of breeding performance gave an early warning of subsequent numerical decline (**Pienkowski 1991**). Another example of a decline in breeding performance that presaged population decline is the catastrophic breeding failures of seabirds, particularly Arctic Terns, in Shetland (**Monaghan *et al.* 1989**, **1992**, **Walsh *et al*. 1995**, **Mavor *et al.* 2003**, **2004**, **Wanless *et al.* 2005**).

Farmland birds

During the mid 1980s, the BTO identified rapid declines in the population sizes of several farmland bird species (**O'Connor & Shrubb 1986**, **Fuller *et al.* 1995**). The BTO has since been able to investigate the demographic mechanisms underlying these declines, using its long-term historical data sets (**Siriwardena *et al.* 1998a**, **2000a**).

This investigation, which was Government-funded and undertaken jointly with Oxford University, looked at changes in population size, breeding performance and survival rates of a variety of species in relation to changing farming practice. It showed that species responded to different aspects of the agricultural environment, but that typically these aspects were linked to intensification or regional specialisation. Declines in survival rates were found to be the main factor driving population decline in these species, with the exception of **Linnet**, for which the main factor appears to have been a decline in nesting success at the egg stage (**Siriwardena *et al.* 2000b**). The study was therefore able to eliminate some possible causes of change, and identify areas for future research, thus helping conservation bodies to use their scarce resources productively. This work made an important contribution to the wider programme of work on farmland birds undertaken by many research and conservation organisations (**Aebischer *et al.* 2000**, **Vickery *et al.* 2004**).

This report describes a number of other cases where the combined analysis of BTO data sets has helped to identify the causes of population declines, for example on the pages for **Lapwing** (**Peach *et al.* 1994**), **Song Thrush** (**Baillie 1990**, **Thomson *et al.* 1997**, **Robinson *et al.* 2004**), **Sedge Warbler** (**Peach *et al.* 1991**), **Willow Warbler** (**Peach *et al.* 1995a**), **Spotted Flycatcher** (**Freeman & Crick 2003**), **Starling** (**Freeman *et al.* 2002**, **2007b**), and **House Sparrow** (**Freeman & Crick 2002**). A fully integrated approach, estimating trends in numbers and demographic parameters through a single model containing data from various BTO surveys, has been introduced by **Besbeas *et al.* (2002)**. More recently, the use of state-space models and Bayesian techniques for integrated monitoring has been pioneered by **Baillie *et al.* (2009)**.

Biodiversity Action Plans

The ability to quickly determine the stage of the life-cycle most heavily involved during population declines is particularly important for the conservation agencies when considering the plight of species on the **lists of conservation concern**. Analysis of BTO data sets, which has already helped to build these lists, is a key point in several of the UK Government's **Biodiversity Action Plans** for rapidly declining species. Once conservation actions have been initiated, the BTO's Integrated Population Monitoring programme has a further function, because the success of these actions will be measured and assessed by continued BTO monitoring.

Next section – 1.3 The aims of this report

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1.3 The aims of this report

This report is the latest in a series of reports that are used by conservation practitioners as a ready reference to changes in status among breeding birds in the UK. By publishing it on the BTO website, we aim to make it available to a much wider audience, especially to BTO members and the general birdwatching public. We hope that it also provides a useful resource for schools, colleges and universities, the media, ecological consultants, decision-makers, local government, and the more general world of industry and commerce. In summary, its aims are:

1) To provide, to as wide a readership as possible, a species-by-species overview of the trends in breeding population and reproductive success of birds covered by BTO monitoring schemes since the 1960s, at the UK or UK-country scale.
2) To provide warning alerts to JNCC and Country Agencies and to other conservation bodies about worrying declines in population size or reproductive success, with special reference to species on the UK red and amber lists.

This document is the result of the sustained fieldwork of many thousands of the BTO's volunteer supporters. Without their enthusiasm for collecting these hard-won facts, the cause of conservation in the UK would be very much the poorer.The data we present here include information on distributions, from breeding-season and winter atlas projects, and on estimates of the absolute size of breeding populations, which are reported at intervals by the Avian Population Estimates Panel (**Stone *et al.* 1997**, **Baker *et al*. 2006**). Colonial seabirds, which are well covered by the results of Seabird 2000 (**Mitchell *et al.* 2004**) and by the JNCC's **Seabird Monitoring Programme**, and the majority of species covered by the **Rare Breeding Birds Panel** (**Holling & RBBP 2007b**, **2008**, **2009**, **2010a**, **2010b**), are not included here. Wintering populations of waterfowl are covered by the Wetland Bird Survey annual reports (e.g. **Calbrade *et al.* 2010**) and by the **WeBS alerts** system (**Thaxter *et al.* 2010**).

The main emphasis of this report is on trends in the abundance and demography of individual species. The data on trends in abundance also provide the basis for multi-species **indicators** of bird population changes (**Gregory *et al.* 2004**). Four indicators of trends in breeding birds are part of the UK Government's 18 **Biodiversity Indicators**, which track the UK's progress towards **international targets** set by the Convention on Biological Diversity in October 2010. This approach is now being extended more widely through a collaboration between EBCC, BirdLife and RSPB to produce **pan-European bird indicators**.

The report is the latest in a series, begun in 1997, produced under the BTO's partnership with the Joint Nature Conservation Committee (on behalf of Natural England, Scottish Natural Heritage, the Countryside Council for Wales, and the Council for Nature Conservation and the Countryside) as part of its programme of research into nature conservation. Only the first two reports were published as paper reports, with subsequent ones being produced solely as web documents. A complete list of all the previous reports and links to those published online can be found **here**.

Section 2 – Methodology

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2. METHODOLOGY

Seven monitoring schemes have contributed data to this report. Six provide data on changes in abundance: these are the **Breeding Bird Survey**, **Common Birds Census**, **Waterways Breeding Bird Survey**, **Waterways Bird Survey**, **Heronries Census** and **Constant Effort Sites** ringing scheme. Two schemes, the **Nest Record Scheme** and **Constant Effort Sites**, provide data on changes in breeding productivity. In addition, information from detailed analyses of the retrappings and recoveries of ringed birds, from the Ringing Scheme, and on waterbirds from the Wetland Bird Survey, is included where relevant.

The methodologies of the monitoring schemes are described below, including information on fieldwork, data preparation, sampling considerations and the statistical methods used in analysis. Most of the analyses and the preparation of tables and graphs were undertaken using SAS software (**SAS 2009**, **2010**).

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2.1 Breeding Bird Survey

The BTO/JNCC/RSPB Breeding Bird Survey (BBS) was launched in 1994, following two years of extensive pilot work and earlier desk-based studies. The introduction of the BBS was a move designed to overcome the limitations of the **Common Birds Census** (CBC), which had monitored bird populations since 1962. In particular, it improves the geographical representativeness of UK bird monitoring, thus boosting coverage of species and of habitats.

The BBS uses line transects rather than the more intensive territory-mapping method that was used by the CBC. This makes the survey relatively quick to undertake, and has been successful in encouraging a large number of volunteers to take part. The average time observers spend per visit is only around 90 minutes. Sampling units are the 1x1-km squares of the Ordnance Survey national grid, of which there are some 254,000 in the UK. From these we make random selections, by computer, for inclusion in the scheme (see **Square selection**, below). The BBS requires a relatively large sample of survey squares, and the initial aim was to achieve coverage of about 2,500 squares.

An important aspect of BBS is its coordination through a network of volunteer BBS Regional Organisers. Each year, information and survey forms are distributed first to these organisers, who contact volunteers willing to conduct the fieldwork. After the field season, forms are returned to BTO headquarters again via the Regional Organisers, but an alternative, on-line method for submission of BBS data was introduced in 2003 is now used by a high proportion of observers – see the **BBS pages** of the main BTO website for details.

Fieldwork involves three visits to each survey square each year. The first is to record details of habitat and to establish or re-check the survey route, while the second and third (termed 'early' and 'late') are to count birds. A survey route is composed of two roughly parallel lines, each 1 km in length, although for practical reasons routes typically deviate somewhat from the ideal. Each of these lines is divided into five sections, making a total of ten 200-m sections, and birds and habitats are recorded within these ten units. The two bird-count visits are made about four weeks apart (ideally in early May and early June), ensuring that late-arriving migrants are recorded. Volunteers record all the birds they see or hear as they walk along their transect routes. Birds are noted in three distance categories (within 25 m, 25–100 m, or more than 100 m on either side of the line, measured at right angles to the transect line), or as in flight. Recording birds within distance bands provides a measure of bird detectability in different habitats and thus allows population densities to be estimated more accurately. The total numbers of each species, excluding juveniles, are recorded in each 200-m transect section and distance category, as well as the timing of the survey and weather conditions.

By 1998, more than 2,300 BBS squares were being surveyed annually, close to the original target of 2,500. Only around a quarter of these plots were covered in 2001, owing to Foot & Mouth Disease access restrictions, but (thanks to our keen observers) the sample recovered immediately to over 2,100 in 2002 and had increased further to 2,254 squares in 2003, 2,526 in 2004, 2,879 in 2005 and 3,295 in 2006. The sample soared to 3,604 in 2007 (**Risely *et al.* 2010**). Squares are distributed throughout the UK and cover a broad range of habitats, including uplands and urban areas. There are around 100 species that are present on 40 or more BBS squares annually and so can be monitored with good precision at the UK scale (**Joys *et al.* 2003**), although a few present special difficulties because of their colonial or flocking habit or their wide-ranging behaviour. For most of these 100 species, BBS can also assess annual population changes within **England** alone, using data from 30 or more squares, and for about half the species also within **Scotland** and **Wales** as separate units. Sample sizes in **Northern Ireland** currently allow more than 25 species to be indexed annually.

Square selection

Survey squares are chosen randomly using a stratified random sampling approach from within 83 sampling regions. These sampling regions, which in most cases are the standard BTO regions, are the 'strata' (literally layers) of the sample. Survey squares are chosen at random within each region, to a density that varies with the number of BTO members resident there. Regions with larger numbers of potential volunteers are thereby allotted a larger number of squares, enabling more birdwatchers to become involved in these areas. This does not introduce bias into the results because the analysis takes the differences in regional sampling density into account (see below).

Data analysis

Change measures between years are assessed using a log–linear model with Poisson error terms. For each species and square, counts are summed across all sections and distance bands for each visit ('early' and 'late') and the higher value is used in the model (or the single count if the square was visited only once). Counts are modelled as a function of square and year effects. Each observation is weighted by the number of 1-km squares in each region divided by the number of squares counted in that region, to correct for the differences in sampling density between regions. The upper and lower confidence limits of the changes indicate the certainty that can be attached to each change measure. When the limits are both positive or both negative, we can be 85% confident that a real change has taken place (see **section 2.8.4** for details).

Trends are presented as graphs in which annual population indices are shown in blue and their 85% confidence limits in green. A caveat, 'small sample', is provided against the trends for England, Northern Ireland, Wales and Scotland where the mean sample size is between 30 and 40 plots per year. A minimum sample size of 40 plots is required for the UK trends.

Next section – 2.2 Common Birds Census

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Click here to go to the BBS section of the main BTO website

2.2 Common Birds Census

The Common Birds Census (CBC), which ran from 1962 to 2000, was the first of the BTO's schemes for monitoring population trends among widespread breeding birds, but has now been superseded for this purpose by **BBS**.

The CBC was instigated to provide sound information on farmland bird populations in the face of rapid changes in agricultural practice. Although the original emphasis was on farmland, woodland plots were added by 1964. Fieldwork was carried out by a team of 250–300 volunteers. The same observers surveyed the same plots using the same methods year after year. On average, plots were censused for around seven consecutive years but a few dedicated observers surveyed the same sites for more than 30 years. Farmland plots averaged around 70 hectares in extent. Woodland plots were generally smaller, averaging just over 20 hectares. A small number of plots of other habitats, including heathlands and small wetlands, were also surveyed annually, especially before 1985.

A territory-mapping approach was used to estimate the number and positions of territories of each species present on each survey plot during the breeding season. Volunteers visited their survey plots typically eight to ten times between late March and early July and all contacts with birds, either by sight or sound, were plotted on outline maps at a standard scale of 1:2,500. Codes were used to note each bird's species, with sex and age where possible, and also to record activity such as song or nest-building. The registrations were then transferred to species maps and returned to BTO headquarters for analysis. The pattern of registrations on the species maps reveals the numbers of territories for each species. All assessments of territory number were made by trained BTO staff, applying rigorous guidelines, to ensure consistency between estimates across sites and years. Observers also provided maps and other details of the habitat on their plots. This makes it possible to match the distribution of bird territories with habitat features, providing the potential for detailed studies of bird–habitat relationships.

In 1990, the results from the Common Birds Census were brought together in the book *Population Trends in British Breeding Birds* (**Marchant *et al.* 1990**). This landmark publication discussed long-term population trends for the years 1962 to 1988 for 164 species, with CBC or WBS population graphs for around two-thirds of these.

The results from the Common Birds Census (CBC) provided reliable population trends for more than 60 of the UK's commoner breeding species and, through the linking of CBC with BBS, continue to be hugely influential in determining conservation priorities in the UK countryside. The store of detailed maps of almost a million birds' territories, collected through the CBC and maintained by BTO since the early 1960s, is a uniquely valuable resource for investigating the relationships between breeding birds and their environment, over wide temporal and spatial scales.

The weaknesses of the CBC as a monitor of UK bird populations were largely related to the time-consuming nature of both fieldwork and analysis. This inevitably limited the number of volunteers able to participate in the scheme, with the result that areas with few birdwatchers were under-represented. Constrained by the relatively small sample size, CBC concentrated on farmland and woodland habitats. Bird population trends in built-up areas and the uplands were therefore poorly represented. Furthermore, as the plots were chosen by the observers, some may not have been representative of the surrounding countryside and some bias towards bird-rich habitats might be suspected. It is for these reasons that the BBS was introduced in 1994. The two surveys were run in parallel for seven years to allow calibration between the results: for many species, CBC and BBS trends can be linked to form joint CBC/BBS trends that provide ongoing monitoring, continuous since the 1960s (**Freeman *et al.* 2003**, **2007a**; **section 2.3** of this report).

Validation studies

The CBC was the first national breeding bird monitoring scheme of its kind anywhere in the world and its value has been widely recognised internationally. The territory-mapping method adopted by the CBC is acknowledged as the most efficient and practical way of estimating breeding bird numbers in small areas, and has been well validated. Although intensive nest searches may sometimes reveal more birds, a comparison by **Snow (1965)** concluded that mapping censuses were a good measure of the true breeding population for 70% of species. Experiments to test differences between observers' abilities to detect birds found that, although there was considerable variation between individual abilities, the observers were consistent from year to year (**O'Connor & Marchant 1981**). As the CBC relies on data from plots covered by the same observer in consecutive years, this source of bias has no implications for the CBC's ability to identify population trends. It has also been confirmed that the sample of plots from which CBC results are drawn changed little in composition or character over the years (**Marchant *et al.* 1990**) and that the results of territory analysis are not affected by changes in analysts, once trained (**O'Connor & Marchant 1981**). **Fuller *et al.* (1985)** found that farmland CBC plots were representative of ITE lowland land-classes throughout England (excluding the extreme north and southwest), and closely reflected the agricultural statistics for southern and eastern Britain.

Data analysis

Population changes are modelled using a generalised additive model (GAM), a type of log–linear regression model that incorporates a smoothing function (**Fewster *et al.* 2000**). This has replaced the Mountford model that employed a six-year moving window (**Mountford 1982**, **1985**, **Peach & Baillie 1994**) and was used to produce annual population indices until 1999, but the principles are similar. These models are also very similar to log–linear Poisson regression as implemented by program TRIM (**Pannekoek & van Strien 1996**). Counts are modelled as the product of site and year effects on the assumption that between-year changes are homogeneous across plots. Smoothing is used to remove short-term fluctuations (e.g. those caused by periods of severe weather or by measurement error) and thus reveal the underlying pattern of population change. This is achieved by setting the degrees of freedom to about 0.3 times the number of years in the series. Confidence limits on the indices are estimated by bootstrapping (a resampling method; **Manly 1991**) to avoid making any assumptions about the underlying distribution of counts.

Indices are plotted as the blue line on the graphs, and provide a relative measure of population size on an arithmetic scale relative to an arbitrary value of 100 in one of the years of the sequence. If an index value increases from 100 to 200, the population has doubled; if it declines from 100 to 50, it has halved. The two green lines on the graphs, above and below the index line, are the upper and lower 85% confidence limits. A narrow confidence interval indicates that the index series is estimated precisely, and a wider interval indicates that it is less precise. The use of 85% confidence limits allows relatively straightforward comparison of points along the modelled line: non-overlap of the 85% confidence limits is equivalent to a significant difference at approximately the 5% level (**Anganuzzi 1993**).

Caveats are provided to show where the data suffer from a 'Small sample' if the mean number of plots was less than 20. Data are flagged as 'Unrepresentative?' if the average abundance of a species in 10-km squares containing CBC plots was less than that in other 10-km squares of the species' distribution in the UK (as measured from *1988–91 Breeding Atlas* data (**Gibbons *et al.* 1993**)), or, where average abundances could not be calculated, if expert opinion judged that CBC data may not be representative.

In practice nearly all CBC data included in this report have been combined with BBS data to provide joint CBC/BBS trends, using the methods described in the next section. These methods for producing joint trends represent an extension of those described above.

Next section – 2.3 Joint CBC/BBS trends

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CLICK HERE to go to the CBC section of the main BTO website

2.3 Combined Common Birds Census (CBC) and Breeding Bird Survey (BBS) trends

The field protocols for the two surveys are described in sections 2.1 and 2.2. As previously noted, the **CBC** has been an enormously influential project, providing the main source of information on national population levels in the UK since its inception in 1962. Coverage was predominantly in lowland England, where the numbers of potential volunteers are greatest, while coverage was more patchy in more sparsely populated regions and especially the uplands (**Marchant *et al.* 1990**). CBC plots were situated in a limited number of habitats, predominantly farmland and woodland. Within a large rectangle of southeastern Britain (covering England and Wales south and east from Seascale, Scarborough and Exeter), the plots are nevertheless believed to be broadly representative, at least of lowland land-classes (**Fuller *et al.* 1985**). For species such as Wood Warbler and Meadow Pipit that have the greater part of their numbers in the far west or north of Britain, however, the CBC may not have accurately reflected UK trends.

The **BBS**, on account of its more rigorous, stratified random sampling design, and its simplicity in the field, produces data that better cover the previously under-represented regions and habitats. In some **early editions** of 'Breeding Birds in the Wider Countryside' (e.g. **Baillie *et al.* 2002**), separate indices were published from CBC and BBS data, for those species with sufficiently large sample sizes. There being no new CBC data since 2000, however, it is unnecessary to present a CBC-only trend – except for those few species that are now so rare that no joint or BBS index is available.

For most purposes, the presentation and analysis of longer time-series is required, dating back to before the establishment of the BBS but coming right up to the present day. The calculation of 25-year alert designations, as in this report, provides just one example. This need led the BTO to research the compatibility of indices from BBS and CBC data in various years and regions, and the possibility of deriving trustworthy long-term indices from the two data sources in combination (**Freeman *et al.* 2003**, **2007a**). This research suggested that for the vast majority of species considered there was no significant difference between population trends, calculated from the two surveys, based on that part of the country where CBC data are sufficient to support a meaningful comparison. Where a statistically significant difference was found, this was sometimes for very abundant species for which the power to detect even a biologically insubstantial difference was considerable. Within this region, therefore, long-term trends based on CBC and BBS data can be produced for almost all species previously monitored by the CBC alone. For (**Freeman *et al.* 2003**, **2007a**) this was the area covered by **Fuller *et al.* (1985)**, because CBC plots in that region were shown to be representative of lowland farmland there. As this region covers the bulk of England, and for consistency with the rest of this report, we have produced joint indices for CBC/BBS for the whole of England (the CBC/BBS England index), rather than just the English part of the 'Fuller rectangle'.

A second question then is whether one can obtain reliable trends over the same period for the entire UK. That is, since prior to 1994 only CBC data are available, are the population trends within the region well covered by the CBC typical of those for the UK as a whole? The shortage of CBC data in the north and west means that the only way of investigating this is via the BBS data. Significant differences in trends between the area well covered by the CBC and the rest of the UK were found for approximately half the species (see **Freeman *et al.* 2003**, **2007a**, for full details). For such species, a regional bias in CBC data means that no reliable UK index can be produced prior to 1994. In summary, joint population indices dating back to the start of the CBC can continue to be produced for that part of the country well served by the CBC (essentially England) for almost all common species. However, a similar UK index can be produced for only about 50% of species (CBC/BBS UK index).

This report presents joint CBC/BBS trends for the UK and/or England, as appropriate. Ideally the trends would have been estimated using generalised additive models (**Fewster *et al.* 2000**) but these were too computationally intensive, given the large number of sites involved. Therefore we fitted a generalised linear model, with counts assumed to follow a Poisson distribution, and a logarithmic link function, to the combined CBC/BBS data. Standard errors were calculated via a bootstrapping procedure and there is therefore no need to model overdispersion, as it does not affect the parameter estimates. BBS squares were weighted by the number of 1-km squares in each sampling region divided by the number of squares counted in that region as in standard BBS trend analyses. CBC plots were assigned the average weight of all BBS squares as this allows them to be incorporated within the analysis while retaining the convention of not applying weights within the BBS sample. The population trend was smoothed using a thin-plate smoothing spline with degrees of freedom about one third the number of years. Confidence intervals were calculated via a bootstrap procedure. Bootstrap samples were generated by resampling sites from the original data set, with replacement. A generalised linear model was then fitted to each bootstrap replicate and a smoothing spline fitted to the annual population indices as described above. Confidence limits were then calculated as the appropriate percentiles from the sets of smoothed estimates. The overall result is a smoothed trend that is mathematically equivalent to that produced from a generalised additive model. The method of estimation is less statistically efficient because the smoothing is not incorporated within the estimation procedure, and is likely to have resulted in more conservative statistical tests and wider confidence limits. However this compromise was necessary to make it possible to fit the trends within a reasonable amount of computer time (still several weeks).

Indices are plotted as the blue line on the graphs, and provide a relative measure of population size on an arithmetic scale relative to an arbitrary value of 100 in one of the recent years of the sequence. If an index value increases from 100 to 200, the population has doubled; if it declines from 100 to 50, it has halved. Note that positive and negative percentage changes are not directly equivalent: for example, a decrease of 20% would require an increase of 25% to restore the population to its former level. The two green lines on the graphs, above and below the index line, are the upper and lower 85% confidence limits. A narrow confidence interval indicates that the index series is estimated precisely, and a wider interval indicates that it is less precise. The use of 85% confidence limits allows relatively straightforward comparison of points along the modelled line: non-overlap of the 85% confidence limits is equivalent to a significant difference at approximately the 5% level (**Anganuzzi 1993**).

Next section – 2.4 Waterways Bird Survey and Waterways Breeding Bird Survey

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2.4 Waterways Bird Survey and Waterways Breeding Bird Survey

Waterways Bird Survey 1974–2007

The Waterways Bird Survey (WBS) monitored the population trends of up to 24 riparian bird species on canals and rivers throughout the UK during the period 1974–2007. WBS used a territory-mapping method like that of its parent scheme, the **Common Birds Census**, to estimate the breeding population of waterbirds on each of a number of observer-selected survey plots. Detailed territory maps were prepared alongside habitat data that show which features of linear waterways are important to breeding birds. The plots averaged 4.4 km in length. Almost half were slow-flowing lowland rivers with the rest either fast-flowing rivers/streams or canals. In the scheme's final years there were around 90 plots distributed throughout the UK. The north and west of Britain were better represented than by the CBC although, as with CBC, coverage outside England was relatively poor (**Marchant *et al.* 1990**).

All fieldwork was carried out by BTO volunteers. Observers were asked to survey their plots on nine occasions between March and July, mapping all the birds seen or heard onto 1:10,000 ('six-inch') maps. Registrations were then transferred to species maps, which were analysed to reveal the numbers and positions of territories for each species. For the first 20 years all territory analysis was performed by trained headquarters staff but, during 1994–2007, observers completed their own territory analysis, based on the scheme's written guidelines, with results checked and corrected by BTO staff. As WBS employed very similar methods to those of CBC, the validation studies carried out for the latter generally hold true for WBS (see **section 2.2**). **Marchant *et al.* (1990)** found that there had been little change by then in the composition of the WBS sample in terms of waterway type or geographical spread.

Population changes along waterways have been reported in *Bird Study* and *BTO News* for up to 25 riparian species. For specialist waterbirds, including **Little Grebe**, **Mute Swan**, **Common Sandpiper**, **Kingfisher**, **Sand Martin**, **Grey Wagtail**, **Dipper** and **Reed Warbler**, targeted surveys along waterways can provide a better precision of monitoring than is possible through the more generalised BBS surveys. **Goosander** is not covered at all as yet by BBS monitoring. WBS indices can also add a new perspective on trends in waterbirds that are monitored, largely in different habitats, by CBC/BBS. For **Lapwing**, populations declined rapidly on arable farmland during the late 1980s while numbers on WBS plots, typically representing populations along river floodplains, were more stable. **Yellow Wagtails** have declined much more steeply in WBS habitats than elsewhere.

Waterways Breeding Bird Survey and joint indices

WBS had similar limitations as a monitoring scheme that led to the CBC's replacement by BBS. In particular, plot distribution was biased geographically and possibly also towards sites that were good for birds, and an intensive survey method was used that severely limited the sample size (**Marchant *et al.* 1990**). A drawback specific to WBS was that it covered only waterbirds.

BTO addressed these issues by setting up the **Waterways Breeding Bird Survey (WBBS)**, which ran in parallel with WBS from 1998 to 2007 and is ongoing. WBBS uses BBS-style transect methods along random waterways, and includes all species of birds (and mammals, too). WBBS is currently part-funded by the Environment Agency. Following the closure of WBS after the 2007 season, it is now expected that WBBS will become an ongoing part of the BTO's core monitoring, providing valuable monitoring data to supplement BBS.

In a similar development to joint CBC/BBS indices, it has proved possible to link the two waterways schemes to provide joint WBS/WBBS indices, some dating back to 1974, for the species previously covered by WBS (see below).

Data analysis

Population trends are generated from the combined WBS and WBBS data using a Generalised Linear Model with counts assumed to follow a Poisson distribution and a logarithmic link function. Standard errors were calculated via a bootstrapping procedure involving 199 replications. For presentation in the figures, both the population trend and its confidence limits were also subsequently smoothed using a thin-plate smoothing spline. The overall result is a smoothed trend that is mathematically equivalent to that produced from a generalised additive model, as previously used in earlier reports for the WBS data alone.

Next section – 2.5 Heronries Census

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WBS and **WBBS** sections of the main BTO web site

2.5 Heronries Census

The BTO Heronries Census began in 1928 and is the longest-running breeding-season bird monitoring scheme in the world. As predators at the top of the freshwater food chain, Grey Herons are excellent indicators of environmental health in the countryside. They build large stick nests, mostly in colonies at traditional sites. The aim of this census is to collect annual nest counts of Grey Herons from as many sites as possible in the United Kingdom. Volunteer observers make counts of 'apparently occupied nests' at heron colonies each year. Changes in the numbers of nests, especially over periods of several years, provide a clear measure of the population trend.

In recent seasons, observers have also counted the nests of **Little Egrets** *Egretta garzetta*, which have been appearing in an increasing number of southern heronries since the first breeding records in 1996, and even of Cattle Egrets *Bubulcus ibis*. Since egrets are fully included in the Heronries Census, data are required from all breeding sites, whether or not Grey Herons are also present. Counts of **Cormorant** colonies, which often occur alongside heronries, are also welcome (**Newson *et al*. 2007**).

Coverage is coordinated through a network of regional organisers. A core of birdwatchers and ringers monitor their local colonies annually, providing a backbone of regular counts. Around two-thirds of the heronries in England and Wales are currently counted each year, with more-complete censuses carried out in 1929, 1954, 1964, 1985 and 2003. Historically rather few counts have been made of heronries in Scotland and Northern Ireland, except during the special surveys, but support for the Heronries Census has been growing fast in recent years. Counts are submitted mostly on cards and the data are entered onto computer at BTO headquarters. The number of heronries counted each year has grown in recent years to more than 500.

Data analysis

Population changes are estimated using a ratio-estimators approach derived from that of **Thomas (1993)**. Essentially, the ratios of the populations in any two (not necessarily consecutive) years of the survey are estimated from counts at sites visited in each of those years. These ratios can be used to estimate the counts at sites that were not visited, and hence build an estimate of the total population. Further modifications have been made to allow for the extinction of colonies and the establishment of new ones (**Marchant *et al.* 2004**).

On the **Grey Heron** page of this report, the UK trend is presented graphically with annual estimates in blue and their 85% confidence limits in green. A smooth trend line in red is based on a non-parametric regression model, using thin-plate smoothing splines with 24 degrees of freedom. Trends are also shown for England and Wales together, and for England, Wales and Scotland alone.

Next section – 2.6 Constant Effort Sites Scheme

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CLICK HERE to visit the Heronries Census page of the main BTO website

2.6 Constant Effort Sites Scheme

The Constant Effort Sites (CES) Scheme uses changes in catch sizes across a network of standardised mist-netting sites to monitor changes in the abundance and breeding success of common passerines in scrub and wetland habitats. At each constant effort site, licensed ringers erect a series of mist nets in the same positions, for the same amount of time, during 12 visits evenly spaced between 1 May and 31 August. Year-to-year changes in the number of adults caught provide a measure of changing population size, while the ratio of young birds to adults in the total catch is used to monitor annual productivity (breeding success). By monitoring the abundance of young birds between May and August, the CES method should integrate contributions to annual productivity from the entire nesting season, including second and third broods for multi-brooded species, but will also include a small component of mortality during the immediate post-fledging period. Between-year recaptures of ringed birds can also be used to calculate annual survival rates of adult birds, although this requires specialised analytical techniques (e.g. **Peach 1993**) and is not considered further here. Further details of the CES Scheme are presented by **Peach *et al.* (1996)** and methods of analysis are detailed in **Peach *et al.* (1998)** for abundance measures and **Robinson *et al.* (2007)** for productivity measures.

The CES Scheme began in 1983 with 46 sites and now has around 120. The distribution of CES sites tends to reflect the distribution of ringers within Britain and Ireland. The majority are operated in England, and there are small numbers in Scotland, Wales, Northern Ireland and the Republic of Ireland. The CES routinely monitors the populations of 25 species of passerines in scrub and wetland habitats.

Data analysis

Smoothed trends in the abundance of adults and young are separately assessed using a generalised additive model (GAM), with 85% confidence intervals calculated by bootstrapping (**Fewster *et al.* 2000**). At sites where catching effort in a year falls below the required 12 visits, but eight or more visits have been completed, annual catch sizes are corrected according to experience during years with complete coverage, by incorporating an offset into the GAM (see **Peach *et al.* 1998** for full details). Sites with fewer than eight visits in a given year are omitted for the year in question.
Annual indices of productivity (young per adult) are estimated from logistic regression models applied to the proportions of juvenile birds in the catch, the year-effects then being transformed to measures of productivity relative to an arbitrary value of 100 in the most recent year. As above, catch sizes are corrected where small numbers of visits have been missed. It should be noted that these indices are relative, and are not estimates of the actual numbers of young produced per adult (**Robinson *et al.* 2007**).

Data are presented graphically with the smoothed trend in blue and their 85% confidence limits in green. A caveat is provided for 'Small samples' when the average number of plots per year is between 10 and 20.

Annual estimates of adult survival are derived from a form of the standard CJS capture–mark–recapture model (**Lebreton *et al.* 1992**) modified to account for the presence of transient birds. Transients are birds passing through the site, or perhaps living on its periphery, and which therefore have a much lower probability of capture than resident birds living in the vicinity of the nets. The presence of transients thus tends to decrease the estimated survival rates. We allow for this by introducing an additional 'survival period' in the year of first capture (**Hines *et al*. 2003**). As with our other schemes, we assume survival probabilities vary annually in a similar fashion across all sites, though mean survival probabilities may differ between sites. Because of the standardised capture protocol, we assume that recapture probabilities are site-specific, but constant through time. For each bird we also insert an additional period after the first capture, indicating whether the bird was caught subsequently in the same season. The probability of surviving this period can be regarded as the probability that the bird is resident on the site (that is the probability that it is available for recapture). The survival and recapture probabilities for this initial period are assumed constant across years and sites. Note that the annual estimates of annual survival presented are in fact the probability that adult birds return to the same CE site the following year; this will be lower (to a small but unknown extent) than the true survival rate. We do not estimate survival rates for juvenile birds, because of their much greater propensity to disperse.

Next section – 2.7 Nest Record Scheme

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CLICK HERE to go to the CES section of the main BTO website

2.7 Nest Record Scheme

The BTO's **Nest Record Scheme** is the largest, longest-running and most highly computerised of such schemes in the world and possesses the most advanced and efficient techniques of data gathering, data capture and analysis (**Crick *et al.* 2003**). There are now more than a million nest records held by the Trust, of which 35% are computerised.

The primary aim of the Nest Record Scheme is to monitor the breeding performance of a wide range of UK birds annually as a key part of the BTO's data collection. Periodic reports are published in *BTO News* (e.g. **Leech & Barimore 2008**) and the significant results communicated immediately to JNCC. Another primary aim is to undertake detailed analyses of breeding performance of species of conservation interest (e.g. **Crick *et al.* 1994**, **Brown *et al.* 1995**, **Peach *et al.* 1995a**, **Crick 1997**, **Chamberlain & Crick 1999**, **Siriwardena *et al.* 2001**, **Crick *et al.* 2002**, **Chamberlain & Crick 2003**, **Freeman & Crick 2003**, **Browne *et al.* 2005**, **Tryjanowski *et al.* 2006**, **Douglas *et al.* 2010**).

The Nest Record Scheme gathers data on the breeding performance of birds in the UK through a network of volunteer ornithologists. Each observer is given a code of conduct that emphasises the responsibility of recorders towards the safety of the birds they record and explains their legal responsibilities. These observers complete standard nest record cards for each nest they find, giving details of nest site, habitat, contents of the nest at each visit and evidence for success or failure. When received by the BTO staff, the cards are checked, sorted and prepared for input and analysis. Data are prioritised for computer input according to their potential for population monitoring and for specific research projects. Those for Schedule 1 species are kept confidential. (These are species protected from disturbance at the nest by Schedule 1 of the **Wildlife and Countryside Act 1981**: they are generally rare species and the location of their nests may need to be protected from egg collecting (an illegal activity for every wild bird) or other potential disturbance. A special licence is required to visit any nest of a Schedule 1 species.) Computer programs developed by BTO check the data for errors and calculate first-egg date, clutch size, nest loss rates at egg and chick stages.

Currently the BTO collects a total of more than 30,000 records each year for around 180 species. Typically, there are more than 150 records for 55 species and more than 100 for a further 10–15 species. The quality of records improved substantially in 1990 with the introduction of a new recording card, which promotes greater standardisation and clarity in the information recorded by observers. The general distribution of completed Nest Record Cards is patchy at the county scale but is more even over larger regions of the UK. Overall, Northern Ireland and parts of Scotland (southeast, Western Isles) and parts of England (West Midlands, southwest) have relatively low coverage, often reflecting observer density. A major analysis of trends over time in various aspects of breeding performance found relatively few differences between major regions in the UK, when analysed using analysis of covariance (**Crick *et al*. 1993**). The scheme receives records from all the UK's major habitats. Most records come from woodland, farmland and freshwater sites, but the scheme also receives data from scrub, grassland, heathland and coastal areas.

Data analysis

Five different variables were analysed for this report: laying date (where day 1 = January 1); clutch size; brood size; and daily nest failure rates during egg and nestling stages, calculated using the methods of **Mayfield (1961**, **1975**) and **Johnson (1979)** (see **Crick *et al.* 2003** for a review).

To minimise the incidence of errors and inaccurately recorded nests, a set of rejection criteria was applied to the data: laying date included only cases where precision was within �5 days; clutch size was not estimated for nests which had been visited only once, for nests which were visited when laying could still have been in progress, or for nests which were visited only after hatching; and maximum brood size was calculated only for nests which were observed after hatching. The last variable is an underestimate of brood size at hatching, because observers may miss early losses of individual chicks; it differs from clutch size because some eggs may be lost during incubation or fail to hatch.

Daily failure rates of whole nests were calculated using a formulation of **Mayfield's (1961**, **1975**) method as a logit–linear model with a binomial error term, in which success or failure over a given number of days (as a binary variable) was modelled, with the number of days over which the nest was exposed during the egg and nestling periods as the binomial denominator (**Crawley 1993**, **Etheridge**

***et al.* 1997**, **Aebischer 1999**). Numbers of exposure days during the egg and nestling periods were calculated as the midpoint between the maximum and minimum possible, given the timing of nest visits recorded on each Nest Record Card (note that exposure days refer only to the time span for which data were recorded for each nest and do not represent the full length of the egg or nestling periods). Each calculation assumes that failure rates were constant during the period considered. Violations of this assumption of the Mayfield method can lead to biased estimates if sampling of nests is uneven over the course of each period. It is unlikely that any such bias would vary from year to year so, although absolute failure rates may be biased, annual comparisons should be unaffected (**Crick *et al.* 2003**). In this report, therefore, we present only temporal trends in daily nest failure rates.

As the combined influence of concurrent trends in these individual breeding parameters on overall productivity is difficult to assess, the estimates produced are used to derive an annual mean estimate of the number of 'fledglings produced per breeding attempt' (FPBA) according to the equation below (**Crick *et al.* 2003**):

$$\mathrm{FPBA} = \mathrm{CS} \times \mathrm{HS} \times (1 - \mathrm{EF})^{\mathrm{EP}} \times (1 - \mathrm{YF})^{\mathrm{YP}}$$

where CS represents clutch size, HS represents hatching success, EF and YF represent egg- and chick-stage daily failure rates and EP and YP represent the length of the egg and nestling periods. Standard errors were derived using the formula given by **Siriwardena *et al.* (2000b)**.

Statistical analyses of nest record data were undertaken using SAS programs (**SAS 2009**). Regressions through annual mean laying dates, clutch sizes and brood sizes were weighted by sample size. Nest survival was analysed by logistic regression. Quadratic regressions were used when the inclusion of a quadratic term provided a significant improvement over linear regression. These are described as 'curvilinear' in the tables on species pages. Significant linear trends are described as 'linear'. The best-fitting regressions (i.e. quadratic or linear) are presented on the figures in this report. Where neither regression is significant, the linear regression line is shown for illustrative purposes.

Results are presented only if the mean sample size of records for a particular variable and species exceeds ten per year, and are presented with a caveat for small sample sizes if the mean number of records contributing data was between ten and 30 per year.

Next section – 2.8 The alert system

Back to Methodology Index

CLICK HERE to go to the NRS section of the main BTO website

2.8 The alert system

2.8.1 General approach

The alert system used within this report is designed to draw attention to developing population declines that may be of conservation concern, and is described in detail by **Baillie & Rehfisch (2006)**. It also identifies situations where long-term declines have reversed, leading to an improvement in conservation status. It must be stressed that the changes reported here are advisory and do not supersede the agreed UK conservation listings (**Eaton *et al*. 2009**; see **PSoB** pages). They are based on similar criteria to *Birds of Conservation Concern*, however, and so provide an indication of likely changes at future revisions.

The system is based on statistical analyses of the population trend data for individual species. Alerts seek to identify rapid declines (>50%) and moderate declines (>25% but <50%). These declines are measured over a number of time-scales, depending on the availability of data – the full length of the available time series, and the most recent 25 years, 10 years and 5 years for which change can be estimated. The conservation emphasis is particularly on the longer periods, but short-term changes help to separate declines that are continuing – or accelerating – from those that have ceased or reversed.

The alerts are calculated annually using standard automated procedures. Where species are at the margin of two categories (e.g. a decline of about 25%) they may raise alerts in some years but not others, or different levels of alert in different years.

Data on some species might be biased, owing to possibly unrepresentative monitoring, or imprecise, owing to small sample sizes. Because these data often provide the only information that is available, our general approach is to report all the alerts raised but to flag up clearly any deficiencies in the data.

2.8.2 Smoothing population trends

Bird populations show long-term changes that do not follow simple mathematical trajectories. In addition to the long-term trends, annual population indices also show short-term fluctuations resulting from a combination of natural population variability and statistical error. We use smoothing techniques that aim to extract the long-term pattern of population change, without forcing it to follow any particular shape (such as a straight line or a polynomial curve). These methods remove most of the effects of short-term fluctuations (including any natural year-to-year variability) so that the long-term trend is revealed more clearly.

Technical details available here

2.8.3 Years used for analysis

Once a smoothed population trend has been calculated, change measures are calculated from the ratio of the smoothed population indices for the two years of interest. Population indices for the first and last years of a smoothed time series are less reliable than the others, and so we always drop them before calculating alerts. Because the latest year is not included, the alerts are therefore less up-to-date than they could be, but fewer false alarms are generated. The latest year's data points do contribute, however, to the smoothed curve and are dropped only after the smoothing has taken place.

The time it takes BTO to collate and analyse each year's intake of bird monitoring data is another factor affecting the years that can be included in these analyses. Full analyses of data sets are not usually all available until 12–15 months after the end of a particular breeding season. Thus for a report prepared in year *x* (e.g. 2010) we have analyses of monitoring data up to year (*x*-1) (e.g. 2009). As we drop the final year of the smoothed time series, we report here on change measures up to year (*x*-2) (e.g. 2008).

Long-term changes for most of the species included in this report are calculated from joint Common Birds Census and Breeding Bird Survey data (CBC/BBS indices). The CBC started on farmland in 1962 and on woodland in 1964. However, the early years of the CBC population indices are strongly influenced by the effects of the unusually severe winters of 1961/62 and 1962/63, as well as by developments in methodology (**Marchant *et al.* 1990**). Joint CBC/BBS indices have been calculated using only the data from 1966 onwards, therefore, and population changes are calculated back to 1967.

2.8.4 Confidence limits and statistical testing

We show 90% confidence limits for population change measures wherever possible. Any decline where the confidence limits do not overlap zero (no change) is regarded as statistically significant and will trigger an alert if it is of sufficient magnitude. Note that, because we are seeking to detect only declines, we are using a one-tailed test – with a P value of 0.05. These confidence limits therefore do not indicate whether increases are statistically significant.

The graphs of population trends show 85% confidence limits because these allow an approximate visual test of whether the difference between the index values for any two given years is statistically significant: if the index values for two given years are assumed to be independent, and normally distributed with standard errors of comparable size (standard errors differing by a factor of up to about 2 are quite acceptable), then to a good approximation the difference between them is significant at the 5% level if there is no overlap in their 85% confidence intervals (**Buckland *et al.* 1992**, **Anganuzzi 1993**). This test is fairly robust, and the independence assumption is reasonable if the years are well separated.

Technical details available here

2.8.5 Data-deficient species

There is uncertainty about the reliability of the results for some species, either because data may be unrepresentative or because they are based on a very small sample of plots. In these cases the cause of the uncertainty is recorded in the comment column of the population change table.

Unrepresentative data

In this report we present joint UK or England CBC/BBS trends only if there was no substantial or statistical difference between the trends from the two schemes over the period when they ran in parallel (**Freeman *et al.* 2007a**). Thus, since BBS results are drawn from a random sample, the trends are always considered to be representative of the region concerned.

In previous reports representativeness was assessed using the criteria developed by **Gibbons *et al.* (1993)**. Data from the 1988–91 Breeding Atlas were used to compare the average abundance of a given species in 10-km squares with and without CBC plots. If average abundance is higher in squares without CBC plots, it is likely that much of the population is not well sampled by the CBC. In past reports, CBC data for such species were labelled as "unrepresentative". Where there are insufficient data to undertake such calculations, expert opinion was used instead.

Sample size

Sample size is assessed from the average number of plots contributing to the population indices for a given species in each year. A plot with a zero count would be included provided that the species had been recorded there in at least one year and that records for that plot were available for at least two years. Plots where a species has never been recorded do not enter the index calculations. These average sample sizes are shown in column four ('plots') of the population change tables. For CBC, WBS and CES, a mean of between 10 and 19 plots is flagged as a small sample. For BBS indices for individual countries a mean in the range 30–39 plots is flagged as a small sample. UK BBS indices are presented only where samples reach at least 40 plots.

Technical details available here

Next section – 2.9 Statistical methods used for alerts

Back to Methodology Index

BBWC home > Contents > Methodology > Statistical methods used for alerts

2.9 Statistical methods used for alerts

The **Alert System** page contains a general overview of how the alert system works. More detailed information is given below about the statistical methods used to estimate population indices, population changes and their confidence intervals.

2.9.1 General structure of data

The data for all of the schemes reported here consist of annual counts made over a period of years at a series of sites. They can thus be summarised as a data matrix of sites x years, within which a proportion of the cells contain missing values because not all of the sites are covered every year. Such data can be represented as a simple model:

log (count) = site effect + year effect

Each site has a single site-effect parameter. These site parameters are not usually of biological interest but they are important because abundance is likely to differ between sites. The main parameters of interest are the year effects. These can be modelled either with as many parameters as years (an annual model), or with a smaller number of parameters, representing a smoothed curve.

A simple annual model would be fitted as a generalised linear model with Poisson errors and a log link function. This is the main model provided by the program TRIM (**Pannekoek & van Strien 1996**), which is widely used for population monitoring.

2.9.2 Fitting smoothed models

Our preferred method for generating a smoothed population trend is to fit a smoothed curve to the data directly using a generalised additive model (GAM) (**Hastie & Tibshirani 1990**, **Fewster *et al.* 2000**). Thus the model from the previous section becomes:

log (count) = site effect + smooth (year)

where smooth (year) represents some smoothing function of year. It was not straightforward to fit GAMs to the CBC/BBS or Heronries Census data and we have therefore fitted smoothed curves with a similar degree of smoothing to the annual indices (details below).

The non-parametric smoothed curve fitted in our models is based on a smoothing spline. The degree of smoothing is specified by the number of degrees of freedom (df). A simple linear trend has df = 1, whereas the full annual model has df = t-1, where t is the number of years in the time series. Here we set df to be approximately 0.3 times the number of years in the time series (**Fewster *et al.* 2000**). The degrees of freedom used for the main data sets presented in this report are summarised below.

	Years	Length of time series	df for smoothed index
CBC/BBS	1966–2009	44	13
Waterways Bird Survey	1974–2009	36	11
Constant Effort Sites	1983–2009	27	8
Heronries Census	1928–2009	82	25

Note that the numbers of years shown here are different from those available for calculating change measures, because we use the whole time series available for analysis (i.e. prior to the truncation of end points), and because we count the number of years in the time series rather than the number of annual change measures.

2.9.3 CBC/BBS trends

The model fitted to the combined CBC and BBS data is that historically employed for the BBS, a generalised linear model with counts assumed to follow a Poisson distribution and a logarithmic link function. Standard errors were calculated via a bootstrapping procedure. For presentation in the figures, both the population trend and its confidence limits were also subsequently smoothed using a thin-plate smoothing spline. The overall result is a smoothed trend that is mathematically equivalent to that produced from a generalised additive model.

A similar method as employed for the joint CBC/BBS trend has been used for the BBS alone. This adopted a generalised linear model with counts assumed to follow a Poisson distribution and a logarithmic link function. Standard errors were calculated via a bootstrapping procedure involving 199 bootstraps. For presentation in the figures, both the population trend and its confidence limits were also subsequently smoothed using a thin-plate smoothing spline.

2.9.4 WBS/WBBS trends

The model fitted to the combined WBS and WBBS data is identical to that employed for the joint CBC/BBS trend, a generalised linear model with counts assumed to follow a Poisson distribution and a logarithmic link function. Standard errors were calculated via a bootstrapping procedure involving 199 bootstraps. For presentation in the figures, both the population trend and its confidence limits were also subsequently smoothed using a thin-plate smoothing spline. The overall result is a smoothed trend that is mathematically equivalent to that produced from a generalised additive model, as used in earlier reports for the WBS data alone.

2.9.5 Constant Effort Sites

GAMs were fitted to the CES data for catches of adults and juveniles separately with the addition of an offset to correct for missing visits. Confidence limits were fitted using a bootstrap technique to avoid restrictive assumptions about the distribution of the data. Bootstrap samples were drawn from the data by sampling plots with replacement. We generated 199 bootstrap samples from each data set and fitted a GAM to each of them. Confidence limits for the smoothed population indices (85% cl) and change measures (90% cl) were determined by taking the appropriate percentiles from the distributions of the bootstrap estimates, in a similar manner to that employed for the WBS/WBBS trends.

2.9.6 Heronries Census

The Heronries Census data were analysed using a modified sites x years model based on ratio estimation which incorporates information about new colonies (sites) that have been established and other colonies from the sample that are known to have become extinct. The method was developed by **Thomas (1993)** specifically in relation to the heronries data set. Since then the heronries database has been substantially upgraded and the method has been applied to the full data set (**Marchant *et al.* 2004**).

The above method of analysis cannot be easily applied within a GAM framework. Therefore we fitted a smooth curve to the annual indices. This was done using PROC TSPLINE of SAS (**SAS 2009**). This procedure should give very similar estimates to a GAM analysis but it does not provide confidence intervals for the smoothed population trend or the change measures derived from it. This is not a serious limitations as there are no potential alerts for **Grey Heron**, whose populations have generally been increasing.

Section 3 – Species pages

Back to Methodology Index

SPECIES LIST

List of species (in taxonomic order)

Information to aid interpretation of the pages for individual species
can be found on the **Species Help Page**

MUTE SWAN
Cygnus olor

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: no SPEC category (concentrated in Europe, conservation status favourable)
UK: green

Long-term trend

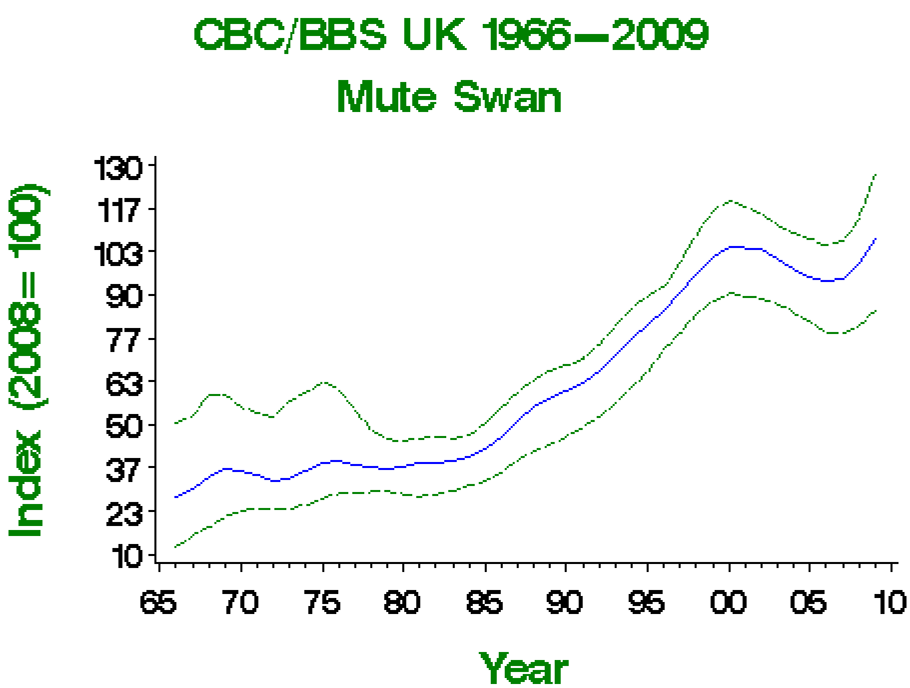
UK, England: rapid increase

UK population size

28,000–30,000 adults in 1990 (**Delany *et al.* 1992**: **APEP06**); 23,900–25,600 pairs in 2000 (updated using CBC/BBS trend: **BiE04**); 28,600–35,200 birds in Britain in 2002 (**Rowell & Spray 2004**)

Status summary

Mute Swan populations, which had been fairly stable since the 1960s, have increased progressively since the mid 1980s, perhaps reflecting warmer winter weather and the replacement of anglers' lead weights, which had earlier caused many cases of lethal and sublethal poisoning, with non-toxic alternatives (**Rowell & Spray 2004**, **Ward *et al.* 2007**). Waterways, likely to be a preferred habitat for breeding swans, show a more moderate rate of increase than CBC/BBS. Winter trends as measured by WeBS have shown a parallel upturn (**Calbrade *et al.* 2010**). The increase in egg-stage nest failure rates, although statistically significant, may be to some extent an artefact of the relatively small and perhaps unrepresentative annual samples in the 1990s. After a spell on the amber list from 2002, for reasons unconnected with its UK trend, the species is now green listed once more.



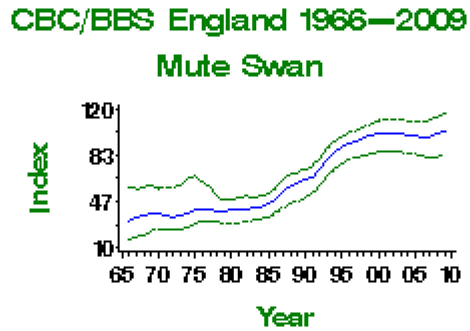
1967-2008: 230% (confidence interval 48% to 641%)

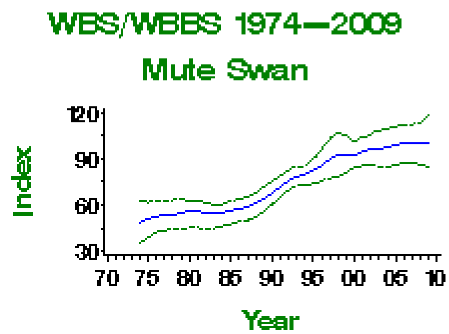
Population changes in detail

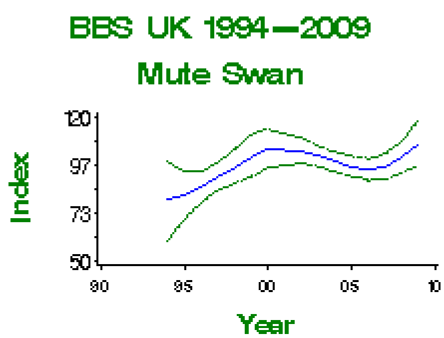
Table of population changes for Mute Swan

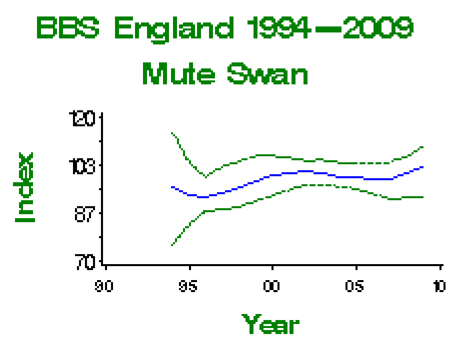
Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS UK	41	1967-2008	93	230	48	641		
	25	1983-2008	141	159	83	293		
	10	1998-2008	263	4	-12	20		
	5	2003-2008	288	-1	-13	9		
CBC/BBS England	41	1967-2008	80	199	42	563		Small CBC sample
	25	1983-2008	122	142	73	254		
	10	1998-2008	226	3	-12	17		
	5	2003-2008	250	0	-10	11		
WBS/WBBS waterways	33	1975-2008	75	98	46	185		
	25	1983-2008	88	83	46	154		
	10	1998-2008	149	7	-18	41		
	5	2003-2008	158	3	-9	22		
BBS UK	13	1995-2008	231	22	-1	57		
	10	1998-2008	256	4	-11	24		
	5	2003-2008	288	-1	-13	10		
BBS England	13	1995-2008	199	8	-11	28		
	10	1998-2008	219	5	-11	21		
	5	2003-2008	250	0	-11	9		

BTO JNCC Joint Nature Conservation Committee RSPB The Breeding Bird Survey is jointly funded by the BTO, JNCC & RSPB

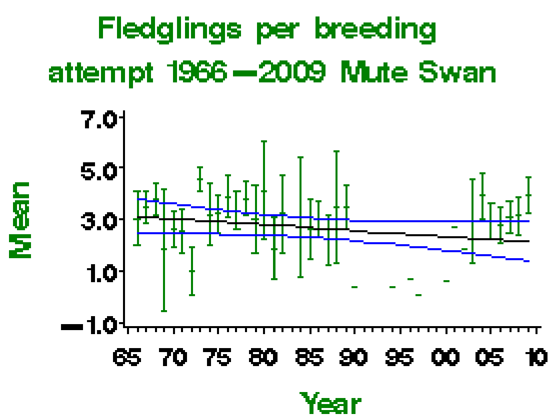


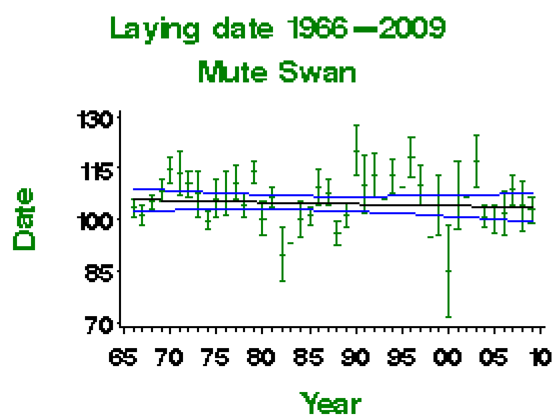






Demographic trends



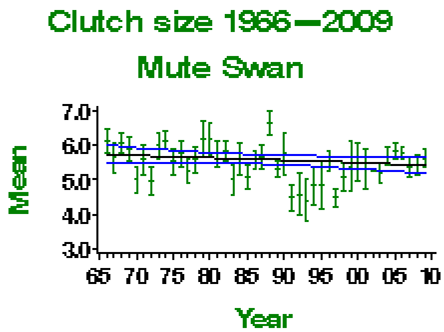


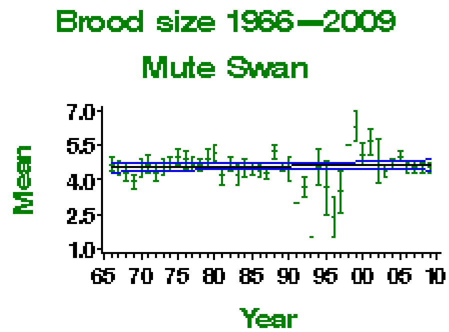
More on demographic trends

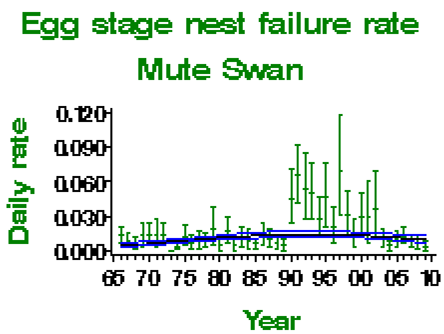
Table of demographic changes for Mute Swan

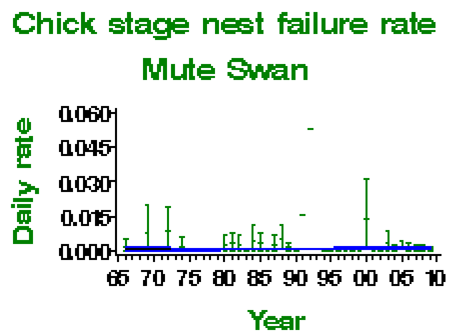
Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment

Fledglings per breeding attempt	40	1968-2008	12	None					
Clutch size	40	1968-2008	23	None					Small sample
Brood size	40	1968-2008	41	None					
Daily failure rate (eggs)	40	1968-2008	30	Curvilinear	0.58% nests/day	1.06% nests/day	82.8%		
Daily failure rate (chicks)	40	1968-2008	27	None					Small sample
Laying date	40	1968-2008	13	None					Small sample









Additional information

- Maps and statistics from British and Irish atlases
- BirdFacts page on species biology
- BirdTrack results

GREYLAG GOOSE
Anser anser

- Population changes
- Productivity trends
- Additional information

Conservation listings

Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe)
UK: not listed (introduced population);
amber (localised NW Scottish population);
amber (in winter, localised and >20% of NW European Flyway population)

Long-term trend

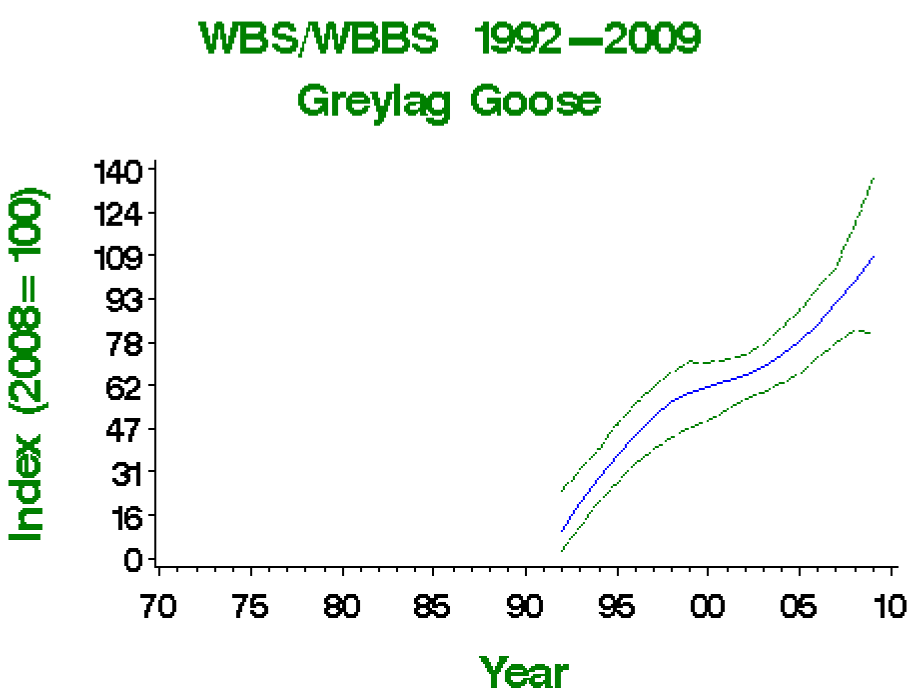
UK waterways: rapid increase

UK population size

3,200 indigenous pairs in 1997, and 30,900 introduced adults in 1999 (**Mitchell *et al.* 2000**, **Rehfisch *et al.* 2002**, **APEP06**); 15,600–15,800 pairs in 2000 (**BiE04**)

Status summary

Apart from a small indigenous population in northwest Scotland and the Western Isles, and winter visitors mainly from Iceland, the Greylag Goose is a re-established species throughout the UK. Re-established Greylags increased very rapidly, at a rate estimated at 12% per annum in southern Britain between the 1988–91 Atlas period and 1999 (**Rehfisch *et al.* 2002**). This equates across Britain to 170%, or 9.4% per annum, in the period to 2000 (**Austin *et al*. 2007**). The WBS sample became large enough for annual monitoring in 1992, since when further steep increase has been recorded along linear waterways with no sign yet of levelling off. Annual breeding-season monitoring in a wider range of habitats through BBS has shown similar strong increases. Winter counts of re-established birds have increased rapidly since the late 1960s and reached a new peak in 2008/09 (**Calbrade *et al.* 2010**).



1993-2008: 410% (confidence interval 134% to 981%)

Population changes in detail

Table of population changes for Greylag Goose

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
WBS/WBBS waterways	15	1993-2008	37	410	134	981		
	10	1998-2008	51	78	18	179		
	5	2003-2008	61	45	8	93		
BBS UK	13	1995-2008	150	144	21	336		
	10	1998-2008	172	145	88	232		
	5	2003-2008	216	40	3	100		
BBS England	13	1995-2008	123	188	92	379		
	10	1998-2008	143	141	71	235		
	5	2003-2008	180	55	31	87		

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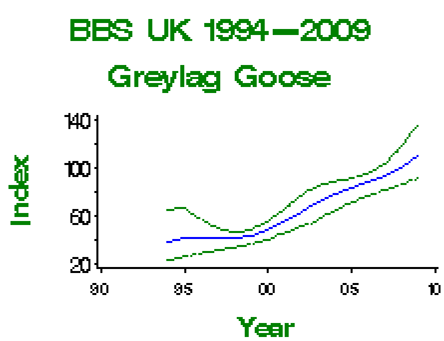
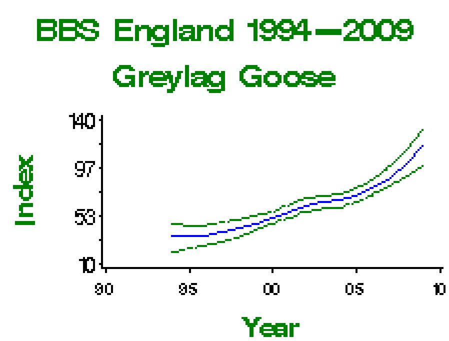




Demographic trends

Demographic information is not currently available for this species

Additional information

- Maps and statistics from British and Irish atlases
- BirdFacts page on species biology
- BirdTrack results

CANADA GOOSE
Branta canadensis

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe)
UK: not listed (**introduced**)

Long-term trend

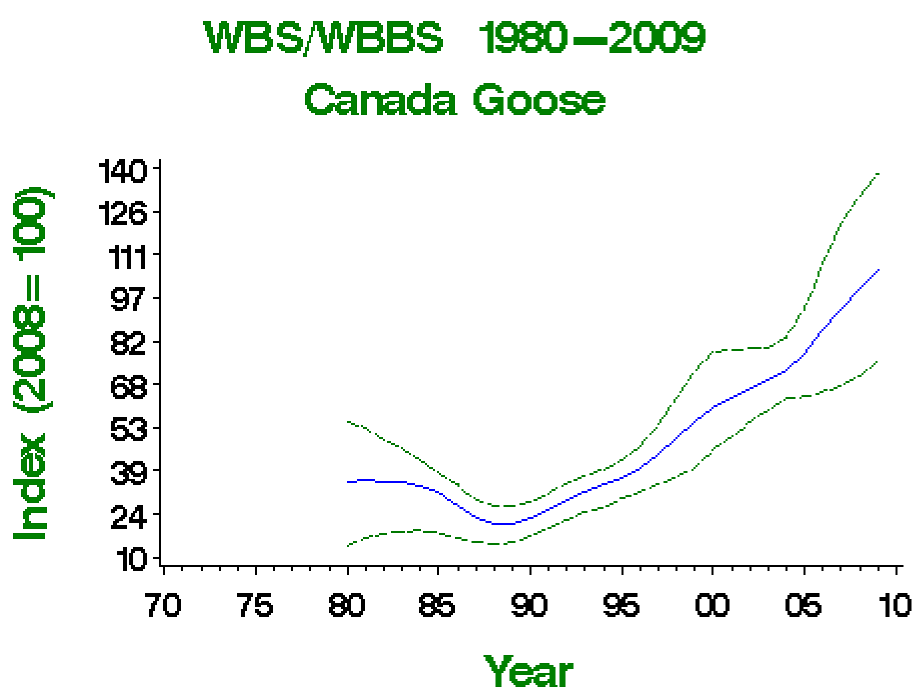
UK waterways: rapid increase

UK population size

82,550 adults in 1999 (**Rehfisch *et al.* 2002**: **APEP06**); 88,866 adults in Britain in 2000 (**Austin *et al*. 2007**)

Status summary

Canada Geese were first introduced to English parkland around 1665 but have expanded hugely in range and numbers following translocations in the 1950s and 1960s. They increased rapidly, at a rate estimated at 9.3% per annum in Britain between the 1988–91 Atlas period and 2000, with no sign of any slowing in the rate of increase (**Austin *et al*. 2007**). Most of this increase, amounting to 166% during that decade alone, has been in areas previously with low goose densities. The WBS sample became large enough for annual monitoring in 1980, since when further, apparently accelerating, increase has occurred on linear waterways. Annual breeding-season monitoring in a wider range of habitats through BBS has shown similar strong increases in England and in the UK as a whole. Winter monitoring by WeBS shows a continuing long-term increase (**Calbrade *et al.* 2010**). The economic, social and environmental impacts of rapidly expanding, non-native Canada Goose populations are of growing conservation concern across Europe.



1981-2008: 179% (confidence interval 34% to 972%)

Population changes in detail

Table of population changes for Canada Goose

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
WBS/WBBS waterways	27	1981-2008	60	179	34	972		
	25	1983-2008	64	185	56	766		
	10	1998-2008	115	101	16	264		
	5	2003-2008	126	45	-5	113		
BBS UK	13	1995-2008	429	106	62	147		
	10	1998-2008	479	79	47	109		
	5	2003-2008	550	24	-3	40		
BBS England	13	1995-2008	400	94	50	128		
	10	1998-2008	445	73	34	105		
	5	2003-2008	508	21	-6	36		

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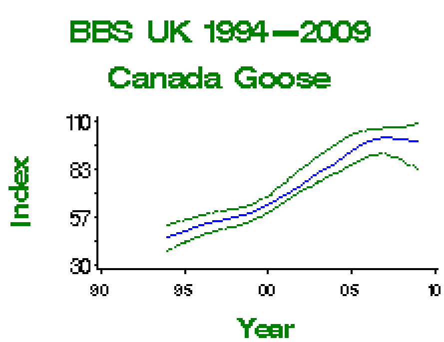
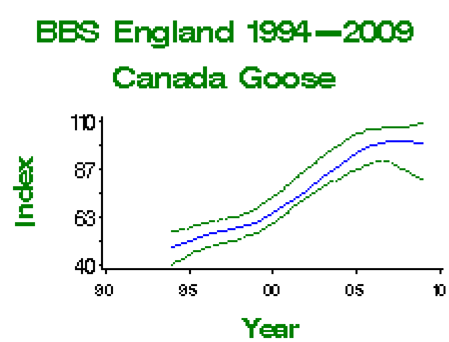




Demographic trends

Demographic information is not currently available for this species

Additional information

- Maps and statistics from British and Irish atlases

BirdFacts page on species biology
- BirdTrack results

SHELDUCK
Tadorna tadorna

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe)
UK: amber (localised in winter, >20% of NW European population in winter)

Long term-trend

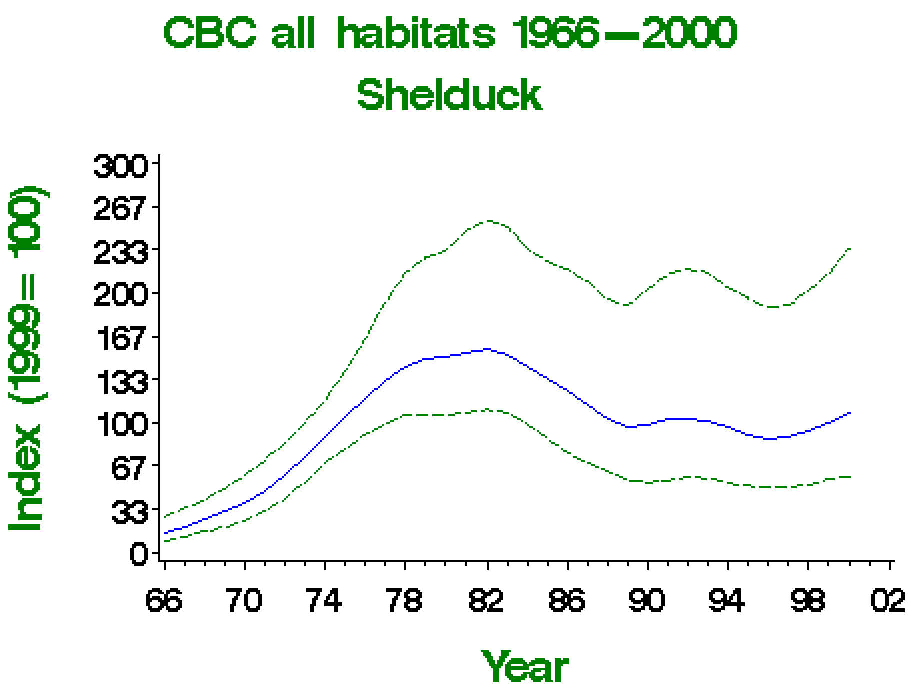
UK: probable rapid increase

UK population size

10,900 pairs in 1990 (1988–91 Atlas: **APEP06**); 5,800–10,800 pairs in 2000 (updated using CBC and BBS trends: **BiE04**)

Status summary

Shelducks occurred on relatively few CBC plots, most of which were close to a coast or an estuary, and it is unclear how well the CBC trend represented the UK breeding population. The CBC showed a substantial increase from the mid 1960s until the early 1980s, some decrease during the 1980s, and stability during the 1990s, although the wide confidence intervals provide scope for other interpretations. Population increase was associated with expansion of range, measured as an additional 20% of occupied 10-km squares in Britain between 1968–72 and 1988–91 (**Gibbons *et al.* 1993**). The UK winter Shelduck population rose during the 1960s and 1970s, alongside the rise in breeding numbers, but has been falling again since the mid 1990s (**Calbrade *et al.* 2010**). The BBS index is affected by occasional large counts, and therefore its confidence intervals are again relatively wide. BBS results suggest an accelerating increase since 1994.



1968-1999: 300% (confidence interval 94% to 787%)

Population changes in detail

Table of population changes for Shelduck

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC all habitats	31	1968-1999	18	300	94	787		Small CBC sample
	25	1974-1999	21	12	-40	118		Small CBC sample
	10	1989-1999	21	3	-21	40		Small CBC sample
	5	1994-1999	23	4	-18	39		
BBS UK	13	1995-2008	137	6	-30	52		
	10	1998-2008	145	30	-10	76		
	5	2003-2008	157	21	-8	47		
BBS England	13	1995-2008	112	38	-11	77		
	10	1998-2008	118	49	-5	95		
	5	2003-2008	127	41	2	70		

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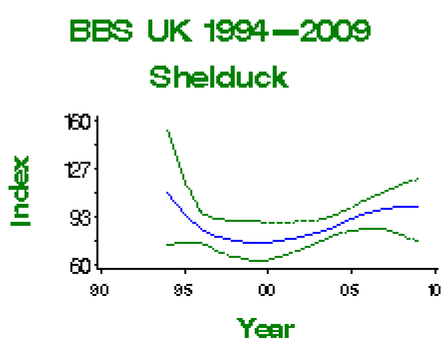
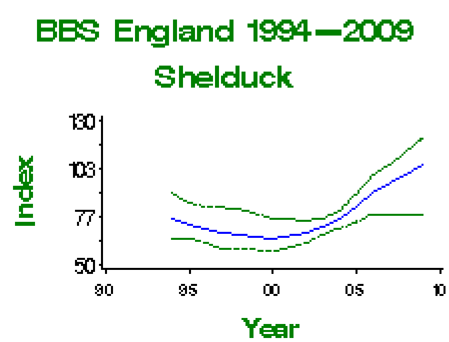




Demographic trends

Demographic information is not currently available for this species

Additional information

- Maps and statistics from British and Irish atlases
- BirdFacts page on species biology

BirdTrack results

MALLARD
Anas platyrhynchos

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe)
UK: amber (winter decline)

Long-term trend

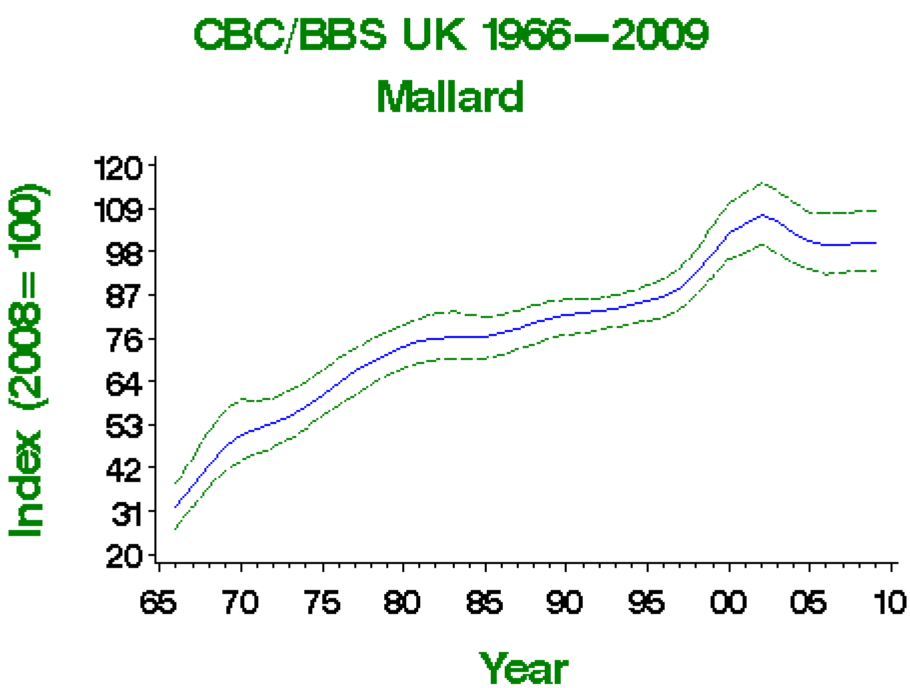
UK, England: rapid increase

UK population size

50,400–127,100 pairs in 1990 (1988–91 Atlas: **APEP06**); 63,000–158,900 pairs in 2000 (updated using CBC/BBS trend: **BiE04**)

Status summary

The Mallard has increased steadily as a breeding bird in the UK since the 1960s, and especially in England, a trend to which ongoing large-scale releases for shooting may have contributed (**Marchant *et al.* 1990**). Mallards originating from domesticated birds and not resembling wild-type birds in either plumage or behaviour are very abundant but perhaps under-represented in survey data, especially since many individuals appear to be semi-captive. A large part of the increase in breeding numbers may be attributable to such birds, rather than to true-bred stock. Winter populations have declined since at least the late 1980s (**Calbrade *et al.* 2010**), linked apparently to a decrease in continental immigration (**Mitchell *et al.* 2002**). The species has recently been moved from the green to the amber list on the strength of this decline in the UK wintering population. There has been widespread moderate increase across Europe since 1980 (**PECBMS 2010**).



1967-2008: 166% (confidence interval 108% to 239%)

Population changes in detail

Table of population changes for Mallard

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS UK	41	1967-2008	487	166	108	239		
	25	1983-2008	729	32	13	54		
	10	1998-2008	1333	8	1	15		
	5	2003-2008	1445	-5	-11	0		
CBC/BBS England	41	1967-2008	414	212	144	279		
	25	1983-2008	619	45	25	72		
	10	1998-2008	1134	20	14	26		
	5	2003-2008	1240	1	-4	6		
WBS/WBBS waterways	33	1975-2008	156	207	143	276		
	25	1983-2008	181	110	70	160		
	10	1998-2008	295	4	-6	12		
	5	2003-2008	320	-1	-7	5		
BBS UK	13	1995-2008	1198	18	9	28		
	10	1998-2008	1303	8	1	14		
	5	2003-2008	1445	-5	-11	0		
BBS England	13	1995-2008	1007	33	24	44		
	10	1998-2008	1097	21	13	29		
	5	2003-2008	1222	2	-3	7		
BBS Scotland	13	1995-2008	96	-21	-37	3		
	10	1998-2008	98	-32	-45	-18	>25	

	5	2003-2008	106	-31	-45	-16	>25	
BBS Wales	13	1995-2008	64	-19	-51	37		
	10	1998-2008	72	13	-20	51		
	5	2003-2008	75	3	-17	23		

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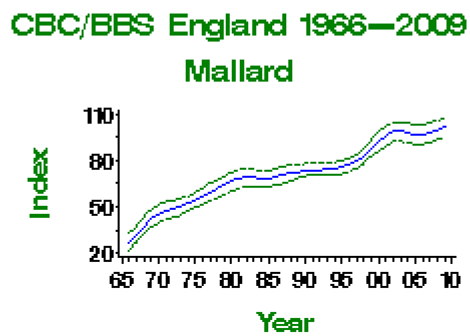
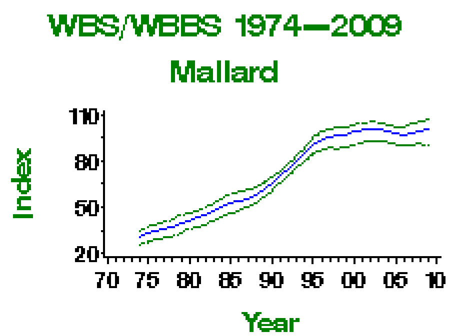
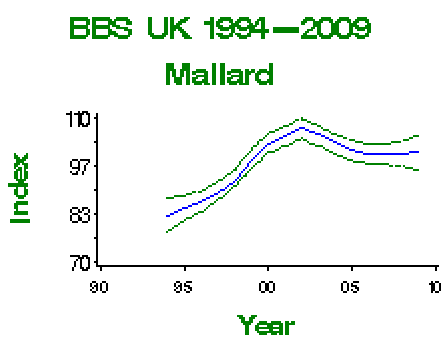
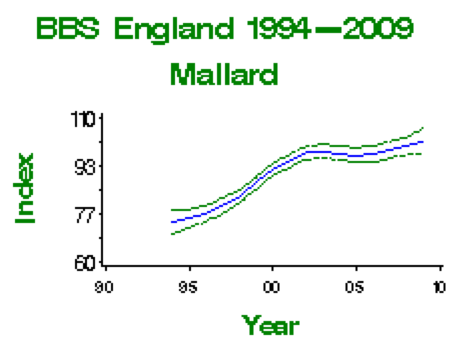
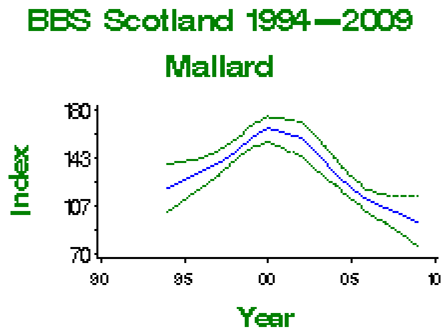
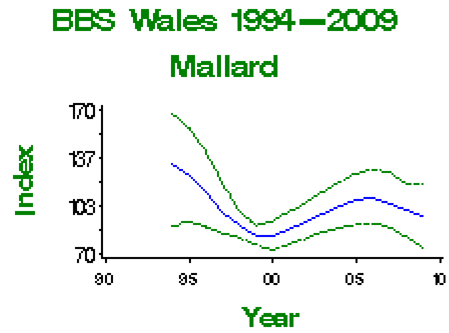












Demographic trends

Demographic information is not currently available for this species

Additional information

- **Maps and statistics from British and Irish atlases**
- **BirdFacts page on species biology**
- **BirdTrack results**

TUFTED DUCK
Aythya fuligula

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: SPEC category 3 (declining)
UK: amber (European decline)

Long-term trend

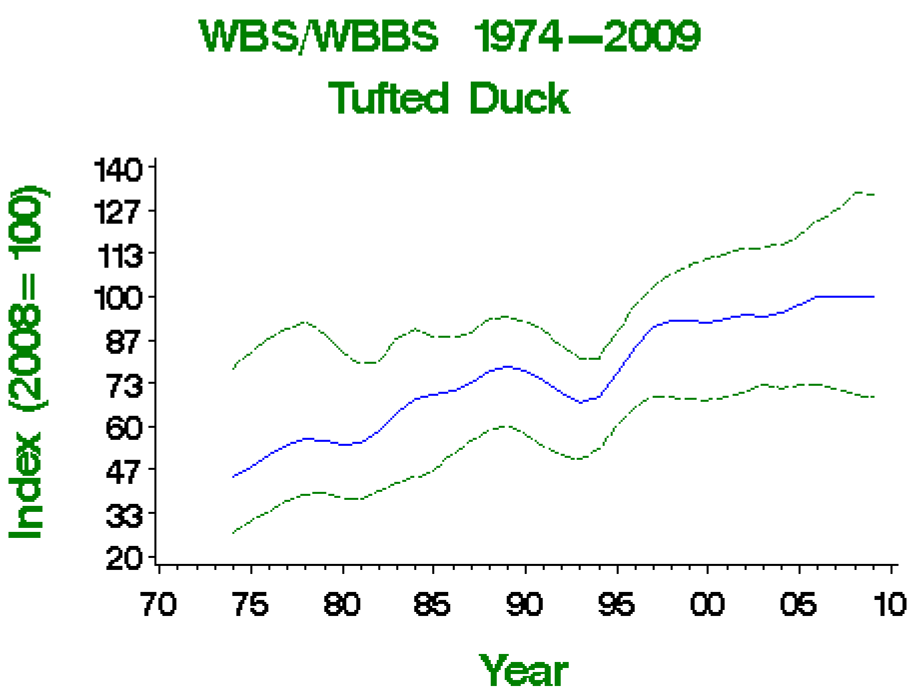
UK waterways: rapid increase

UK population size

7,000–8,000 pairs in GB in 1979–83 (**Owen *et al.* 1986**: **APEP06**); 10,200–11,500 pairs in UK in 2000 (1988–91 Atlas estimate updated using WBS trend: **BiE04**)

Status summary

The colonisation of the UK by Tufted Ducks, which began in 1849, was aided by the spread of the zebra mussel *Dreissena polymorpha*, a non-native invasive species that had been introduced accidentally to Britain a few decades earlier. The long-term increase shown by WBS/WBBS, and the 15% increase in range in Britain between the two atlas periods (**Gibbons *et al.* 1993**) indicate that population expansion and in-filling of range are still occurring. BBS data also show significant increase since 1994 in the UK as a whole. The species' winter trend in the UK since the 1960s, which includes many continental visitors, is also shallowly upward overall (**Calbrade *et al.* 2010**). In contrast, moderate recent declines elsewhere in northern Europe have resulted in its reclassification as a species of conservation concern (**BirdLife International 2004**) and have moved the species from the green to the amber list in the UK (**Eaton *et al.* 2009**).



1975-2008: 111% (confidence interval -16% to 295%)

Population changes in detail

Table of population changes for Tufted Duck

Source	Period	Years	Plots	Change	Lower	Upper	Alert	Comment

	(yrs)		(n)	(%)	limit	limit		
WBS/WBBS waterways	33	1975-2008	35	111	-16	295		
	25	1983-2008	41	57	-14	190		
	10	1998-2008	62	8	-27	73		
	5	2003-2008	62	6	-20	36		
BBS UK	13	1995-2008	142	39	5	66		
	10	1998-2008	151	21	-4	47		
	5	2003-2008	158	9	-7	29		
BBS England	13	1995-2008	123	27	-3	65		
	10	1998-2008	132	13	-5	40		
	5	2003-2008	139	9	-4	23		

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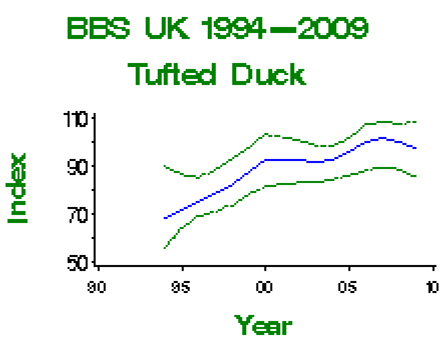
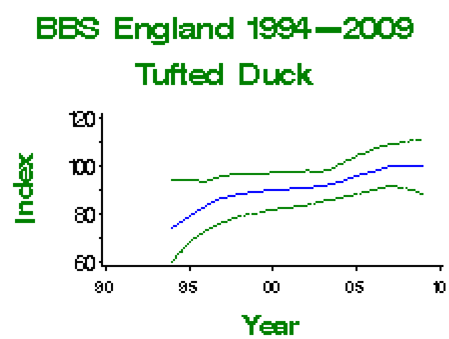




Demographic trends

Demographic information is not currently available for this species

Additional information

- Maps and statistics from British and Irish atlases
- BirdFacts page on species biology
- BirdTrack results

Garden BirdWatch results

GOOSANDER
Mergus merganser

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe)
UK: green

Long-term trend

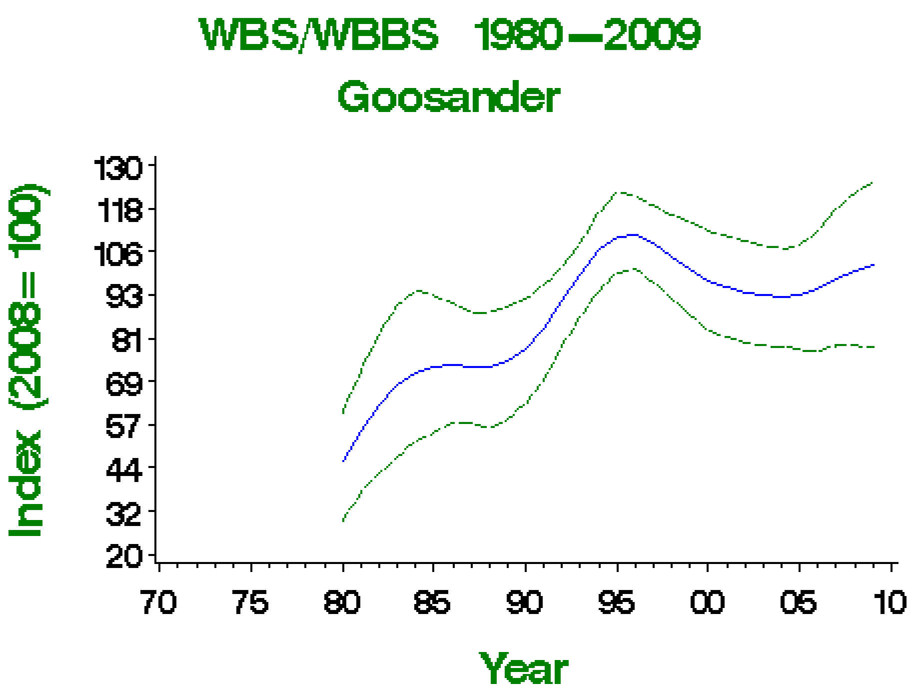
UK waterways: moderate increase

UK population size

2,600 (2,300–2,900) pairs in 1987 (**Gregory *et al.* 1997**: **APEP06**); 2,900–3,600 pairs in 2000 (updated using WBS trend: **BiE04**)

Status summary

Goosanders were first discovered to have colonised the UK in Perthshire in 1871, and spread from Scotland into northern England in the 1940s (**Holloway 1996**). Between the two breeding atlases, the species expanded its range in northern England, and colonised Wales and southwest England. WBS samples became large enough for annual monitoring in 1980, and showed sustained population increase, although this may now have levelled off. The BTO's two national surveys of sawbills demonstrated an average increase in population size of 3% per annum between 1987 and 1997 (**Rehfisch *et al.* 1999**). Reasons for the colonisation of the UK, and the subsequent range expansion and population increase, are unknown. The species' winter trend in Britain, comprising British breeders and continental visitors, rose steeply from the late 1960s to the mid 1990s, but subsequently began to decline (**Calbrade *et al.* 2010**).



1981-2008: 82% (confidence interval 13% to 236%)

Population changes in detail

Table of population changes for Goosander

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
WBS/WBBS waterways	27	1981-2008	40	82	13	236		
	25	1983-2008	42	47	-9	164		
	10	1998-2008	70	-4	-24	19		
	5	2003-2008	77	7	-12	29		

Demographic trends

Demographic information is not currently available for this species

Additional information

- Maps and statistics from British and Irish atlases
- BirdFacts page on species biology
- BirdTrack results

RED GROUSE
Lagopus lagopus

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe)
UK: amber (25–50% population decline)
UK Biodiversity Action Plan: **priority species**

Long-term trend

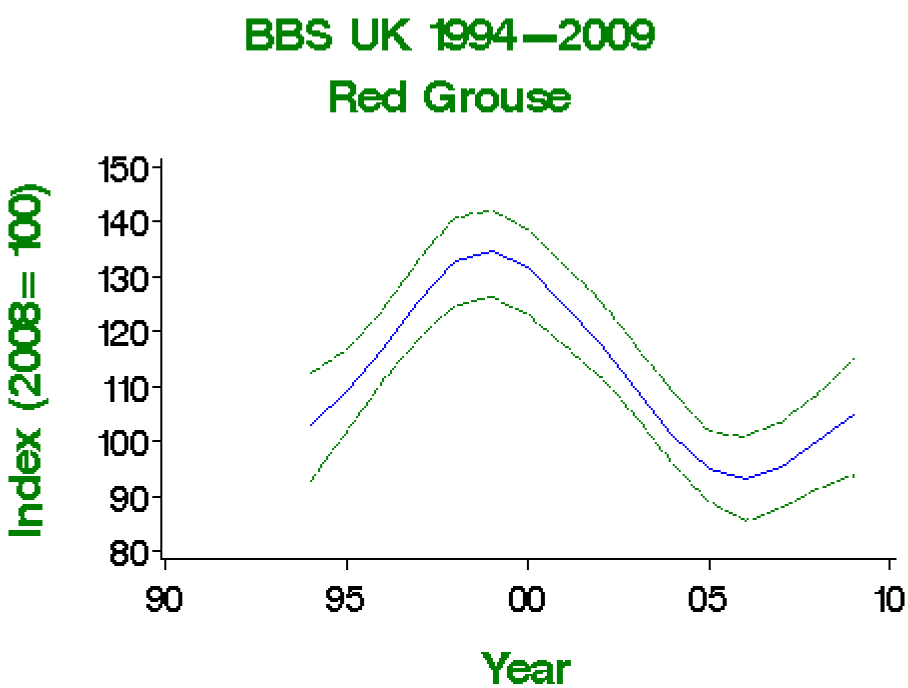
UK: decline

UK population size

155,000 pairs in 2000 (1988–91 Atlas estimate updated using GCT gamebag data: **BiE04**, **APEP06**)

Status summary

The distinctive dark-winged race *scotica* is endemic to Britain and Ireland and has the vast bulk of its population within the UK, thus conferring global significance to the UK trend. It is economically very important to some rural communities as a game bird and has benefited from intensive management of many moorlands that was designed specifically to increase the numbers of grouse available to be shot. BBS shows fluctuations but no overall trend since 1994. **Shooting bags** have revealed long-term declines, apparently driven by loss of heather moorland, increased predation from corvids and foxes, and an increasing incidence of viral disease (**Hudson 1992**, **Newton 2004**), which prompted the move of the species from the green to the amber list in 2002. Longer-term trends in Red Grouse abundance are overlain by cycles, with periods that vary regionally, linked to the dynamics of infection by a nematode parasite (**Dobson & Hudson 1992**, **Gibbons *et al.* 1993**). Raptor predation is believed not to affect breeding populations significantly, although it can reduce numbers in the post-breeding period (**Redpath & Thirgood 1997**). **Hen Harriers** in particular can reduce grouse shooting bags, limit grouse populations and cause economic losses to moor owners, and have been subject to much illegal persecution (**Thompson *et al.* 2009**). Finding a solution to the harrier–grouse conflict would bring considerable benefits to the management of the UK's heather moorlands and have broad implications for the conservation of predators (**Redpath & Thirgood 2009**).



1995-2008: -9% (confidence interval -21% to 7%)

Population changes in detail

Table of population changes for Red Grouse

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
BBS UK	13	1995-2008	112	-9	-21	7		
	10	1998-2008	114	-25	-35	-13		
	5	2003-2008	120	-9	-21	2		
BBS England	13	1995-2008	65	-18	-33	-1		
	10	1998-2008	73	-21	-35	-5		
	5	2003-2008	92	-19	-30	-7		
BBS Scotland	13	1995-2008	53	-3	-22	24		
	10	1998-2008	50	-25	-40	-4	>25	
	5	2003-2008	47	-2	-19	14		

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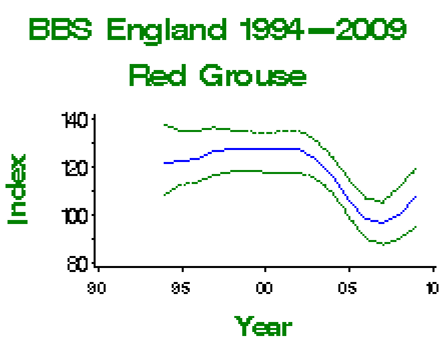
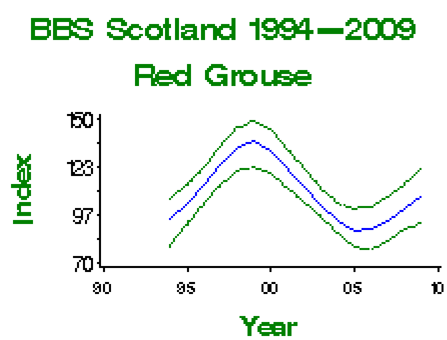




Demographic trends

Demographic information is not currently available for this species

Additional information

- Maps and statistics from British and Irish atlases
- BirdFacts page on species biology
- BirdTrack results
- Atlas 2007–11 latest results

RED-LEGGED PARTRIDGE
Alectoris rufa

- Population changes
- Productivity trends
- Additional information

Conservation listings

Europe: SPEC category 2 (declining)
UK: not listed (**introduced**)

Long-term trend

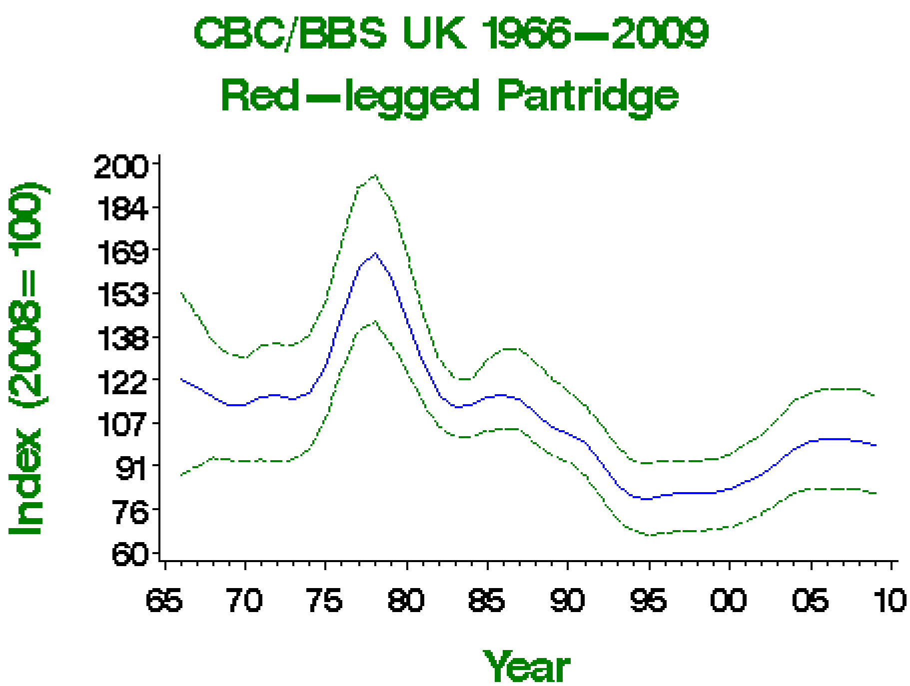
UK, England: possible shallow decline

UK population size

72,000–200,000 territories in 2000 (1988–91 Atlas estimate updated using CBC/BBS trend: **BiE04**, **APEP06**)

Status summary

Since Red-legged Partridge is a non-native species released in the UK for the purpose of being shot by hunters, its possible population decrease over the recent 25-year period raises no conservation concern. Moreover, BBS data indicate that significant increase has occurred in the UK and England since 1994. **Game-bag data** show that the numbers released per unit area onto shooting estates, and the numbers shot, have both increased more than eightfold since 1980: around 6.5 million birds have been released annually in the UK in recent years (**PACEC 2006**). The effects on native fauna of such vast-scale releases of this species and **Pheasant** have been little studied. There is now evidence, however, that shooting operations based on large-scale releases of Red-legged Partridges can lead to local extinction of the red-listed native **Grey Partridge** (**Watson *et al.* 2007**).



1967-2008: -16% (confidence interval -41% to 31%)

Population changes in detail

Table of population changes for Red-legged Partridge

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment

CBC/BBS UK	41	1967-2008	196	-16	-41	31		
	25	1983-2008	300	-11	-33	13		
	10	1998-2008	561	23	15	33		
	5	2003-2008	637	9	2	15		
CBC/BBS England	41	1967-2008	192	-20	-52	20		
	25	1983-2008	295	-15	-35	8		
	10	1998-2008	550	19	11	29		
	5	2003-2008	624	7	1	12		
BBS UK	13	1995-2008	509	29	17	39		
	10	1998-2008	553	22	13	32		
	5	2003-2008	637	8	2	14		
BBS England	13	1995-2008	497	24	13	37		
	10	1998-2008	538	19	10	30		
	5	2003-2008	617	8	1	13		

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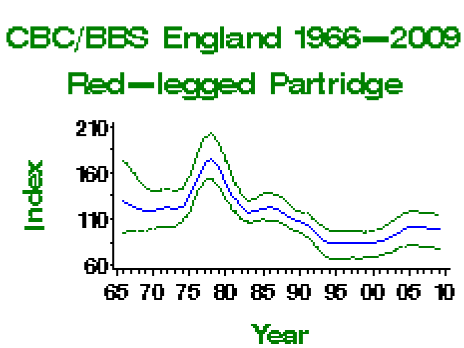
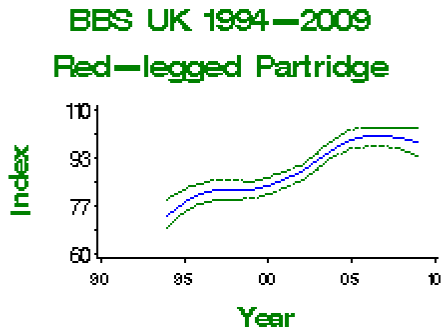
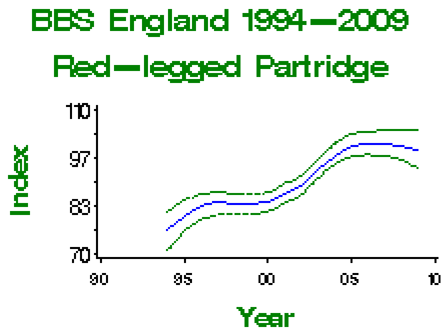






Demographic trends

Demographic information is not currently available for this species

Additional information

- Maps and statistics from British and Irish atlases
- BirdFacts page on species biology
- BirdTrack results

GREY PARTRIDGE

Perdix perdix

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: SPEC category 3 (vulnerable)
UK: red (>50% population decline)
UK Biodiversity Action Plan: **click here**, **priority species**

Long-term trend

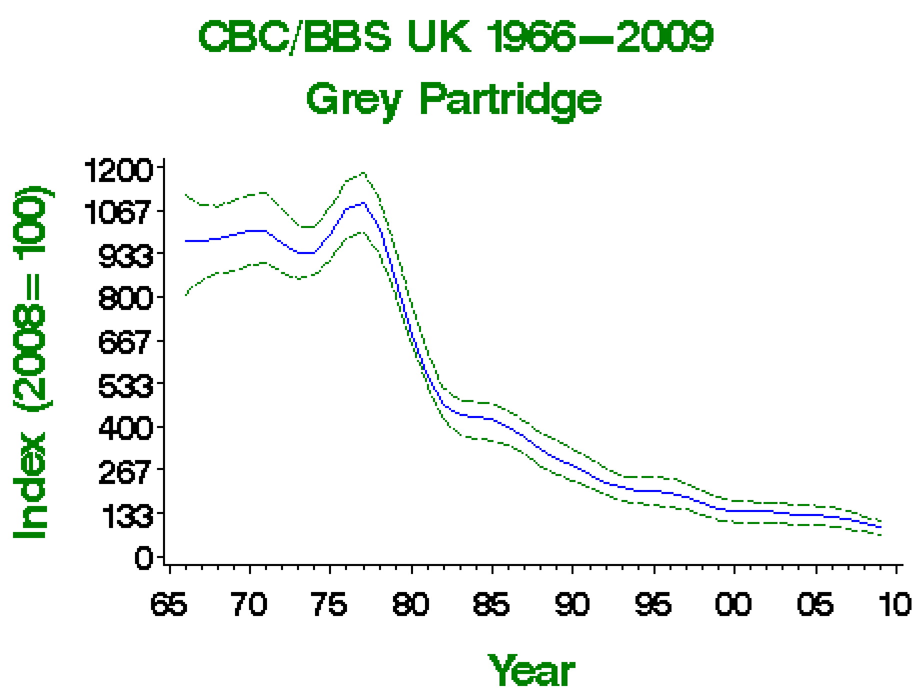
UK, England: rapid decline

UK population size

70,000–75,000 pairs in 2000 (1988–91 Atlas estimate updated using CBC/BBS trend: **BiE04**, **APEP06**)

Status summary

This native gamebird has declined enormously, probably because of the effects of agricultural intensification (specifically herbicides) on the food plants of young chicks' insect prey (**Potts 1986**). Despite years of research and the application of a government Biodiversity Action Plan (**Aebischer & Ewald 2004**), the continuing decline shown by CBC/BBS suggests that all efforts to boost the population in the wider countryside have so far been unsuccessful. Local extinctions are now likely to be widespread, but masked in some areas by continuing releases of hand-reared birds onto shooting estates. Artificial rearing has increased since the mid 1980s, despite the failure of restocking as a means of restoring breeding numbers (see **here**), while releases of non-native gamebirds, which have increased greatly, can be detrimental to this species. Infection with caecal nematodes from farm-reared **Pheasants** may be contributing to the decline of Grey Partridges in Britain (**Tompkins *et al.* 2002**).The practice of releasing **Red-legged Partridges** in large numbers can lead to Grey Partridge extinction, in part because shooters are unable to distinguish these two species (**Watson *et al.* 2007**): these authors conclude that overshooting has greater implications for Grey Partridge conservation than raptor predation. Grey Partridge is one of the most strongly decreasing bird species in Europe, with rapid declines evident in all regions (**PECBMS 2009**, **2010**).



1967-2008: -90% (confidence interval -93% to -86%)

Population changes in detail

Table of population changes for Grey Partridge

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS UK	41	1967-2008	126	-90	-93	-86	>50	
	25	1983-2008	158	-77	-83	-69	>50	
	10	1998-2008	234	-38	-48	-31	>25	
	5	2003-2008	241	-25	-34	-13	>25	
CBC/BBS England	41	1967-2008	114	-89	-93	-85	>50	
	25	1983-2008	142	-76	-83	-68	>50	
	10	1998-2008	213	-28	-40	-21	>25	
	5	2003-2008	222	-18	-28	-7		
BBS UK	13	1995-2008	233	-50	-58	-42	>50	
	10	1998-2008	227	-39	-49	-33	>25	
	5	2003-2008	241	-25	-33	-15		
BBS England	13	1995-2008	207	-44	-50	-35	>25	
	10	1998-2008	203	-29	-37	-20	>25	
	5	2003-2008	219	-18	-27	-4		

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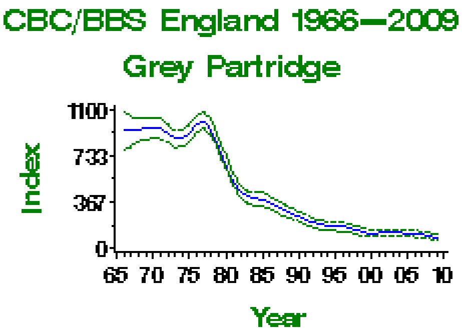
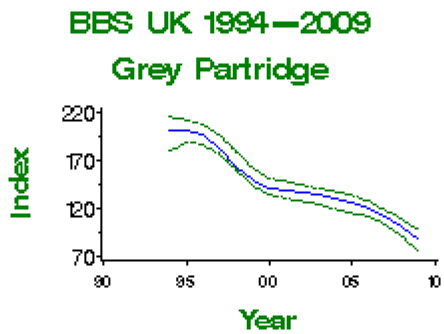
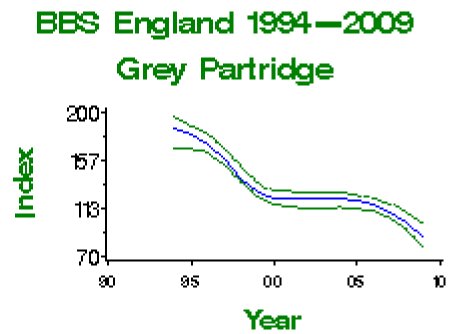






Demographic trends

Demographic information is not currently available for this species

Additional information

- **Maps and statistics from British and Irish atlases**
- **BirdFacts page on species biology**
- **BirdTrack results**

PHEASANT
Phasianus colchicus

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe)
UK: not listed (**introduced**)

Long-term trend

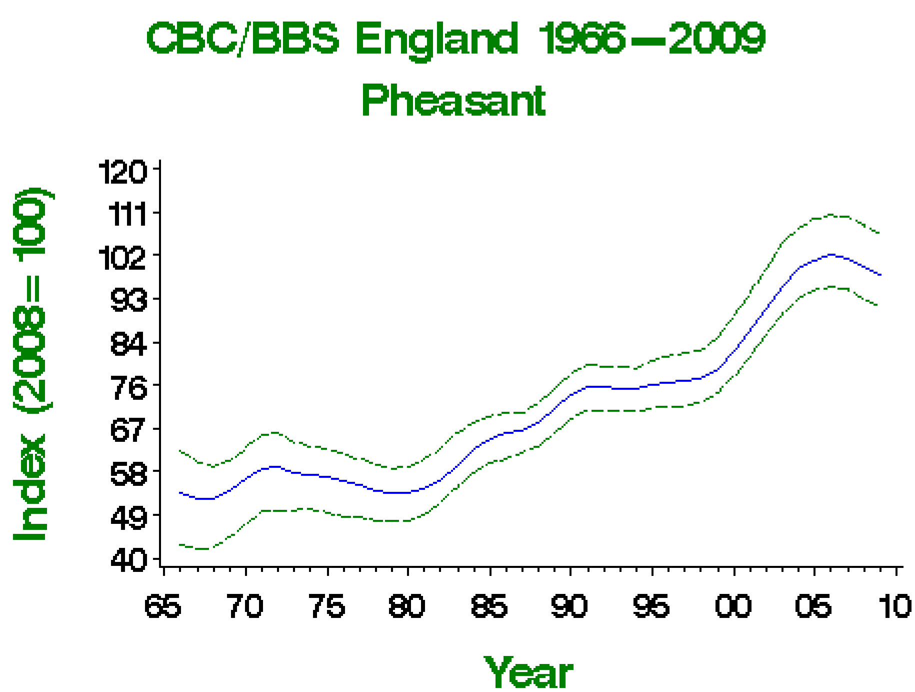
England: moderate increase

UK population size

1,800,000–1,900,000 females in 2000 (**Robertson *et al.* 1989**, updated using CBC/BBS trend: **BiE04**, **APEP06**)

Status summary

Pheasants have increased in abundance since the 1960s, at a rate that appears to be accelerating, but it must be noted that numbers of this introduced gamebird are determined principally by releases of reared birds for shooting (**Marchant *et al.* 1990**). Such releases have increased approximately fivefold since the early 1960s (**GWCT figures**) and are now running at around 35 million birds annually (**PACEC 2006**). The BBS records increase in England and Wales, but little change in Scotland since 1994. During 1968–88, a period when the total biomass of birds in Britain fell by an estimated 10%, CBC data indicate that Pheasant biomass rose by about 2,500 tonnes – more than ten times more than any other species (**Dolton & Brooke 1999**). High Pheasant densities potentially have negative effects, that have not been adequately studied, on native UK birds: these include their effect on the structure of the field layer, the spread of disease and parasites, and competition for food (**Fuller *et al*. 2005**). Infection with caecal nematodes from farm-reared Pheasants may be contributing to the decline of **Grey Partridges** in Britain (**Tompkins *et al.* 2002**).



1967-2008: 92% (confidence interval 57% to 169%)

Population changes in detail

Table of population changes for Pheasant

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS England	41	1967-2008	555	92	57	169		
	25	1983-2008	846	69	42	97		
	10	1998-2008	1568	30	24	37		
	5	2003-2008	1743	4	0	8		
BBS UK	13	1995-2008	1647	33	27	40		
	10	1998-2008	1795	31	25	37		
	5	2003-2008	2033	8	4	11		
BBS England	13	1995-2008	1390	35	28	43		
	10	1998-2008	1514	30	26	36		
	5	2003-2008	1709	5	2	9		
BBS Scotland	13	1995-2008	123	12	-6	33		
	10	1998-2008	129	19	6	39		
	5	2003-2008	148	10	-2	25		
BBS Wales	13	1995-2008	88	51	22	92		
	10	1998-2008	99	72	44	112		
	5	2003-2008	114	21	5	36		
BBS N.Ireland	13	1995-2008	35	167	41	279		
	10	1998-2008	41	78	34	119		
	5	2003-2008	48	50	24	80		

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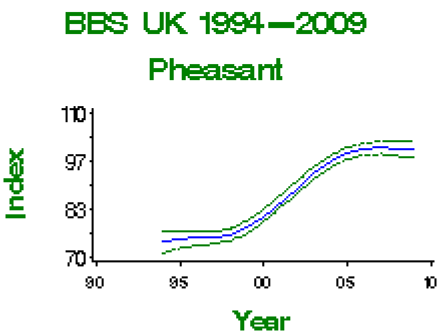
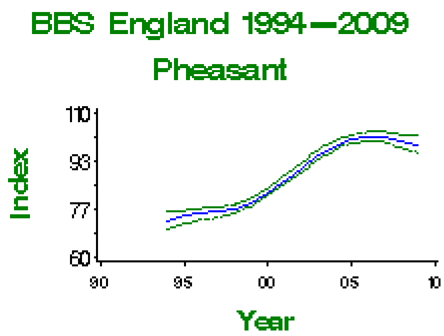
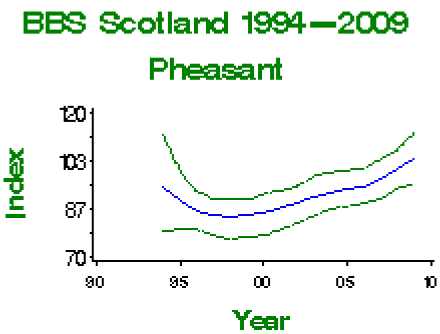
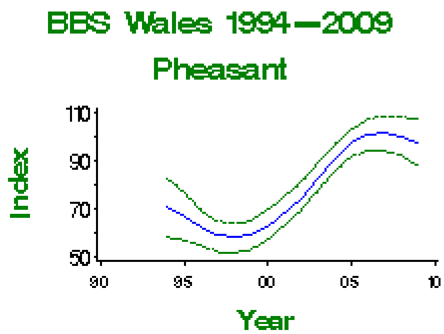
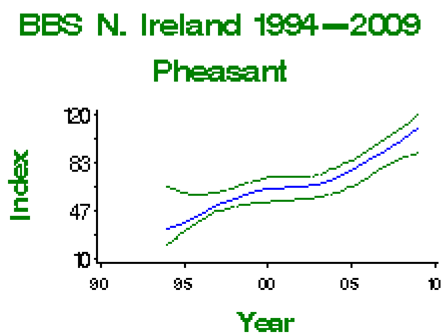










Demographic trends

Demographic information is not currently available for this species

Additional information

- **Maps and statistics from British and Irish atlases**
- **BirdFacts page on species biology**
- **BirdTrack results**

RED-THROATED DIVER
Gavia stellata

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: SPEC category 3 (depleted)
UK: amber (European status)

Long-term trend

UK: increase

UK population size

935–1,500 pairs in 1994 (**Gibbons *et al.* 1997**: **BiE04**, **APEP06**); 1,255 (1,014–1,551) pairs in 2006 (**Dillon *et al*. 2009**)

Status summary

Population trends are not monitored by the BTO, but JNCC's **Seabird Monitoring Programme** shows that breeding numbers at sample study areas in Shetland fluctuated without long-term change during 1980–2005, with low points in 1980, 2000 and 2004 (**Mavor *et al.* 2008**). Complete surveys of Shetland indicated a decrease of 36% there between 1983 and 1994, however (**Gibbons *et al.* 1997**). The estimated breeding population in 2006 had increased significantly by 34% since the first national survey in 1994, with stability in Shetland and Orkney but increase across the Hebrides and Scottish mainland (**Dillon *et al*. 2009**). Since the 1980s, there may have been some tendency for more pairs to hatch a second chick, although two-chick broods are only occasional in Orkney and the proportion of nest records from there could have changed over time.

Population changes in detail

Annual breeding population changes are not currently monitored by BTO for this species

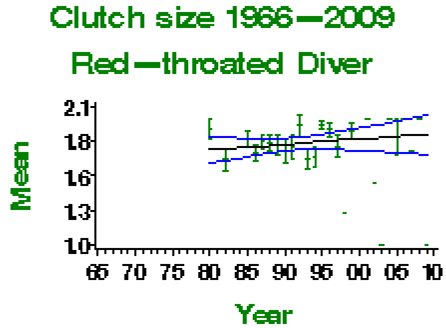
Demographic trends

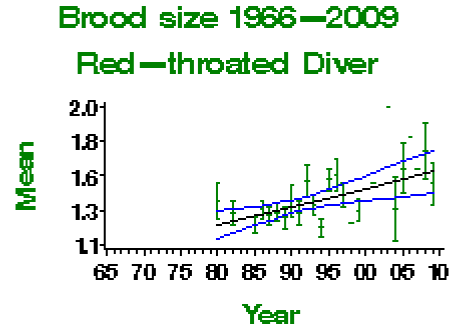
Table of demographic changes for Red-throated Diver

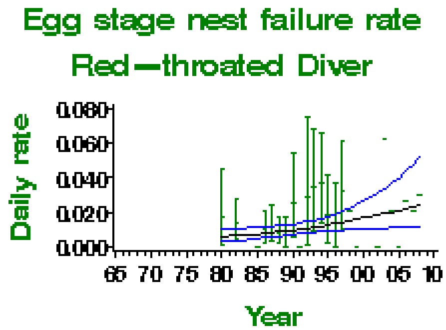
Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment
Clutch size	28	1980-2008	20	None				Small sample
Brood size	28	1980-2008	31	Linear increase	1.23 chicks	1.57 chicks	27.2%	
Daily failure rate (eggs)	28	1980-2008	11	Linear increase	0.59% nests/day	2.5% nests/day	323.7%	Small sample
Daily failure rate (chicks)	28	1980-2008	16	None				Small sample

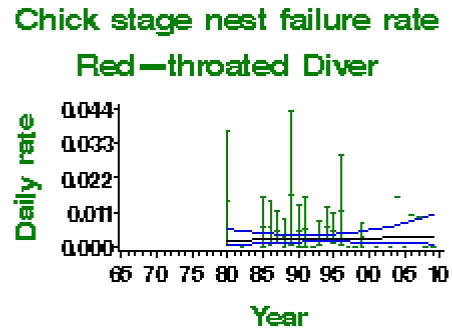
Insufficient data on fledglings per breeding attempt available for this species

Insufficient data on laying date available for this species







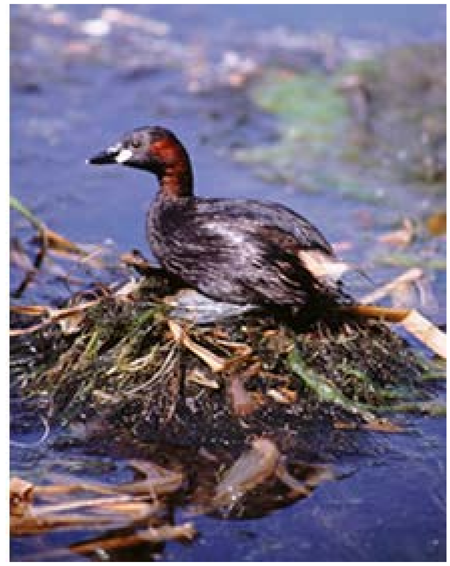


Additional information

- Maps and statistics from British and Irish atlases
- BirdFacts page on species biology

LITTLE GREBE
Tachybaptus ruficollis

• Population changes • Productivity trends • Additional information



Conservation listings

Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe)
UK: amber (25–50% population decline)

Long-term trend

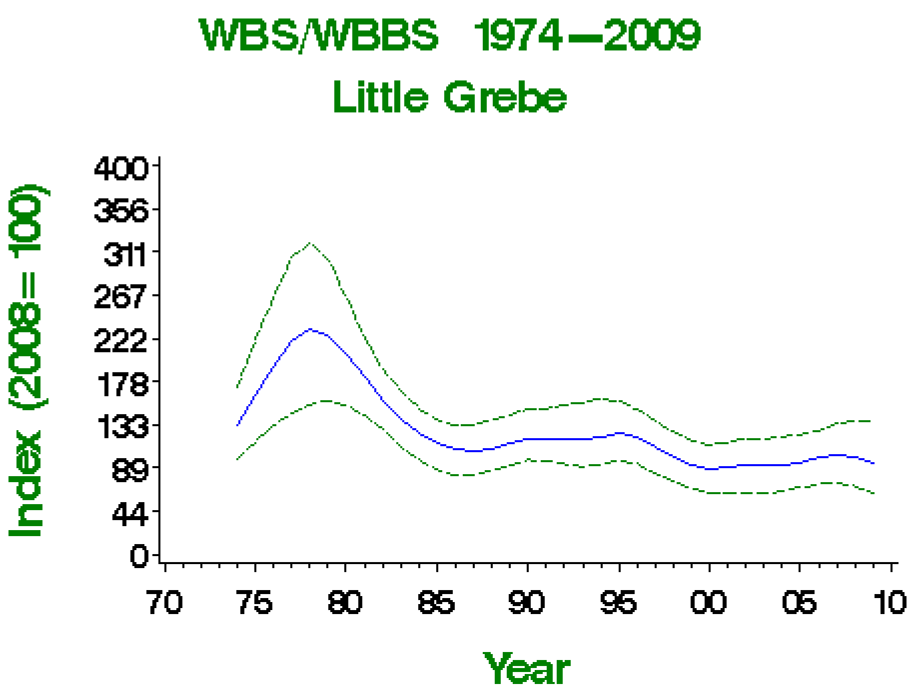
UK: uncertain

UK population size

5,900–12,000 pairs in 1990 (1988–91 Atlas: **APEP06**); 3,800–13,000 pairs in 2000 (updated using CBC and WBS trends: **BiE04)**

Status summary

The rapid decline shown by the WBS/WBBS may reveal problems among birds on linear waterways during the early 1980s and since the late 1990s, while shallow increases shown by the CBC and by BBS may suggest that wider populations (including birds on small still waters) are healthy. Because of the shortage of data, and the conflict between WBS and BBS assessments, the rapid decline indicated by WBS in the 1980s did not initially trigger a conservation listing. The species was moved from the green to the amber list in 2009, however, on the strength of its UK decline. In an analysis of nest record cards, **Moss & Moss (1993)** found that nests on ponds and lakes were significantly more successful than those on rivers and streams and that nests on rivers, subject to fluctuating water levels, experienced significantly higher failure rates through flooding than those on canals, where water levels are artificially maintained. Winter numbers, as monitored by **WeBS**, have shown sustained shallow increase (**Calbrade *et al.* 2010**).



1975-2008: -39% (confidence interval -69% to 18%)

Population changes in detail

Table of population changes for Little Grebe

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
WBS/WBBS waterways	33	1975-2008	21	-39	-69	18		
	25	1983-2008	21	-28	-56	13		
	10	1998-2008	25	-1	-27	53		
	5	2003-2008	25	10	-20	65		
BBS UK	13	1995-2008	66	22	-10	62		
	10	1998-2008	73	12	-15	42		
	5	2003-2008	81	-4	-26	25		
BBS England	13	1995-2008	53	7	-21	44		
	10	1998-2008	58	-5	-29	18		
	5	2003-2008	64	-7	-24	13		

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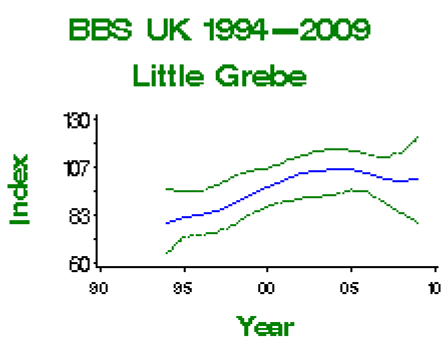
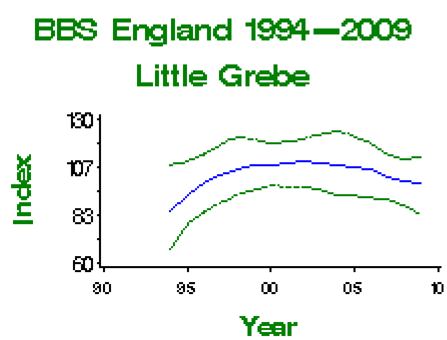




Demographic trends

Demographic information is not currently available for this species

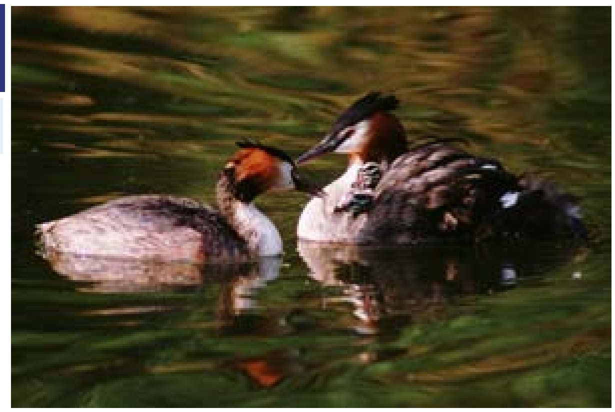
Additional information

- **Maps and statistics from British and Irish atlases**
- **BirdFacts page on species biology**

- **BirdTrack results**

GREAT CRESTED GREBE
Podiceps cristatus

• Population changes • Productivity trends • Additional information



Conservation listings

Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe)
UK: green

Long-term trend

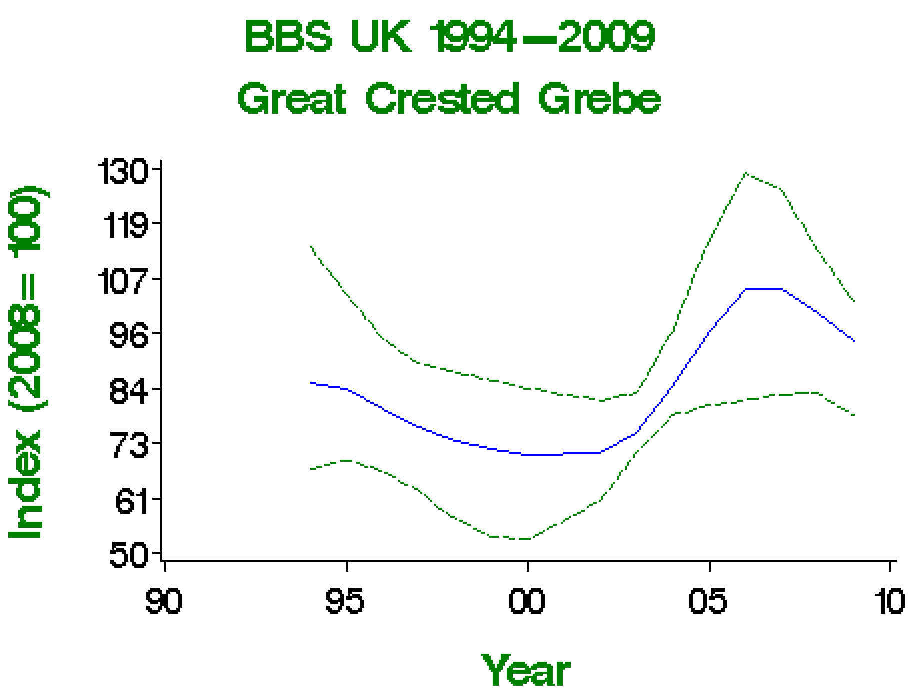
UK: probable increase

UK population size

9,400 adults in 1990 (1988–91 Atlas: **APEP06**); 6,100 pairs in 2000 (updated using BBS trend: **BiE04**)

Status summary

This species was believed to be on the verge of extinction in Britain around 1860, when only 32–72 pairs were known in England (**Holloway 1996**). A subsequent increase followed reductions in persecution, aided by statutory protection, and the creation of habitat in the form of gravel pits (**Gibbons *et al.* 1993**). Increase was tracked by special surveys to around 7,000 adult birds in Britain by 1975 (**Hughes *et al.* 1979**). The BBS provides the first annual, national monitoring of this species and indicates shallow increase since 1994. Winter numbers, monitored by **WeBS**, have shown a long-term shallow increase but may now be in shallow decline (**Calbrade *et al.* 2010**).



1995-2008: 19% (confidence interval -19% to 66%)

Population changes in detail

Table of population changes for Great Crested Grebe

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
BBS UK	13	1995-2008	67	19	-19	66		

	10	1998-2008	72	36	-6	99		
	5	2003-2008	78	33	1	52		
BBS England	13	1995-2008	61	-7	-26	16		
	10	1998-2008	66	4	-13	22		
	5	2003-2008	72	16	-3	33		

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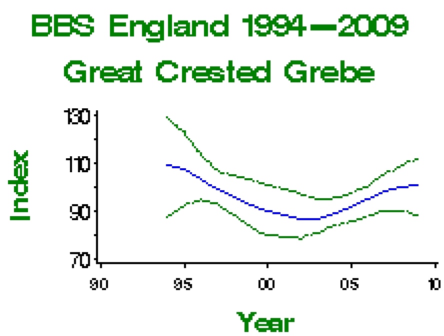


Demographic trends

Demographic information is not currently available for this species

Additional information

- Maps and statistics from British and Irish atlases
- BirdFacts page on species biology
- BirdTrack results

CORMORANT
Phalacrocorax carbo

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe)
UK: green (species level); amber (race *carbo*, >20% of European breeders; race *sinensis*, localised breeding)

Long-term trend

UK: increase

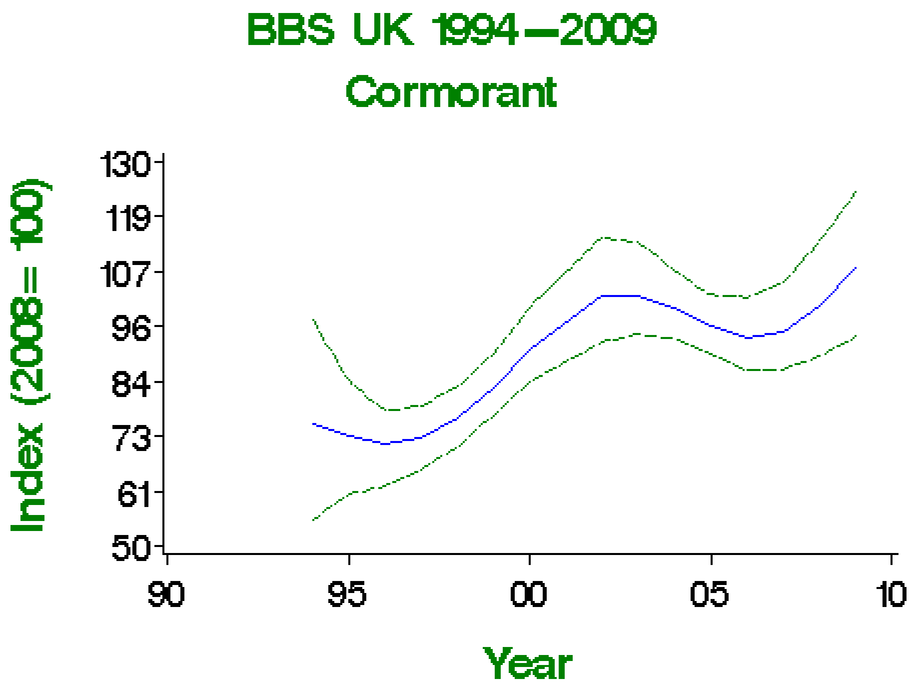
UK population size

9,018 pairs in 1998–2002 (**Mitchell *et al.* 2004**: **APEP06**); 9,100 pairs including Channel Islands (**BiE04**)

Status summary

The Cormorant was almost exclusively a coastal breeder in the UK until 1981, but has since established colonies in many inland areas of eastern and central England (**Rehfisch *et al.* 1999**; **Newson *et al.* 2006**). By 2005, breeding had been recorded at 58 inland sites, and the inland population had risen to about 2,130 pairs (**Newson *et al.* 2007**). Inland breeding in England is thought to have been sparked by birds of the continental race *sinensis* from the Netherlands and Denmark, although many nominate *carbo* from coastal colonies in Wales and England have contributed to its development.

Breeding numbers and productivity at sample colonies have been monitored annually since 1986 by JNCC's **Seabird Monitoring Programme**. This annual monitoring, which includes inland and coastal breeders, indicates increase to 1995 and then shallow decrease, with a temporary increase in the early 2000s (SMP: click **here**). There was a 10% increase in the UK population between full surveys in 1985–88 and 1998–2002 (**JNCC 2010**). Trends during 1986–2005 show decreases in Scotland and in northeast and southwest England, but no trend in Wales, and steep increases inland in England and in regions bordering the northern part of the Irish Sea (**Mavor *et al.* 2008**). Reasons for recent decline probably include increased mortality from licensed and unlicensed shooting. BBS counts are very largely of immature or other non-breeding birds inland and away from breeding sites and until we have better information on the proportions of breeding and nonbreeding birds recorded on BBS, the generally upward trend probably reflects little about breeding numbers. The winter trend in Britain, comprising British and Irish breeders and continental visitors, has shown strong increase since the late 1980s but now appears more stable (**Calbrade *et al.* 2010**). Although the species is now green listed, both races that occur in the UK warrant amber listing, for reasons unconnected with the UK trend.



1995-2008: 37% (confidence interval 6% to 89%)

Population changes in detail

Table of population changes for Cormorant

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
BBS UK	13	1995-2008	221	37	6	89		Non-breeders included
	10	1998-2008	251	31	8	60		Non-breeders included
	5	2003-2008	291	-2	-19	17		Non-breeders included
BBS England	13	1995-2008	184	27	8	49		Non-breeders included
	10	1998-2008	208	27	8	45		Non-breeders included
	5	2003-2008	245	2	-11	14		Non-breeders included

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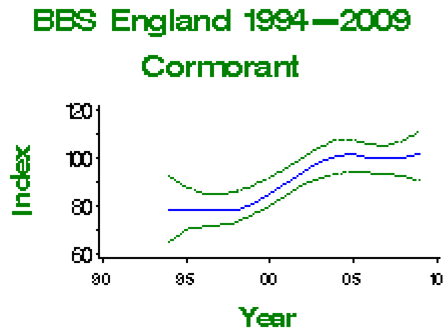


Demographic trends

Demographic information is not currently available for this species

Additional information

- **Seabird Monitoring Programme Cormorant pages**
- **Maps and statistics from British and Irish atlases**
- **BirdFacts page on species biology**
- **BirdTrack results**

GREY HERON
Ardea cinerea

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe)
UK: green

Long-term trend

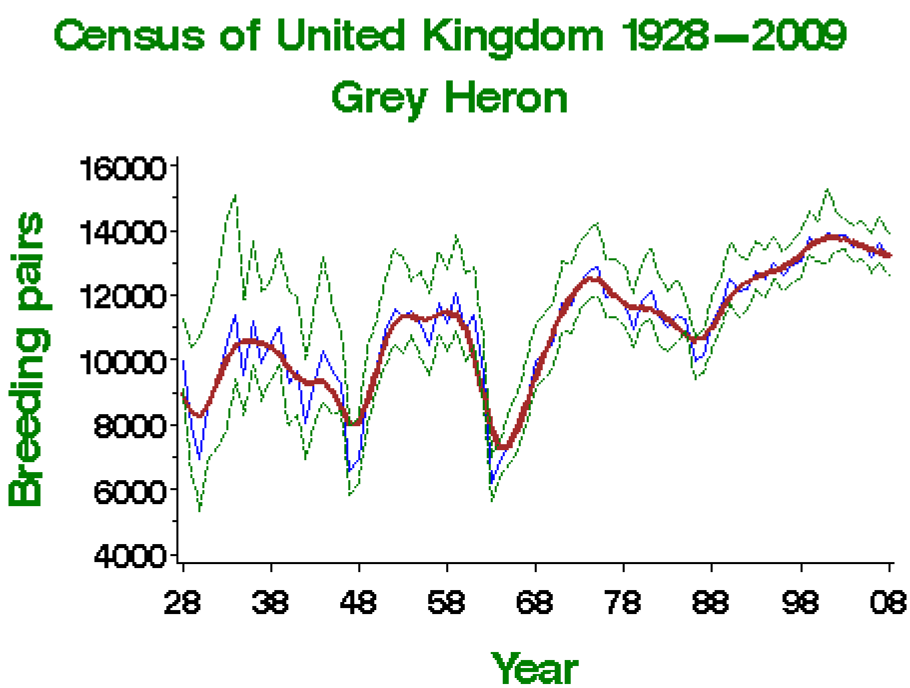
UK, England: moderate increase
Wales, Scotland: shallow increase

UK population size

14,200 nests in 2003 (Heronries Survey 2003: **APEP06**); 12,959 (12,358–13,795) nests in 2008 (Heronries Census)

Status summary

The **BTO Heronries Census**, which has monitored Grey Herons since 1928, shows the species to be more abundant in the early 2000s than at any time in the last 80 years. The effects of harsh winters, which induce severe mortality in this species (**Besbeas *et al.* 2002**), are clearly visible in the long-term trend. The general increase that underlies these fluctuations may stem from reduced persecution, improvements in water quality, the provision of new habitat as new lakes and gravel pits mature, and increased feeding opportunities at freshwater fisheries (**Gibbons *et al.* 1993**, **Marchant *et al.* 2004**). A downturn evident since 2001 seems unrelated to winter weather and is, as yet, unexplained. High rates of nest failure at the chick stage were noted in the late 1960s, but not subsequently. The mean laying date has advanced by almost a month since 1968. In the latest **special survey of UK heronries**, carried out in 2003 to mark the 75th anniversary of the Heronries Census, a record total of more than 10,441 Grey Heron nests were counted. The current population estimates for that year, implying that around 3,300 nests in the UK were not reported to the survey, allow for known heronries (mostly in Scotland) that were not visited in 2003, but not for the few areas, mainly in Scotland and Northern Ireland, where heronries have never been counted. This issue was addressed by random tetrad searches conducted in 2003 and 2004. Numbers have risen rapidly across Europe since 1980 (**PECBMS 2010**).



1929-2008: 57% (confidence interval 27% to 87%)

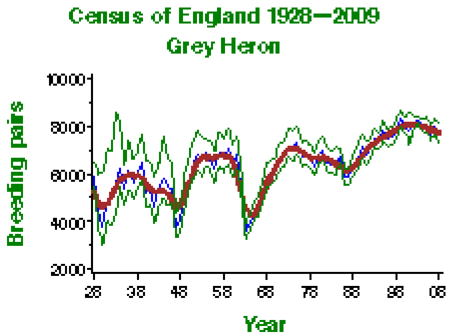
Population changes in detail

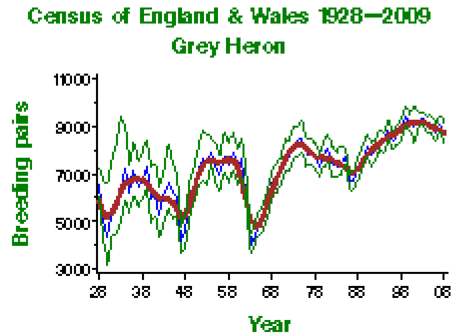
Table of population changes for Grey Heron

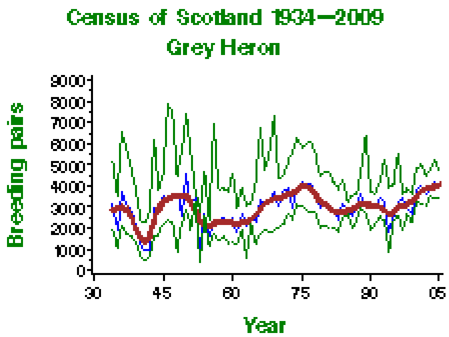
Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
Heronries UK	79	1929-2008	320	57	27	87		
	25	1983-2008	510	18	8	26		
	10	1998-2008	582	0	-5	5		
	5	2003-2008	630	-4	-7	2		
Heronries England and Wales	79	1929-2008	265	62	30	91		
	25	1983-2008	413	17	9	25		
	10	1998-2008	473	-2	-6	4		
	5	2003-2008	506	-4	-8	0		
Heronries England	79	1929-2008	224	61	25	87		
	25	1983-2008	341	18	10	26		
	10	1998-2008	401	-2	-7	3		
	5	2003-2008	429	-4	-8	-1		
Heronries Scotland	73	1935-2008	45	49	.	.		
	25	1983-2008	79	59	.	.		
	10	1998-2008	91	39	.	.		
	5	2003-2008	100	11	.	.		
Heronries Wales	73	1935-2008	41	12	.	.		
	25	1983-2008	68	5	.	.		

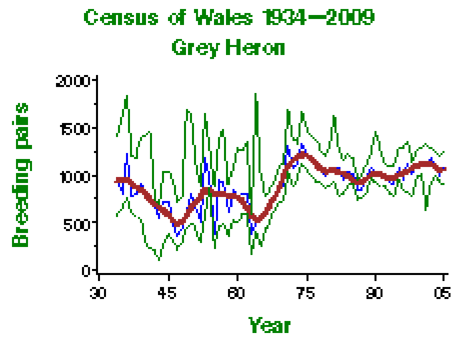
	10	1998-2008	69	-1	.	.		
	5	2003-2008	76	-2	.	.		
BBS UK	13	1995-2008	635	8	-2	20		Non-breeders included
	10	1998-2008	695	3	-4	11		Non-breeders included
	5	2003-2008	782	-14	-20	-8		Non-breeders included
BBS England	13	1995-2008	521	3	-7	16		Non-breeders included
	10	1998-2008	571	9	1	18		Non-breeders included
	5	2003-2008	651	-9	-15	-2		Non-breeders included
BBS Scotland	13	1995-2008	49	18	-8	57		Non-breeders included
	10	1998-2008	51	-11	-26	9		Non-breeders included
	5	2003-2008	55	-24	-37	-6		Non-breeders included
BBS Wales	13	1995-2008	44	3	-28	41		Non-breeders included
	10	1998-2008	48	0	-26	30		Non-breeders included
	5	2003-2008	50	-19	-33	-3		Non-breeders included

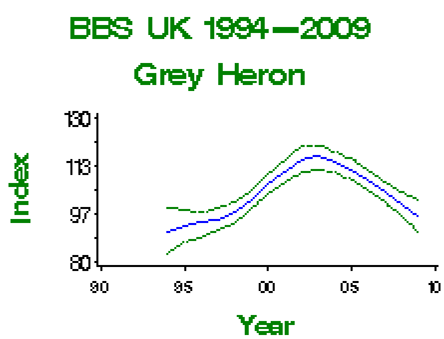
BTO JNCC RSPB The Breeding Bird Survey is jointly funded by the BTO, JNCC & RSPB

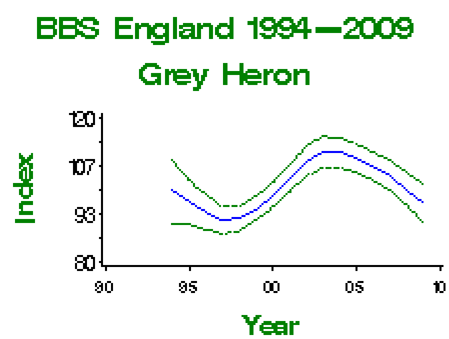


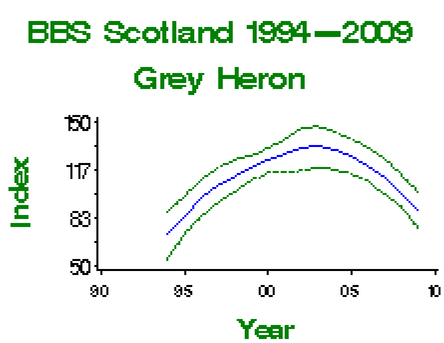


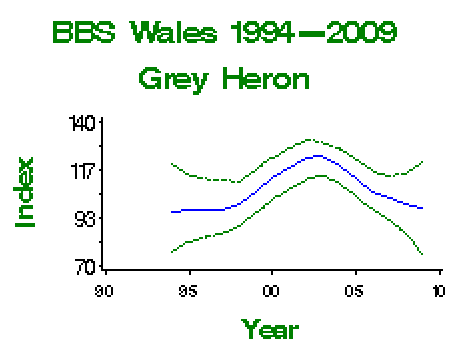










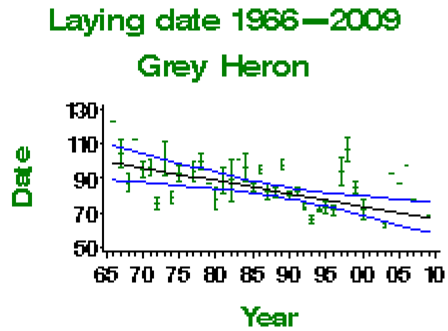


Demographic trends

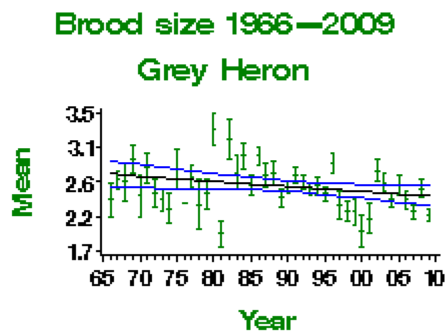
Table of demographic changes for Grey Heron

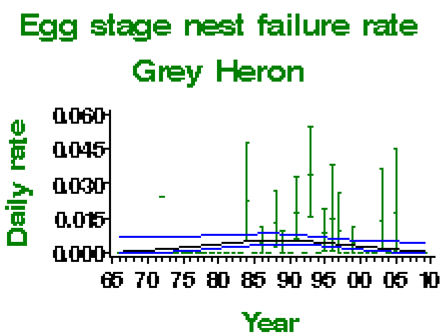
Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment
Brood size	40	1968-2008	48	Linear decline	2.69 chicks	2.42 chicks	-9.8%	
Daily failure rate (eggs)	40	1968-2008	14	Curvilinear	0.09% nests/day	0.1% nests/day	11.1%	Small sample
Daily failure rate (chicks)	40	1968-2008	26	Linear decline	5.57% nests/day	0.03% nests/day	-99.5%	Small sample
Laying date	40	1968-2008	26	Linear decline	Apr 8	Mar 9	-30 days	Small sample

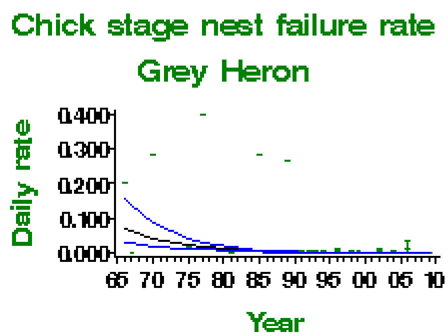
Insufficient data on fledglings per breeding attempt available for this species



Insufficient data on clutch size available for this species







Additional information

- **Maps and statistics from British and Irish atlases**
- **BirdFacts page on species biology**
- **BirdTrack results**

RED KITE
Milvus milvus

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: SPEC category 2 (concentrated in Europe, declining)
UK: amber (European decline)

Long-term trend

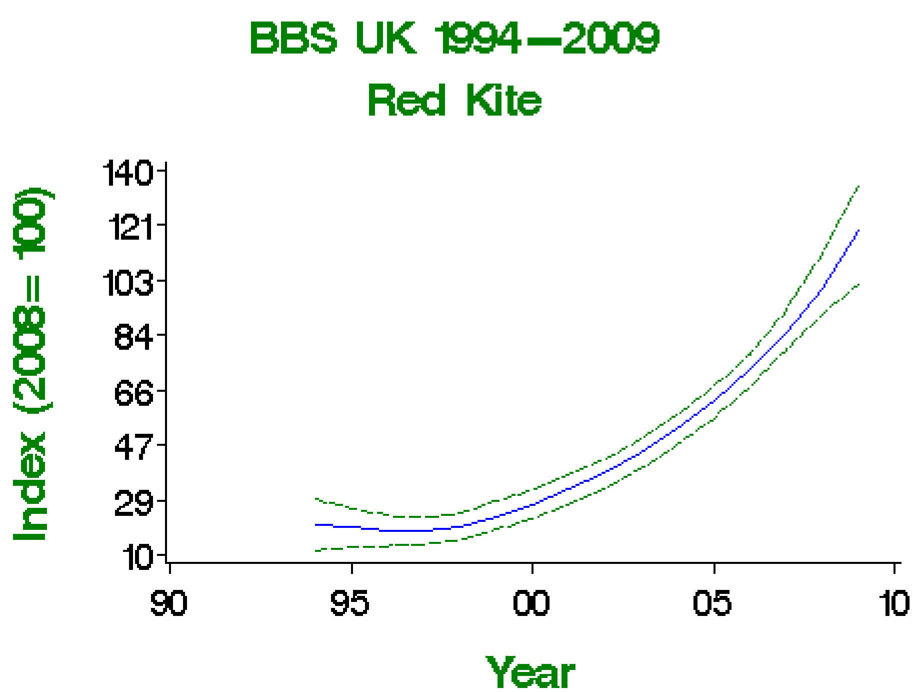
UK, England: rapid increase

UK population size

372–490 pairs in 2000 (**Wotton *et al.* 2002b**: **BiE04**, **APEP06**); more than 1,500 pairs in 2008 (**Holling *et al.* 2010b**)

Status summary

Red Kite was historically widespread across Britain but, following widespread persecution, fewer than ten breeding pairs remained by the 1930s and 1940s, concentrated into a small area of mid Wales. Through careful husbandry organised by a 'Kite Committee' of local conservationists and landowners, including RSPB bounties paid to farmers for successful nests during 1922–90, the Welsh population rose to 100 pairs by 1993. Most birds were descended from a single female that had continued to breed successfully during the population bottleneck (**Carter 2001**). As a step towards restoring the original breeding range, birds were introduced in 1989 into the Chilterns (Oxfordshire and Buckinghamshire) and into the Black Isle in Easter Ross (**Evans & Pienkowski 1991**). Successful breeding populations quickly resulted in both areas. Further releases were begun in Northamptonshire in 1995, central Scotland in 1996, Yorkshire in 1999, Dumfries & Galloway in 2001, and northeast England in 2004. Each of these centres has given rise to a productive breeding group,in some cases benefiting from large-scale provision of food or the development of a well-established communal roost. Introduced birds and their offspring wander widely across Britain and Ireland but, as yet, pairs have been slow to set up breeding sites distant from the release areas. BBS sightings have shown an exponential rise since 1994. Illegal persecution is continuing and in northern Scotland has severely limited the growth of the Red Kite population (**Smart *et al.* 2010**).



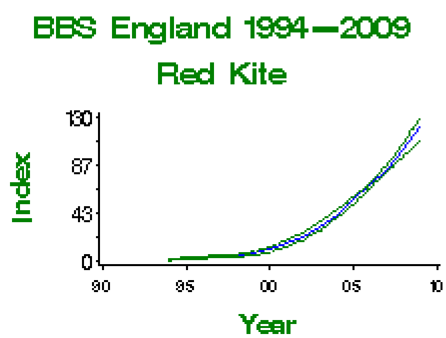
1995-2008: 418% (confidence interval 249% to 857%)

Population changes in detail

Table of population changes for Red Kite

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
BBS UK	13	1995-2008	58	418	249	857		
	10	1998-2008	71	409	270	656		
	5	2003-2008	102	124	87	183		
BBS England	13	1995-2008	37	6522	3054	6668		
	10	1998-2008	47	1828	1448	2839		
	5	2003-2008	71	228	164	297		

The Breeding Bird Survey is jointly funded by the BTO, JNCC & RSPB



Demographic trends

Demographic information is not currently available for this species

Additional information

- Maps and statistics from British and Irish atlases
- BirdFacts page on species biology
- BirdTrack results

HEN HARRIER
Circus cyaneus

- Population changes
- Productivity trends
- Additional information

Conservation listings

Europe: SPEC category 3, vulnerable
UK: red (historical decline)

Long-term trend

UK: probable increase

UK population size

570 (500–640) territorial pairs in 1998 (**Sim *et al.* 2001**: **BiE04**, **APEP06**); 806 (732–889) territorial pairs in 2004 (**Sim *et al.* 2007a**)

Status summary

Red listed because of substantial declines over the last two centuries, this species has suffered in recent decades from loss of habitat as forestry plantations have matured (**Bibby & Etheridge 1993**) but more especially from continuing illegal persecution (**Etheridge *et al.* 1997**). Although the Hen Harrier and other raptors have been protected under UK law since 1961, many are still unlawfully killed or disturbed in efforts to protect the economic viability of driven shooting of **Red Grouse** (**Thompson *et al.* 2009**). The UK population was unchanged between surveys in 1988–89 and 1998, with declines in Orkney and England but increases in Northern Ireland and the Isle of Man (**Sim *et al.* 2001**). A decrease of 70% in the Orkney population over the last 20 years has been linked to reductions in the area of unmanaged grassland (**Amar & Redpath 2005**); the demographic drivers of this decline have been a decrease in polygyny and reduced nesting success among secondary females (**Amar *et al.* 2005**). The latest survey reveals a 41% increase in the UK and Isle of Man during 1998–2004, but with decreases in the Southern Uplands, east Highlands and England, all being areas with many managed grouse moors (**Sim *et al.* 2007a**). Although average clutch size declined substantially during the 1980s, further investigation has shown that this trend is due to the increased proportions in recent years of records from Orkney, where clutch sizes tend to be smaller than on the mainland (**Summers 1998**, **Crick 1998**). Recent results confirm that rough grass is a critical habitat for Orkney Hen Harriers, providing the necessary food during the incubation period (**Amar *et al.* 2008**).

Population changes in detail

Annual breeding population changes for this species are not currently monitored by BTO

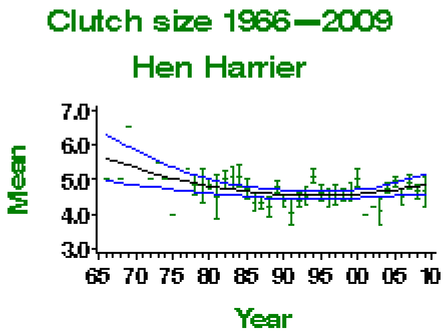
Demographic trends

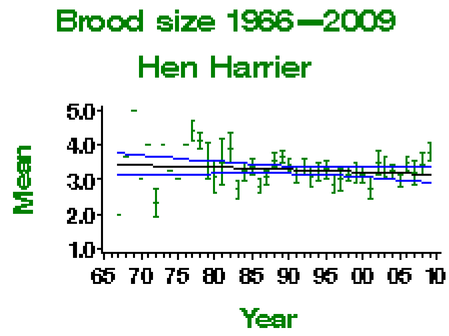
Table of demographic changes for Hen Harrier

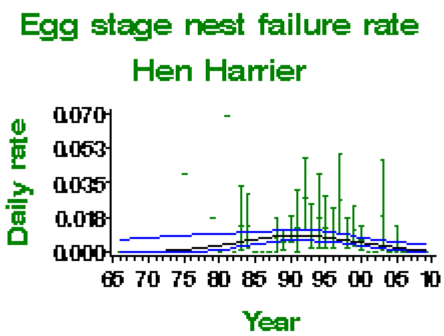
Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment
Clutch size	40	1968-2008	13	Curvilinear	5.48 eggs	4.81 eggs	-12.2%	Small sample
Brood size	40	1968-2008	20	None				Small sample
Daily failure rate (eggs)	40	1968-2008	11	Curvilinear	0.02% nests/day	0.12% nests/day	500%	Small sample
Daily failure rate (chicks)	40	1968-2008	14	Curvilinear	0% nests/day	0.05% nests/day	.%	Small sample

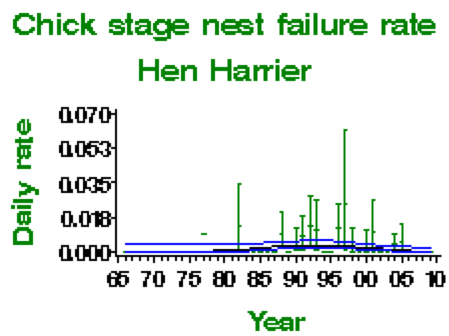
Insufficient data on fledglings per breeding attempt available for this species

Insufficient data on laying date available for this species









Additional information

- **Maps and statistics from British and Irish atlases**
- **BirdFacts page on species biology**
- **BirdTrack results**

SPARROWHAWK
Accipiter nisus

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe)
UK: green

Long-term trend

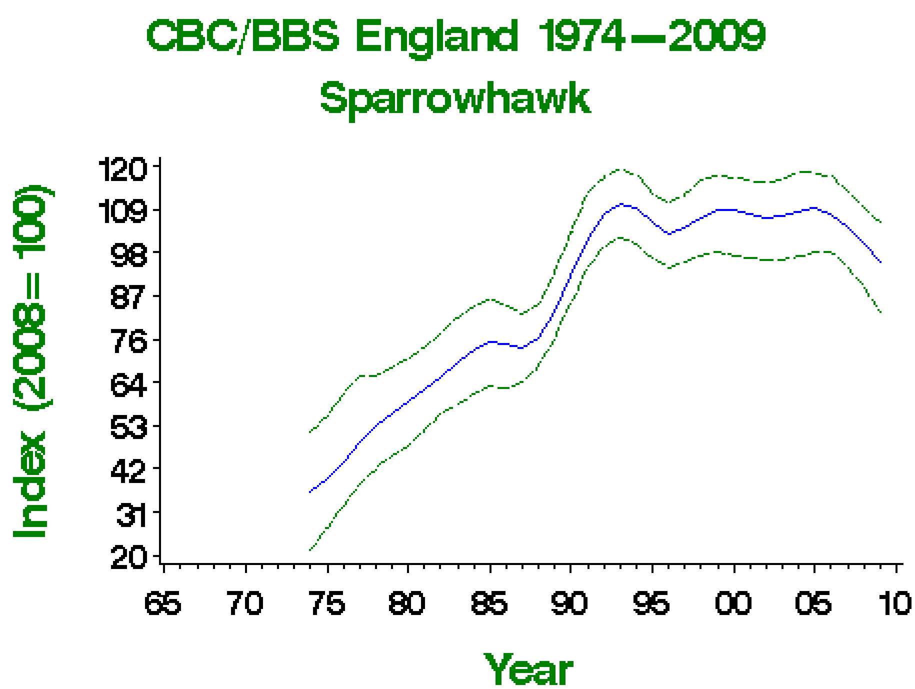
England: rapid increase

UK population size

40,100 pairs in 2000 (1988–91 Atlas estimate updated using CBC/BBS trend: **BiE04**, **APEP06**)

Status summary

Sparrowhawks suffered a severe population crash caused by organochlorine pesticides in the 1950s and 1960s, when the species was extinguished from large areas of lowland Britain (**Newton 1986**). Following a ban on the use of organochlorines, the species increased and spread, and became common enough on CBC plots for annual monitoring in the early 1970s. Between then and the mid 1990s, the CBC charted a steep increase. Many former haunts especially in the Midlands and east of England were reoccupied between the two atlas periods (**Gibbons *et al.* 1993**). Improving numbers of fledglings per breeding attempt is likely to have contributed to this remarkable period of success: failure rates at the egg stage fell markedly from high initial values, and brood sizes increased throughout. The population has stabilised since the mid 1990s and, possibly through the effects of intraspecific competition, average brood size has begun to fall again. There has been widespread shallow increase across Europe since 1980 (**PECBMS 2010**).



1975-2008: 152% (confidence interval 58% to 304%)

Population changes in detail

Table of population changes for Sparrowhawk

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS England	33	1975-2008	146	152	58	304		
	25	1983-2008	183	44	9	88		
	10	1998-2008	314	-6	-16	3		
	5	2003-2008	336	-7	-16	3		
BBS UK	13	1995-2008	334	-7	-16	5		
	10	1998-2008	362	-11	-18	-1		
	5	2003-2008	400	-13	-19	-4		
BBS England	13	1995-2008	277	-4	-15	8		
	10	1998-2008	300	-5	-14	6		
	5	2003-2008	332	-8	-15	1		

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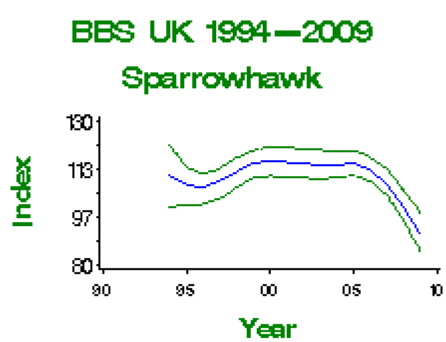
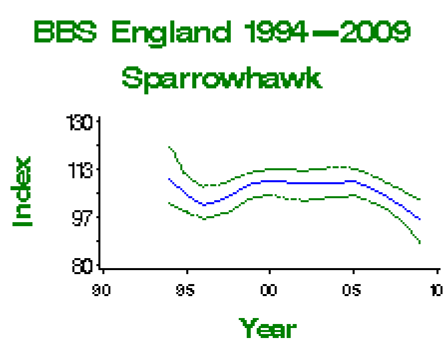
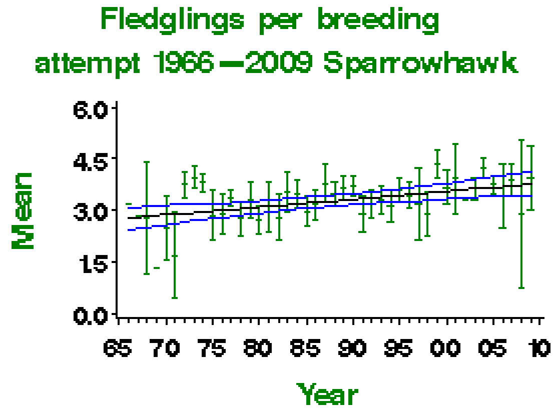
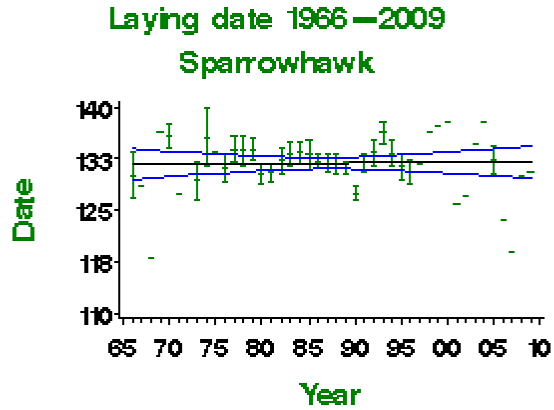




Demographic trends

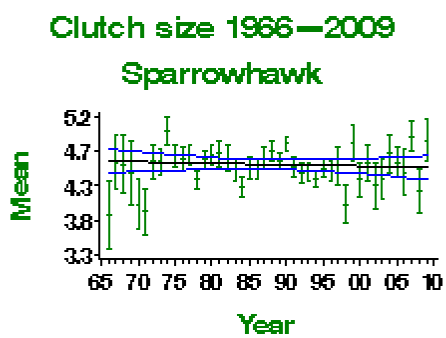


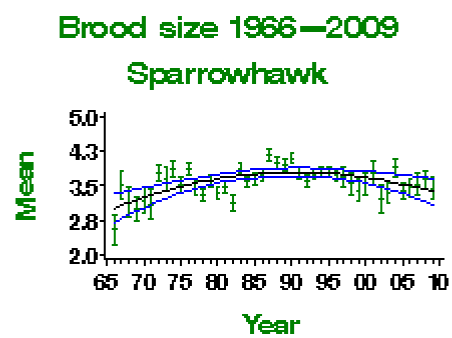


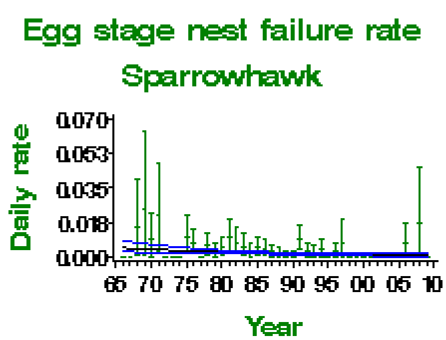
More on demographic trends

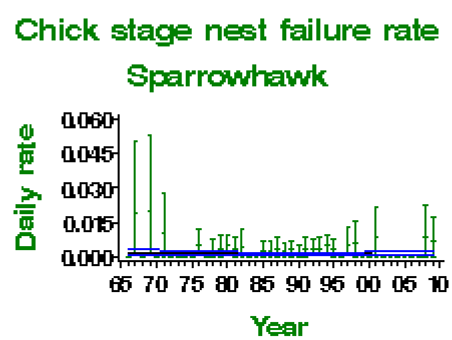
Table of demographic changes for Sparrowhawk

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment
Fledglings per breeding attempt	40	1968-2008	24	Linear increase	2.82 fledglings	3.75 fledglings	32.9%	
Clutch size	40	1968-2008	35	None				
Brood size	40	1968-2008	69	Curvilinear	3.13 chicks	3.42 chicks	9.3%	
Daily failure rate (eggs)	40	1968-2008	33	Linear decline	0.45% nests/day	0.09% nests/day	-80%	
Daily failure rate (chicks)	40	1968-2008	46	None				
Laying date	40	1968-2008	13	None				Small sample









Additional information

- **Maps and statistics from British and Irish atlases**
- **BirdFacts page on species biology**
- **BirdTrack results**
- **Garden BirdWatch results**

BUZZARD
Buteo buteo

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe)
UK: green

Long-term trend

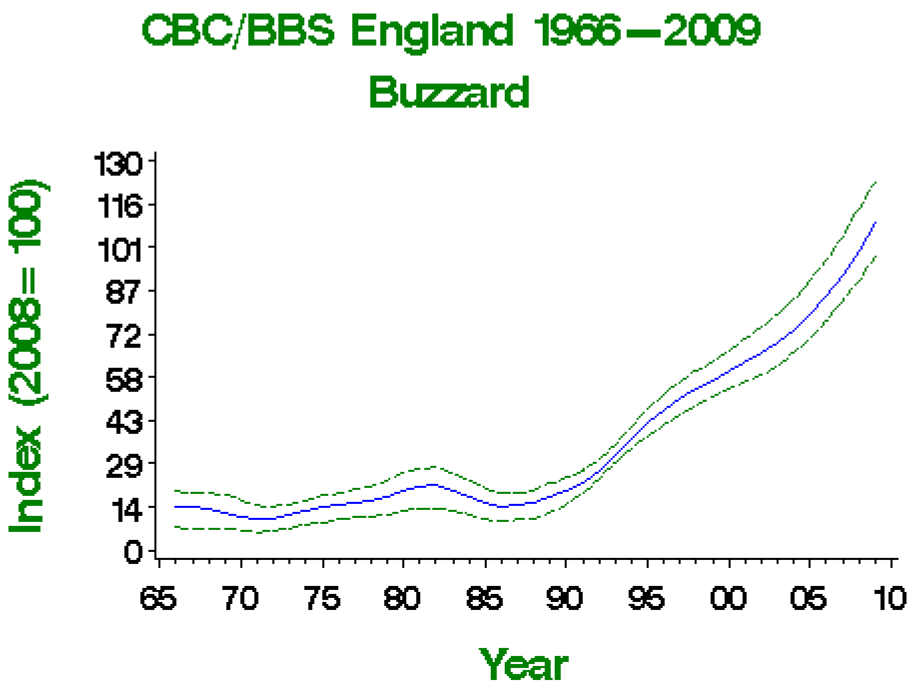
England: rapid increase

UK population size

31,100–44,000 territories in 2000 (1988–91 Atlas estimate updated using CBC/BBS trend: **BiE04**, **APEP06**); 44,000–61,000 territorial pairs in GB in 2001 (**Clements 2002**)

Status summary

The Common Buzzard has shown a substantial eastward range expansion since the **1988–91 Atlas**, and has arguably become the most abundant diurnal raptor in Britain (**Clements 2002**). The increasing trend identified by the CBC relates especially to the spread of range into central and eastern Britain, where CBC was more strongly represented. If anything, however, the upsurge has been ampified with the addition of the more geographically representative BBS data since 1994. The increase has been associated with rapidly improving nesting success, perhaps through reduced persecution, the recovery of rabbit populations from the effects of myxomatosis and release from the deleterious effects of organochlorine pesticides (**Elliott & Avery 1991**, **Clements 2002**). There has been widespread rapid increase across Europe since 1980 (**PECBMS 2010**).



1967-2008: 606% (confidence interval 359% to 1525%)

Population changes in detail

Table of population changes for Buzzard

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS England	41	1967-2008	172	606	359	1525		Small CBC sample
	25	1983-2008	275	399	236	801		
	10	1998-2008	586	85	71	109		
	5	2003-2008	730	45	38	53		
BBS UK	13	1995-2008	770	63	49	78		
	10	1998-2008	888	39	29	51		
	5	2003-2008	1069	15	9	22		
BBS England	13	1995-2008	491	132	106	161		
	10	1998-2008	576	88	72	107		
	5	2003-2008	730	44	36	54		
BBS Scotland	13	1995-2008	134	38	16	67		
	10	1998-2008	148	7	-7	24		
	5	2003-2008	173	-7	-17	7		
BBS Wales	13	1995-2008	138	11	-6	31		
	10	1998-2008	156	14	-2	33		
	5	2003-2008	166	5	-8	21		

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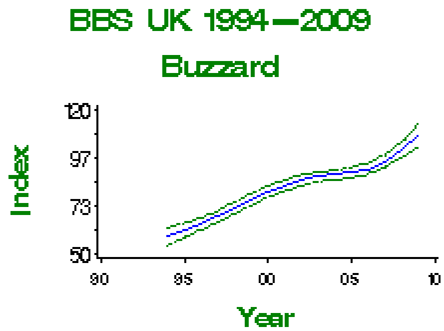
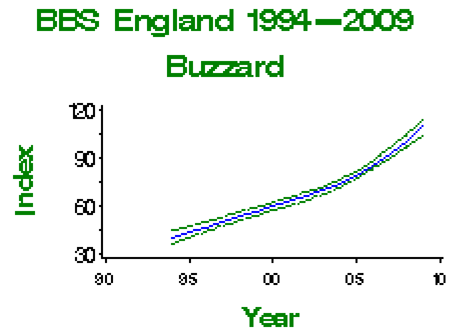
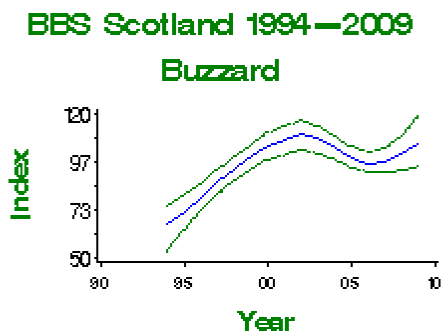
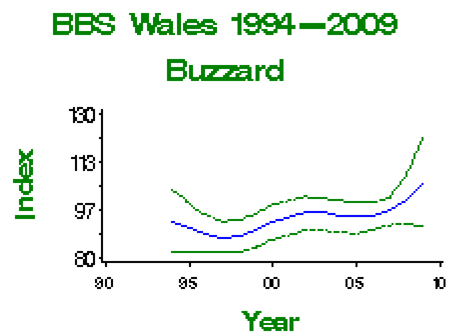




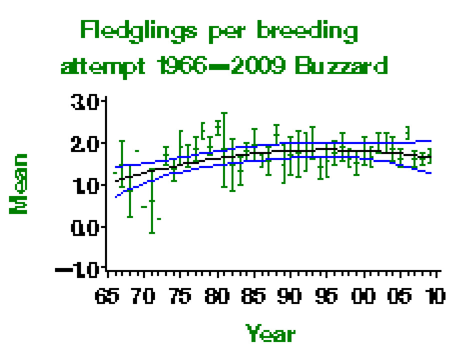




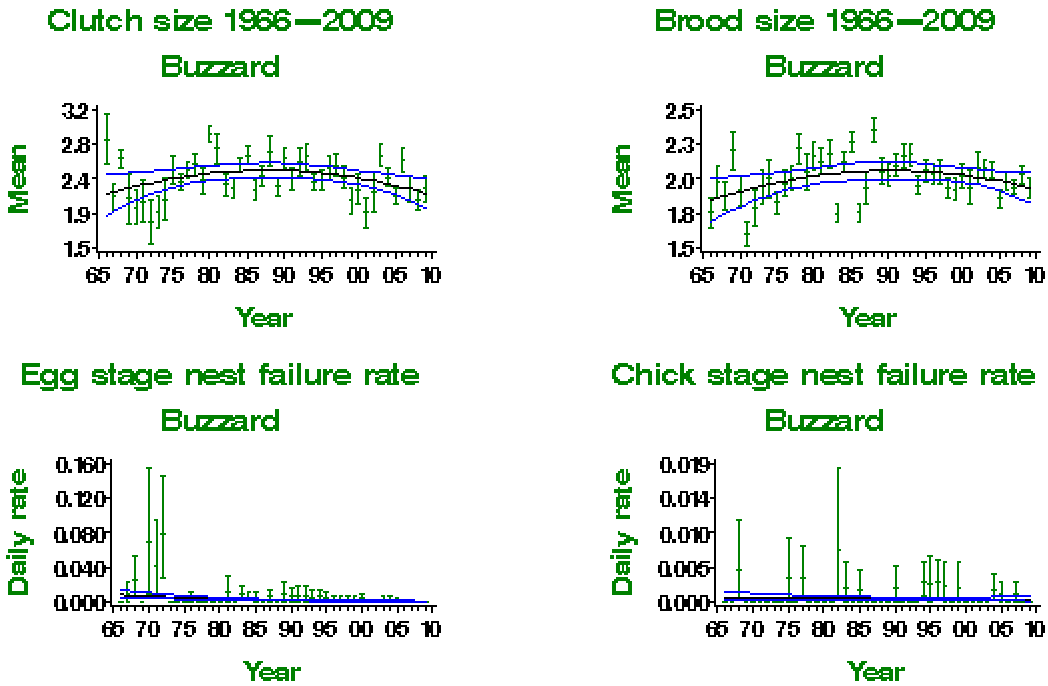
Demographic trends

Table of demographic changes for Buzzard

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment
Fledglings per breeding attempt	40	1968-2008	21	Curvilinear	1.16 fledglings	1.66 fledglings	43.2%	
Clutch size	40	1968-2008	32	Curvilinear	2.21 eggs	2.2 eggs	-0.3%	
Brood size	40	1968-2008	97	Curvilinear	1.88 chicks	1.95 chicks	4%	
Daily failure rate (eggs)	40	1968-2008	27	Linear decline	0.78% nests/day	0.09% nests/day	-88.5%	Small sample
Daily failure rate (chicks)	40	1968-2008	49	None				



Insufficient data on laying date available for this species



Additional information

- **Maps and statistics from British and Irish atlases**
- **BirdFacts page on species biology**
- **BirdTrack results**

KESTREL
Falco tinnunculus

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: SPEC category 3, declining
UK: amber (25–50% population decline)

Long-term trend

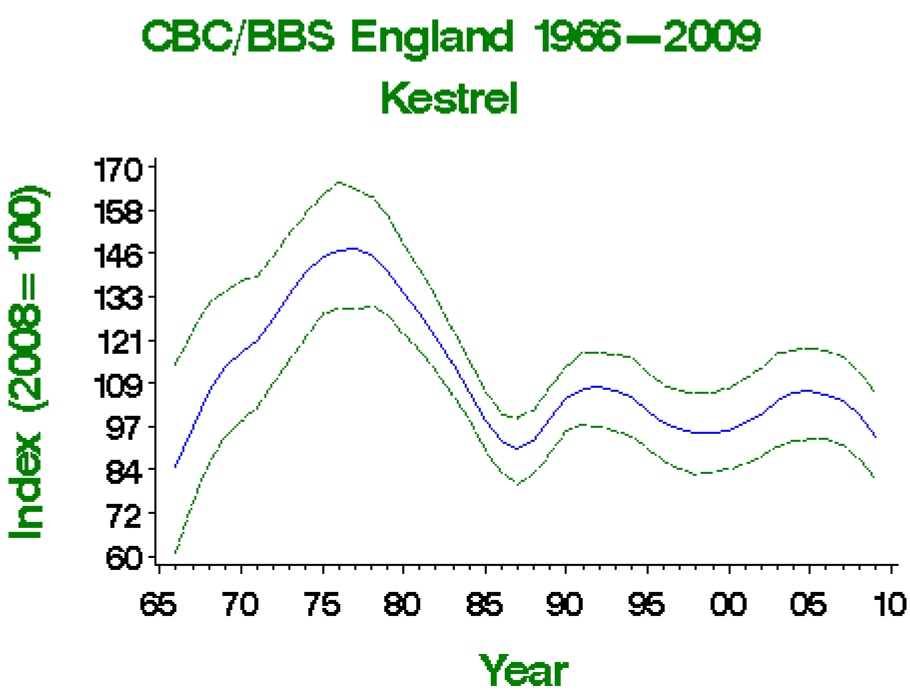
England: fluctuating, with no long-term trend

UK population size

36,800 pairs in 2000 (1988–91 Atlas estimate updated using CBC/BBS trend: **BiE04**, **APEP06**)

Status summary

Kestrels had recovered from the lethal and sublethal effects of organochlorine pesticides by the mid 1970s, the recovery probably driven by improving nesting success, but subsequently entered a decline which has been linked to the effects of agricultural intensification on farmland habitats and their populations of small mammals (**Gibbons *et al.* 1993**). Since the mid 1980s, the English population has fluctuated without a long-term trend being apparent. In Scotland, however, there has been a significant decline since 1994. There has been substantial increase in the number of fledglings per breeding attempt; brood sizes increased up to 1990, but a subsequent decline has resulted in the inclusion of Kestrel in the NRS concern list (**Leech & Barimore 2008**). Despite its decline since the mid 1970s, the Kestrel breeds at high density in mixed farmland across much of England, suggesting that the British population may number more than 50,000 pairs (**Clements 2008**). A moderate decrease has been recorded in the Republic of Ireland since 1998 (**Crowe *et al.* 2010**).



1967-2008: 4% (confidence interval -29% to 48%)

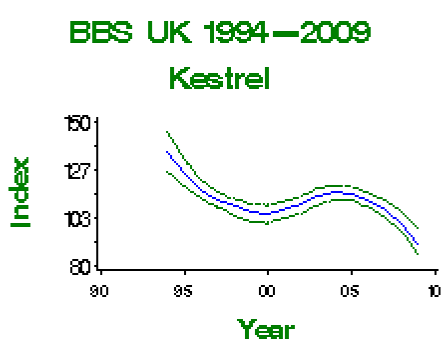
Population changes in detail

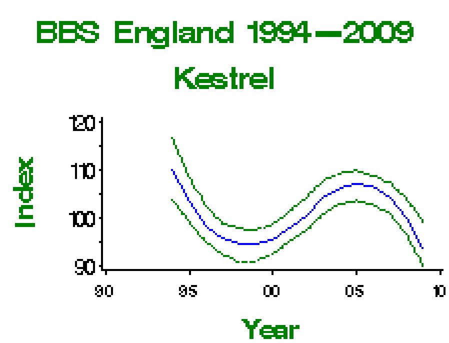
Table of population changes for Kestrel

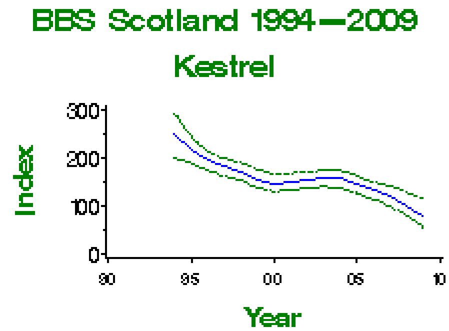
Source	Period	Years	Plots	Change	Lower	Upper	Alert	Comment

	(yrs)		(n)	(%)	limit	limit		
CBC/BBS England	41	1967-2008	247	4	-29	48		
	25	1983-2008	353	-13	-28	5		
	10	1998-2008	620	5	0	13		
	5	2003-2008	687	-4	-10	2		
BBS UK	13	1995-2008	634	-20	-28	-12		
	10	1998-2008	678	-8	-13	1		
	5	2003-2008	763	-12	-17	-4		
BBS England	13	1995-2008	551	-3	-11	4		
	10	1998-2008	592	6	-1	14		
	5	2003-2008	670	-4	-9	2		
BBS Scotland	13	1995-2008	43	-54	-67	-31	>50	
	10	1998-2008	43	-41	-57	-14	>25	
	5	2003-2008	47	-37	-54	-9	>25	

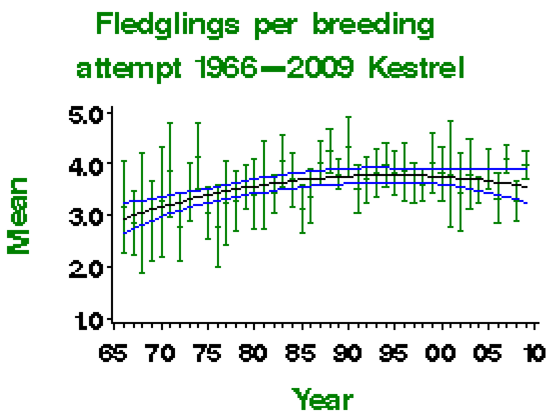
The Breeding Bird Survey is jointly funded by the BTO, JNCC & RSPB

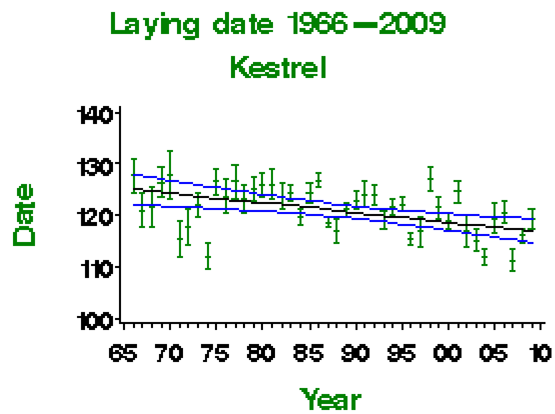






Demographic trends

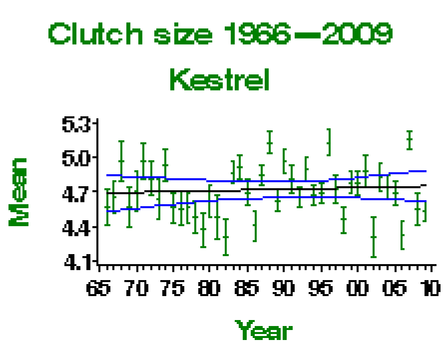


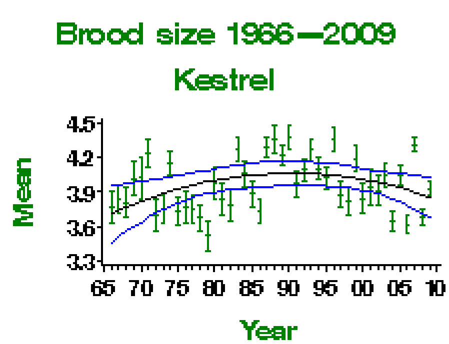


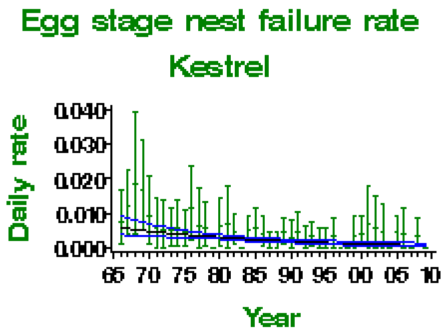
More on demographic trends

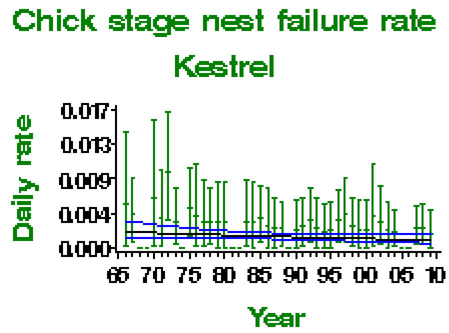
Table of demographic changes for Kestrel

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment
Fledglings per breeding attempt	40	1968-2008	38	Curvilinear	3.06 fledglings	3.6 fledglings	17.7%	
Clutch size	40	1968-2008	56	None				
Brood size	40	1968-2008	132	Curvilinear	3.77 chicks	3.88 chicks	3%	
Daily failure rate (eggs)	40	1968-2008	41	Linear decline	0.55% nests/day	0.09% nests/day	-83.6%	
Daily failure rate (chicks)	40	1968-2008	68	None				
Laying date	40	1968-2008	22	Linear decline	May 5	Apr 27	-8 days	Small sample









Additional information

- **Maps and statistics from British and Irish atlases**
- **BirdFacts page on species biology**
- **BirdTrack results**

MERLIN
Falco columbarius

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe)
UK: amber (historical decline)

Long-term trend

UK: probable increase

UK population size

1,300 pairs in 1990–94 (**Rebecca & Bainbridge 1998**: **BiE04**, **APEP06**); 1,160 (912–1,532) pairs in 2008 (**Holling & RBBP 2010b**)

Status summary

Having declined substantially over the past two centuries, Merlin shows indications of a recent doubling of population (**Rebecca & Bainbridge 1998**). This increase may be associated with an increased use of forest edge as a nesting habitat (**Parr 1994**, **Little *et al.* 1995**). Because of its recent population upturn, the species was moved from the red to the amber list in 2002. It remains much too scarce, however, for annual population monitoring via BBS: dedicated observers and specialised field methods are required, as described by **Hardey *et al*. (2009)**. Submissions to the Rare Breeding Birds Panel fall well short of the estimated UK total population but show an average of 1.86 young fledged per occupied territory during 1996–2004 (**Holling & RBBP 2007a**). Breeding performance has tended to improve since the 1960s, probably linked to the declining influence of organochlorine pesticides (**Crick 1993**). Hatching rates in the southeast Yorkshire Dales were consistently higher than had been recorded in earlier studies in Northumberland (**Wright 2005**). A repeat survey of Merlin's British breeding status undertaken in 2008 found a non-significant decline of around 13% since the previous survey in 1993–94, with decline most noticeable in England (**Holling & RBBP 2010b**).

Population changes in detail

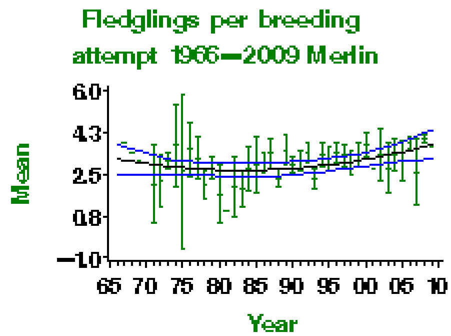
Annual breeding population changes for this species are not currently monitored by BTO

Demographic trends

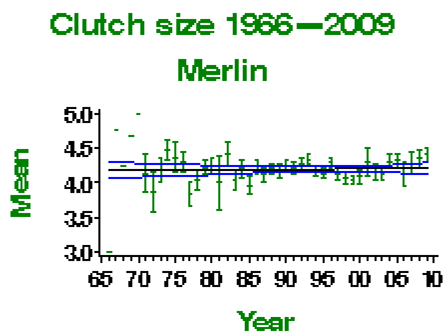
Table of demographic changes for Merlin

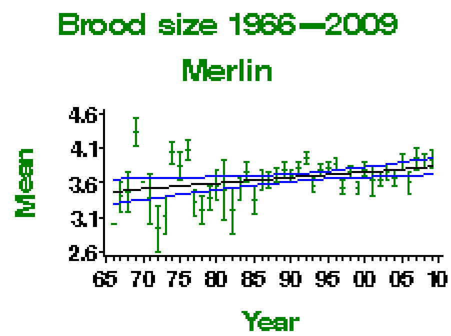
Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment
Fledglings per breeding attempt	40	1968-2008	23	Curvilinear	3.02 fledglings	3.64 fledglings	20.4%	
Clutch size	40	1968-2008	37	None				
Brood size	40	1968-2008	56	Linear increase	3.5 chicks	3.82 chicks	9.3%	
Daily failure rate (eggs)	40	1968-2008	25	Linear decline	0.66% nests/day	0.23% nests/day	-65.2%	Small sample
Daily failure rate (chicks)	40	1968-2008	29	Linear decline	0.88% nests/day	0.24% nests/day	-72.7%	Small sample

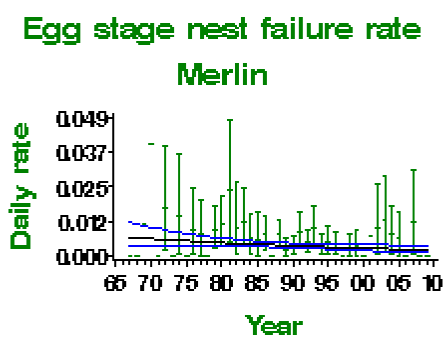
Insufficient data on laying date

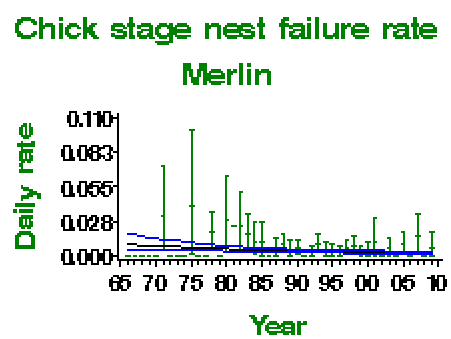


available for this species









Additional information

- **Maps and statistics from British and Irish atlases**
- **BirdFacts page on species biology**
- **BirdTrack results**

HOBBY
Falco subbuteo

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe)
UK: green

Long-term trend

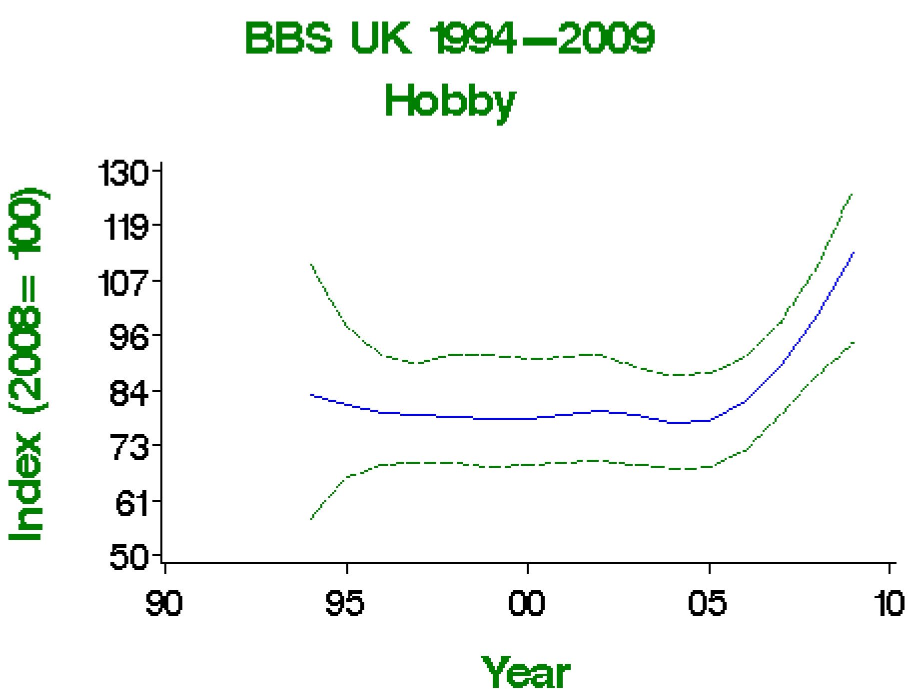
UK, England: increase

UK population size

2,200 pairs in 2000 (**Clements 2001**: **BiE04**, **APEP06**)

Status summary

This species used to be too rare and unobtrusive to be monitored but, following population increase, BBS is now able to produce a trend. Many BBS sightings must, however, refer to migrants, first-summer non-breeders, or to breeding birds from distant nests. To establish whether nesting occurs in a locality, dedicated observers and specialised field methods are required, as described by **Hardey *et al*. (2009)**. The Rare Breeding Birds Panel collects annual data on nesting pairs, which under-represent the true population to unknown degrees, but adequately establish the long-term upward trend (**Holling & RBBP 2010b**). The Hobby's distribution has spread markedly northwards in England since the 1970s (**Gibbons *et al.* 1993**), perhaps linked to increases in its dragonfly prey supplies (**Prince & Clarke 1993**) and to a decreasing dependency on its traditional heathland habitat, but the reasons underlying the increase are still only speculative (**Clements 2001**). A success rate of more than 90% was recorded for nests in Derbyshire during 1992–2001, with successful nests fledging a mean of 2.44 young (**Messenger & Roome 2007**). The small annual samples of nest record cards indicate no long-term change in either brood size or nest success.



1998-2008: 27% (confidence interval -4% to 56%)

Population changes in detail

Table of population changes for Hobby

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment

BBS UK	10	1998-2008	40	27	-4	56		
	5	2003-2008	45	26	1	55		
BBS England	13	1995-2008	36	25	-4	79		
	10	1998-2008	38	35	6	76		
	5	2003-2008	43	29	0	62		

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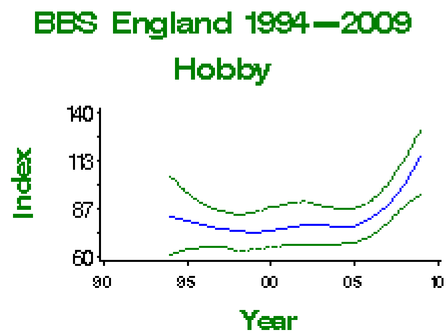


Demographic trends

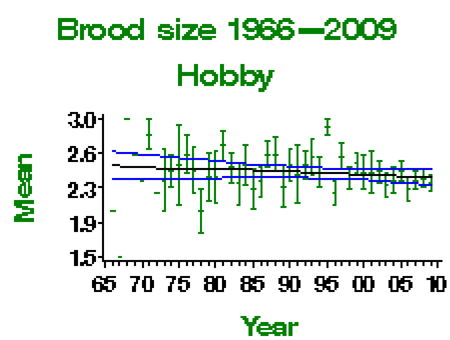
Table of demographic changes for Hobby

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment
Brood size	40	1968-2008	20	None				Small sample
Daily failure rate (chicks)	40	1968-2008	13	None				Small sample

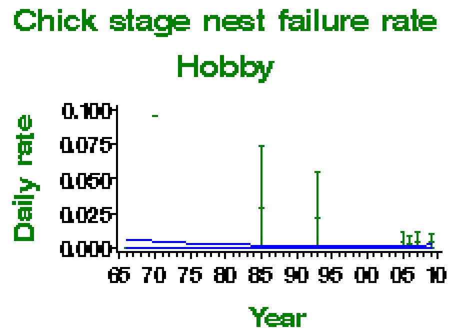
Insufficient data on fledglings per breeding attempt available for this species

Insufficient data on laying date available for this species

Insufficient data on clutch size available for this species



Insufficient data on nest failure available for this species



Additional information

- **Maps and statistics from British and Irish atlases**
- **BirdFacts page on species biology**
- **BirdTrack results**

PEREGRINE
Falco peregrinus

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe)
UK: green (species level); amber (race *peregrinus*, >20% of European breeders, European status)

Long-term trend

UK, England: increase
Northwest Scotland: decline since 1991

UK population size

1,283 pairs in 1991 (**Crick & Ratcliffe 1995**: **APEP06**);
1,400 pairs in 2002 (**Banks *et al.* 2003**: **BiE04**)

Status summary

The UK population size, distribution and breeding performance have all largely recovered from the detrimental effects of organochlorine pesticides in the 1950s and 1960s. Populations and breeding performance have declined recently, however, in northwest Scotland and the Northern Isles (**Crick & Ratcliffe 1995**). Nest record information for the UK as a whole shows a significant decline in clutch size, although samples for the first ten years are small. No trends are yet evident in the number of fledglings per breeding attempt. The number of UK breeding pairs has been censused every ten years since 1961 by BTO/JNCC/RSPB/Raptor Study Groups, and has been estimated as follows: 1961 – 385 pairs; 1971 – 489 pairs; 1981 – 728 pairs; 1991 – 1,283 pairs (**Ratcliffe 1993**). The **National Peregrine Survey 2002** found 1,402 breeding pairs, a further 10% increase overall since 1991 but with declines in north and west Scotland, North Wales and Northern Ireland (**Banks *et al.* 2003**); around 50 pairs were missed in Wales, however (**Dixon *et al.* 2008**). Similar increases across Europe have resulted in a downgrading of conservation listing from 'SPEC 3 (rare)' to 'secure' (**BirdLife International 2004**), and consequently the species has recently been moved from the amber to the green list in the UK.

Population changes in detail

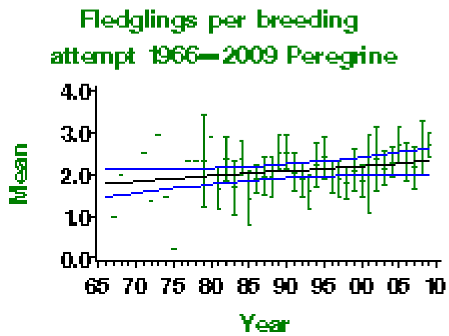
Annual population changes are not monitored for this species

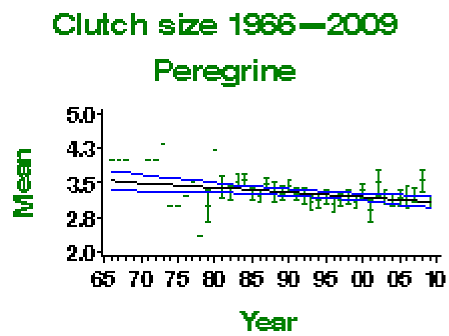
Demographic trends

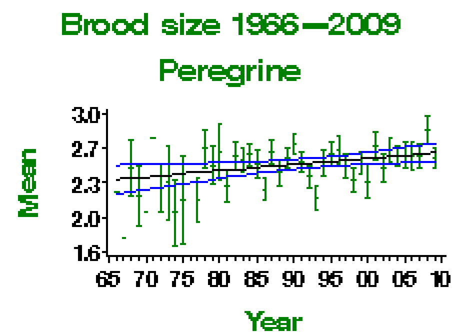
Table of demographic changes for Peregrine

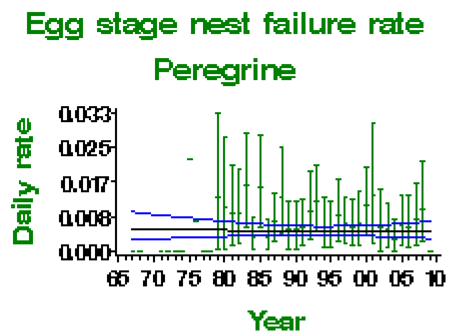
Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment
Fledglings per breeding attempt	40	1968-2008	11	None				
Clutch size	40	1968-2008	16	Linear decline	3.53 eggs	3.11 eggs	-11.9%	Small sample
Brood size	40	1968-2008	42	Linear increase	2.35 chicks	2.6 chicks	10.7%	
Daily failure rate (eggs)	40	1968-2008	22	None				Small sample
Daily failure rate (chicks)	40	1968-2008	24	None				Small sample

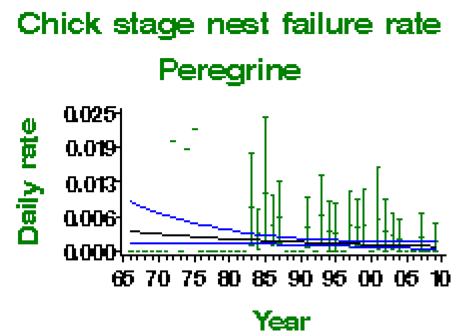
Insufficient data on laying date available for this species











Additional information

- **Maps and statistics from British and Irish atlases**
- **BirdFacts page on species biology**

MOORHEN
Gallinula chloropus

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe)
UK: green

Long-term trend

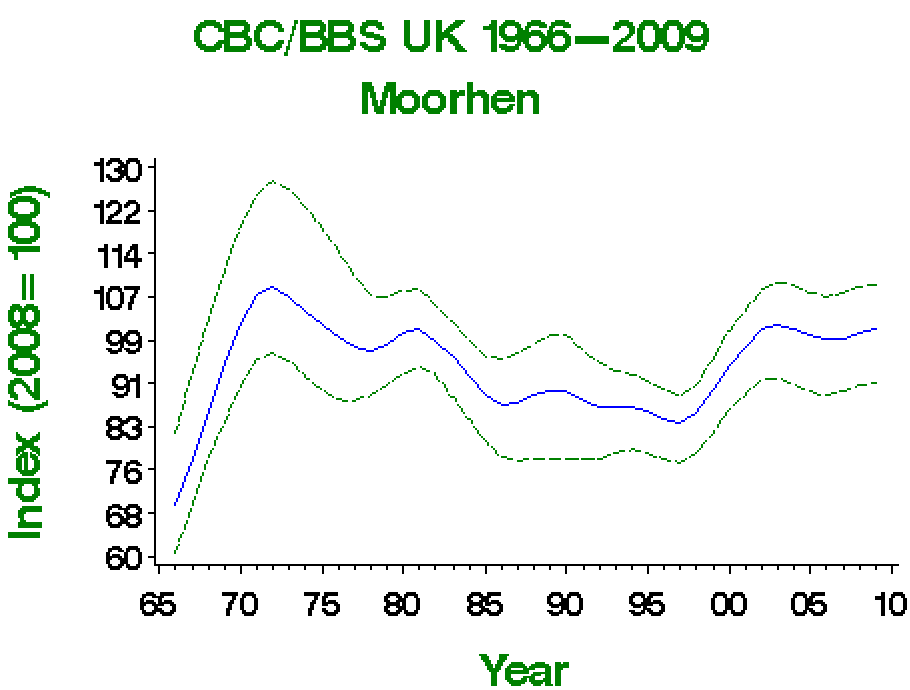
UK: probable shallow increase

UK population size

270,000 pairs in 2000 (1988–91 Atlas estimate updated using CBC/BBS trend: **BiE04**, **APEP06**)

Status summary

While the long-term CBC/BBS trend is of shallow increase, much of the population increase took place before 1974, when WBS monitoring began, and may have been a recovery from heavy mortality during the cold winters of the early 1960s. On both CBC/BBS and WBS/WBBS evidence, there was decrease during the 1970s and 1980s, but this has been followed by a partial recovery. A decline in the number and quality of farmland ponds, and the spread of American mink *Mustela vison*, which is an important predator especially along watercourses, have been suggested as possible causes of decline. The failure rate of nests over the full 25-day egg period (20 days for incubation and 5 days for laying) has increased, earning the species a place on the NRS concern list (**Leech & Barimore 2008**), but average brood sizes have increased and no trend has been evident in the number of fledglings per breeding attempt.



1967-2008: 29% (confidence interval -3% to 55%)

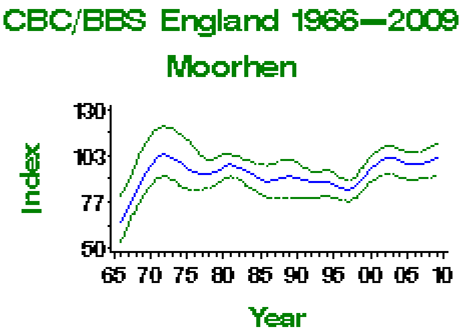
Population changes in detail

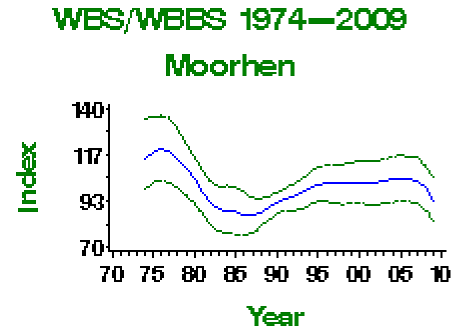
Table of population changes for Moorhen

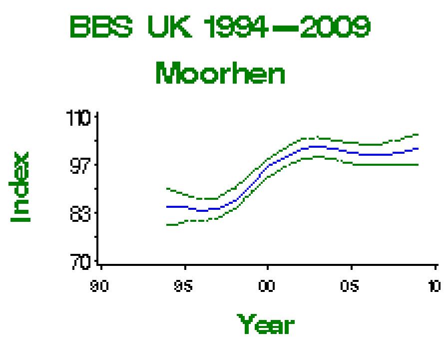
Source	Period	Years	Plots	Change	Lower	Upper	Alert	Comment

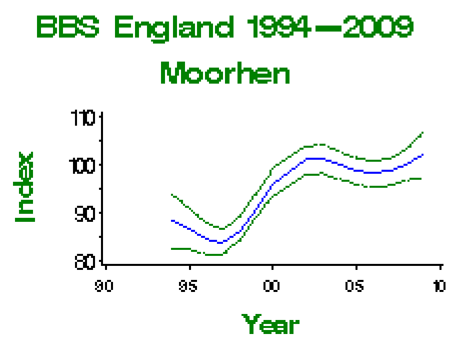
	(yrs)		(n)	(%)	limit	limit		
CBC/BBS UK	41	1967-2008	289	29	-3	55		
	25	1983-2008	405	4	-10	18		
	10	1998-2008	699	17	10	24		
	5	2003-2008	734	-2	-7	4		
CBC/BBS England	41	1967-2008	264	36	1	70		
	25	1983-2008	373	5	-9	22		
	10	1998-2008	646	17	9	24		
	5	2003-2008	682	-2	-7	4		
WBS/WBBS waterways	33	1975-2008	120	-15	-35	11		
	25	1983-2008	135	12	-14	44		
	10	1998-2008	209	-2	-12	8		
	5	2003-2008	218	-3	-9	4		
BBS UK	13	1995-2008	626	18	11	29		
	10	1998-2008	676	15	7	23		
	5	2003-2008	734	-2	-6	4		
BBS England	13	1995-2008	577	16	6	25		
	10	1998-2008	622	16	9	22		
	5	2003-2008	679	-1	-6	4		

The Breeding Bird Survey is jointly funded by the BTO, JNCC & RSPB

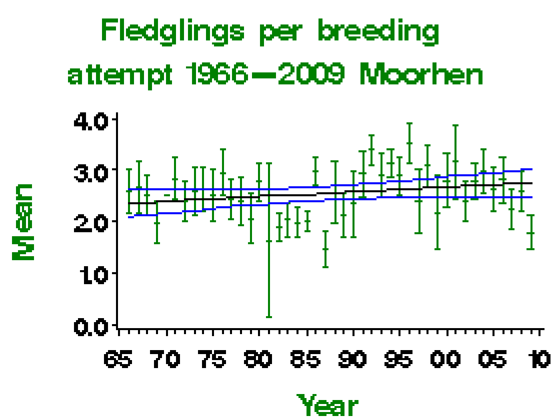


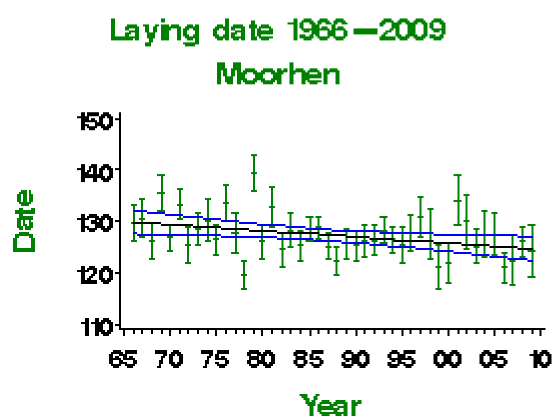






Demographic trends



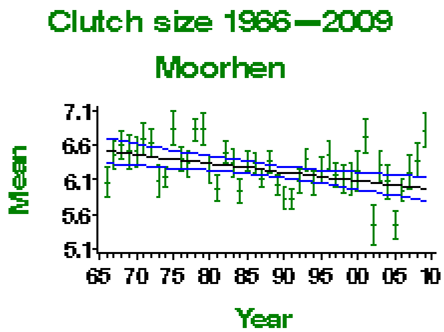


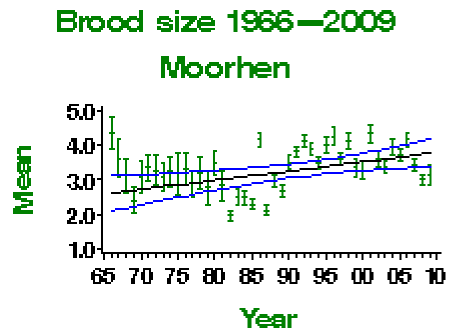
More on demographic trends

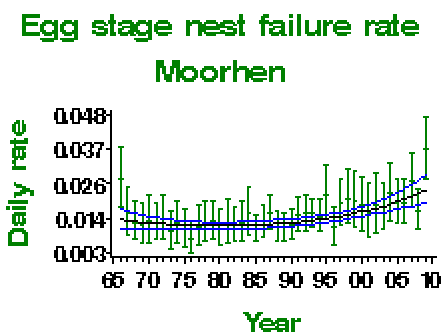
Table of demographic changes for Moorhen

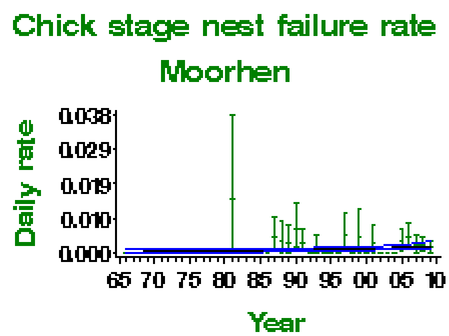
Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment
Fledglings per breeding	40	1968-	31	None				

attempt		2008						
Clutch size	40	1968-2008	90	Linear decline	6.49 eggs	5.99 eggs	-7.8%	
Brood size	40	1968-2008	78	Linear increase	2.67 chicks	3.74 chicks	39.8%	
Daily failure rate (eggs)	40	1968-2008	111	Curvilinear	1.33% nests/day	2.23% nests/day	67.7%	
Daily failure rate (chicks)	40	1968-2008	39	None				
Laying date	40	1968-2008	67	Linear decline	May 10	May 5	-5 days	









Additional information

- Maps and statistics from British and Irish atlases
- BirdFacts page on species biology
- BirdTrack results

COOT *Fulica atra*

- Population changes
- Productivity trends
- Additional information

Conservation listings

Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe)
UK: green

Long-term trend

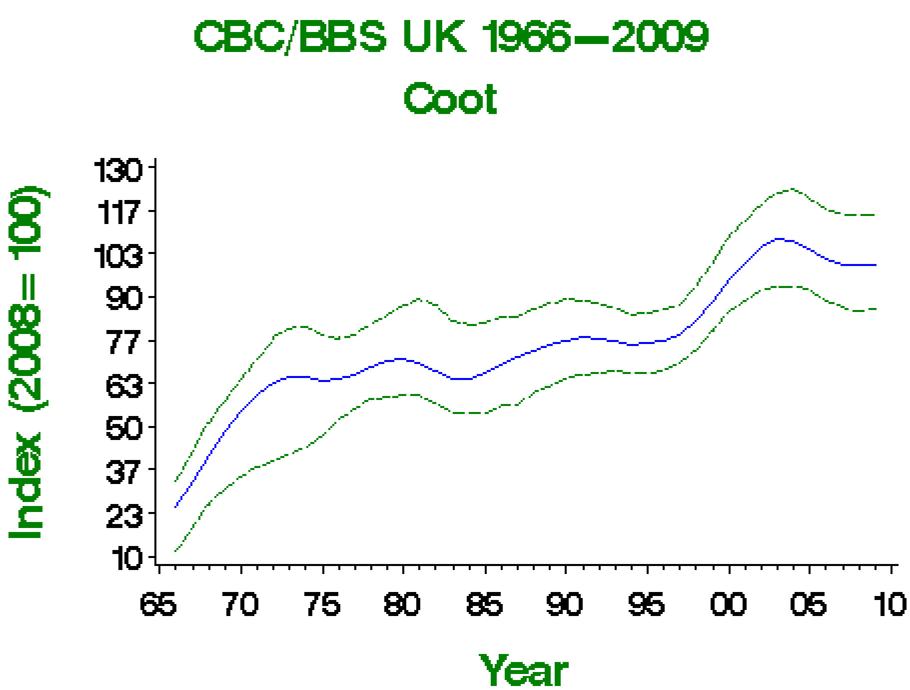
UK waterways: rapid increase

UK population size

22,600–28,800 pairs in 2000 (1988–91 Atlas estimate updated using CBC/BBS and WBS trends: **BiE04**, **APEP06**)

Status summary

WBS/WBBS and CBC/BBS trends for Coot indicate a long-term increase, although the magnitude of the change is not clear. Small CBC samples, mainly of birds on small water-bodies, suggested a rapid rise in the late 1960s. WBS/WBBS and BBS include more birds on larger waters, and so may be more representative of Coot populations, but WBS/WBBS has not recorded the strong increase found by BBS observers since 1994. The combination of CBC and BBS data suggests that the long-term increase in the UK and England may have been rapid. Winter abundance on large still waters, as monitored by WeBS, showed shallow increase from the mid 1980s to around 2000/01 but has since declined, especially in Northern Ireland (**Calbrade *et al.* 2010**).



1975-2008: 92% (confidence interval 22% to 230%)

Population changes in detail

Table of population changes for Coot

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment

CBC/BBS UK	41	1967-2008	108	203	110	538		
	25	1983-2008	158	55	10	113		
	10	1998-2008	287	21	6	39		
	5	2003-2008	308	-7	-17	5		
CBC/BBS England	41	1967-2008	98	202	86	542		
	25	1983-2008	144	56	13	116		
	10	1998-2008	260	23	7	40		
	5	2003-2008	280	-8	-18	5		
WBS/WBBS waterways	33	1975-2008	59	92	22	230		
	25	1983-2008	70	45	-8	135		
	10	1998-2008	107	0	-22	26		
	5	2003-2008	110	8	-14	35		
BBS UK	13	1995-2008	252	38	16	69		
	10	1998-2008	279	19	3	35		
	5	2003-2008	308	-7	-16	5		
BBS England	13	1995-2008	228	41	18	67		
	10	1998-2008	251	21	5	38		
	5	2003-2008	279	-7	-17	4		

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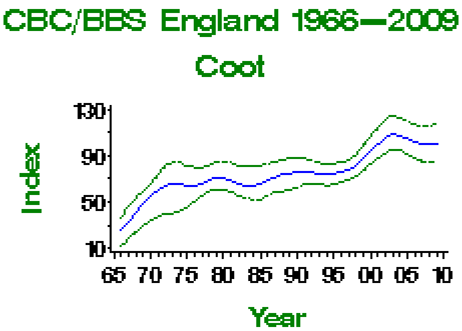
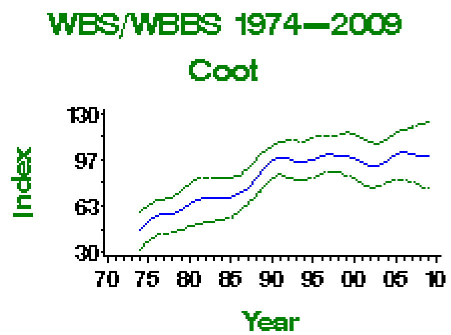
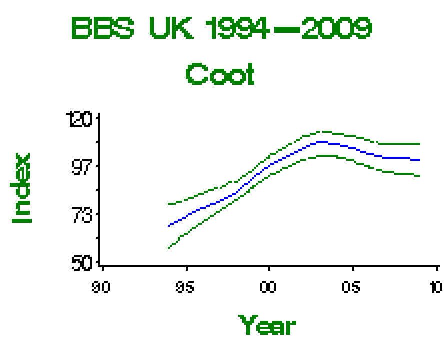
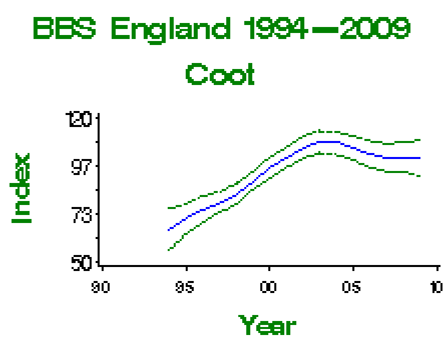








Demographic trends

Demographic information is not currently available for this species

Additional information

- **Maps and statistics from British and Irish atlases**
- **BirdFacts page on species biology**
- **BirdTrack results**

OYSTERCATCHER
Haematopus ostralegus

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: no SPEC category (concentrated in Europe, conservation status favourable)
UK: amber (>20% of European breeding population, >20% of East Atlantic Flyway population in winter, localised wintering population)

Long-term trend

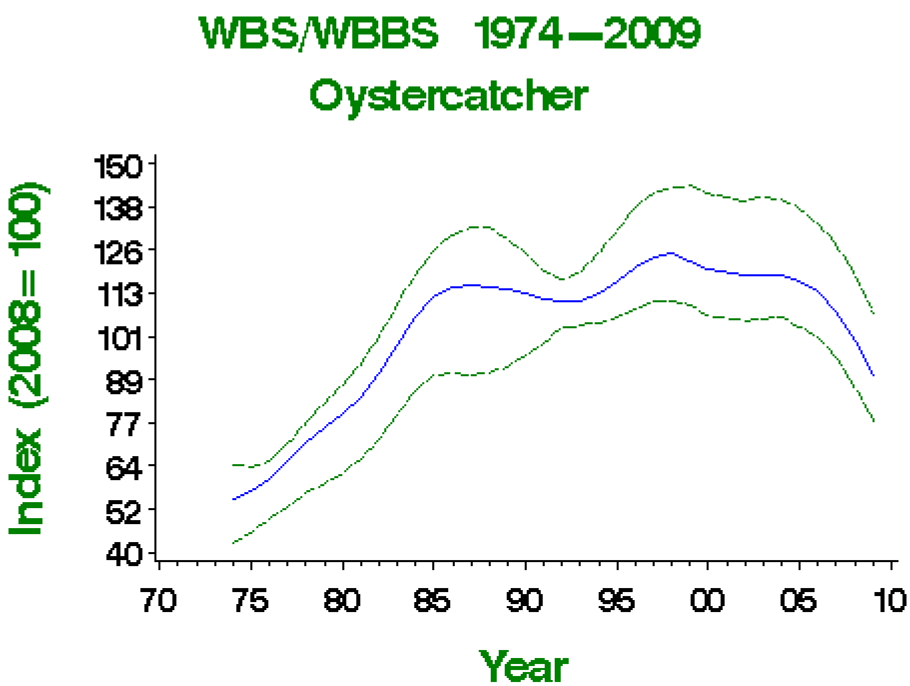
UK waterways: moderate increase

UK population size

113,000 (98,500–127,000) pairs in 1985–99 (**O'Brien 2005**: **BiE04**, **APEP06**)

Status summary

Oystercatchers increased along linear waterways between 1974 and about 1986, as the species colonised inland sites across England and Wales (**Gibbons *et al.* 1993**). Thereafter, the WBS/WBBS index stabilised and now appears to be in decline, so showing a pattern similar to that in winter abundance revealed by WeBS (**Calbrade *et al.* 2010**). Surveys in England and Wales revealed an increase of 47% in breeding birds in wet meadows between 1982 and 2002 (**Wilson *et al.* 2005**). BBS data since 1994, which include birds in a broader range of locations and habitats, show strong increase in England but a significant decline in Scotland. The increase in nest failure rates during the 27-day egg stage (25 days for incubation and 2 days for laying) probably results from the spread of the species into less favourable habitats, where nest losses through predation or trampling may be more likely. The trend towards earlier laying can be partly explained by recent climate change (**Crick & Sparks 1999**).



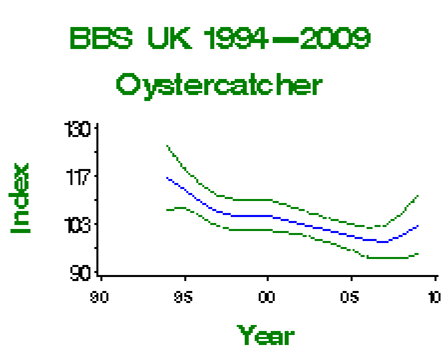
1975-2008: 74% (confidence interval 36% to 163%)

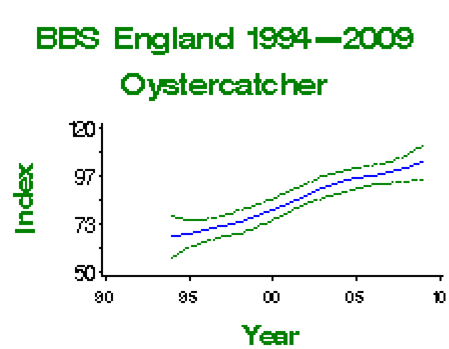
Population changes in detail

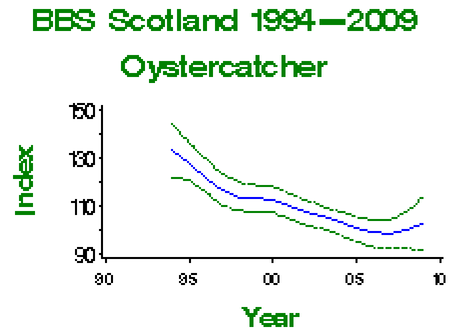
Table of population changes for Oystercatcher

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
WBS/WBBS waterways	33	1975-2008	44	74	36	163		
	25	1983-2008	52	1	-21	53		
	10	1998-2008	91	-20	-29	-5		
	5	2003-2008	104	-16	-25	-5		
BBS UK	13	1995-2008	294	-11	-21	-2		
	10	1998-2008	313	-5	-15	6		
	5	2003-2008	352	-2	-12	5		
BBS England	13	1995-2008	158	46	25	71		
	10	1998-2008	175	35	17	54		
	5	2003-2008	210	10	-2	21		
BBS Scotland	13	1995-2008	127	-21	-33	-11		
	10	1998-2008	128	-12	-24	1		
	5	2003-2008	136	-5	-15	6		

The Breeding Bird Survey is jointly funded by the BTO, JNCC & RSPB





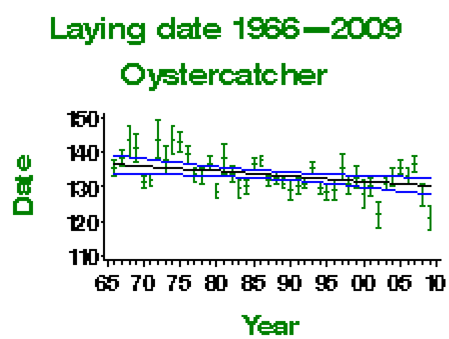


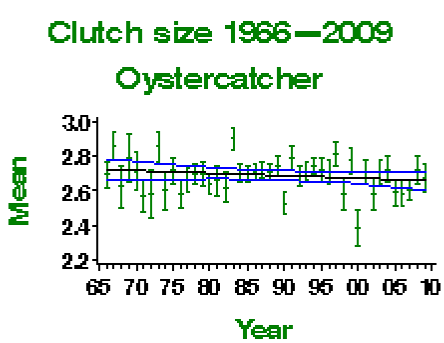
Demographic trends

Table of demographic changes for Oystercatcher

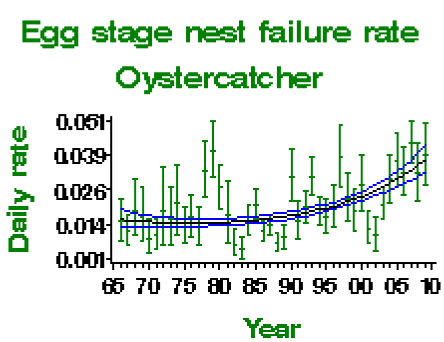
Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment
Clutch size	40	1968-2008	101	None				
Daily failure rate (eggs)	40	1968-2008	112	Curvilinear	1.48% nests/day	3.47% nests/day	134.5%	
Laying date	40	1968-2008	45	Linear decline	May 16	May 10	-6 days	

Insufficient data on fledglings per breeding attempt available for this species





Insufficient data on brood size available for this species



Insufficient data on nestling failure available for this species

Additional information

- **Maps and statistics from British and Irish atlases**
- **BirdFacts page on species biology**
- **BirdTrack results**
- **Atlas 2007–11 latest results**

RINGED PLOVER
Charadrius hiaticula

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: no SPEC category (concentrated in Europe, conservation status favourable)
UK: amber (species level and race *hiaticula*, 25–50% decline, >20% East Atlantic Flyway population in winter)

Long-term trend

UK: decline

UK population size

8,540 pairs in 1984 (**Prater 1989**: **APEP06**, rounded to 8,600 **BiE04**); 5,438 (5,257–5,622) pairs in 2007 (**Conway *et al*. 2008**)

Status summary

The breeding population is not monitored annually, but a BTO survey in 1984 showed increases throughout the UK since the previous survey in 1973–74 (**Prater 1989**). The spread of the breeding distribution inland between the two atlas periods, especially in England, was probably associated with the increase in number of gravel pits and reservoirs (**Gibbons *et al.* 1993**). The 1984 survey revealed that over 25% of the UK population nested on the Western Isles, especially on the machair, but breeding waders there have subsequently suffered greatly from predation by introduced hedgehogs (**Jackson *et al.* 2004**) – a problem that appears increasingly severe (**Jackson 2007**). Surveys in England and Wales revealed an increase of 12% in breeding birds in wet meadows between 1982 and 2002 (**Wilson *et al.* 2005**). The BTO's repeat national survey in 2007 found an overall decrease in UK population of around 37% since 1984, with the greatest decreases in inland areas (**Burton & Conway 2008**, **Conway *et al*. 2008**, **Conway & Burton 2009**; click **here**). Ringed Plovers that choose beaches for nesting are especially vulnerable to disturbance, however, and already in 1984 were largely confined in some regions to wardened reserves (**Prater 1989**). Human usage of beach areas severely restricts the availability of this habitat to nesting plovers (**Liley & Sutherland 2007**). The marked increase in nest failures at the egg stage has earned Ringed Plover a place on the NRS concern list (**Leech & Barimore 2008**). Wintering numbers have been in decline since the late 1980s (**Calbrade *et al.* 2010**).

Population changes in detail

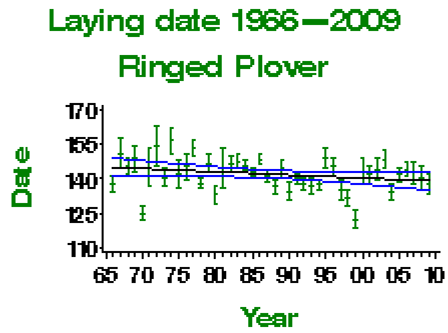
Annual breeding population changes for this species are not currently monitored by BTO

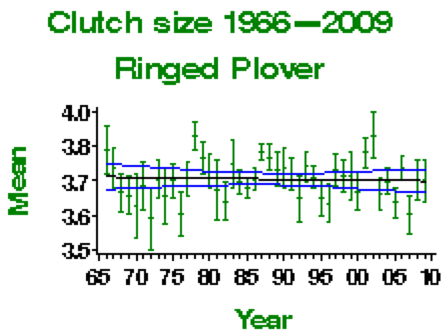
Demographic trends

Table of demographic changes for Ringed Plover

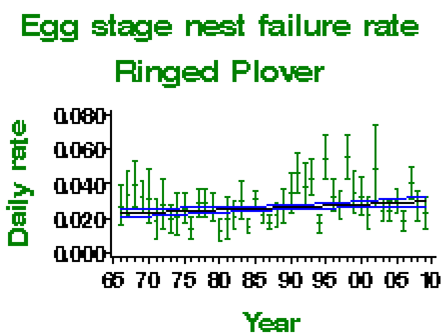
Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment
Clutch size	40	1968-2008	86	None				
Daily failure rate (eggs)	40	1968-2008	123	Linear increase	2.32% nests/day	2.97% nests/day	28%	
Laying date	40	1968-2008	38	None				

Insufficient data on fledglings per breeding attempt available for this species





Insufficient data on brood size available for this species



Insufficient data on nestling failure available for this species

Additional information

- **Maps and statistics from British and Irish atlases**
- **BirdFacts page on species biology**
- **BirdTrack results**

GOLDEN PLOVER
Pluvialis apricaria

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: no SPEC category (concentrated in Europe, conservation status favourable)
UK: amber

Long-term trend

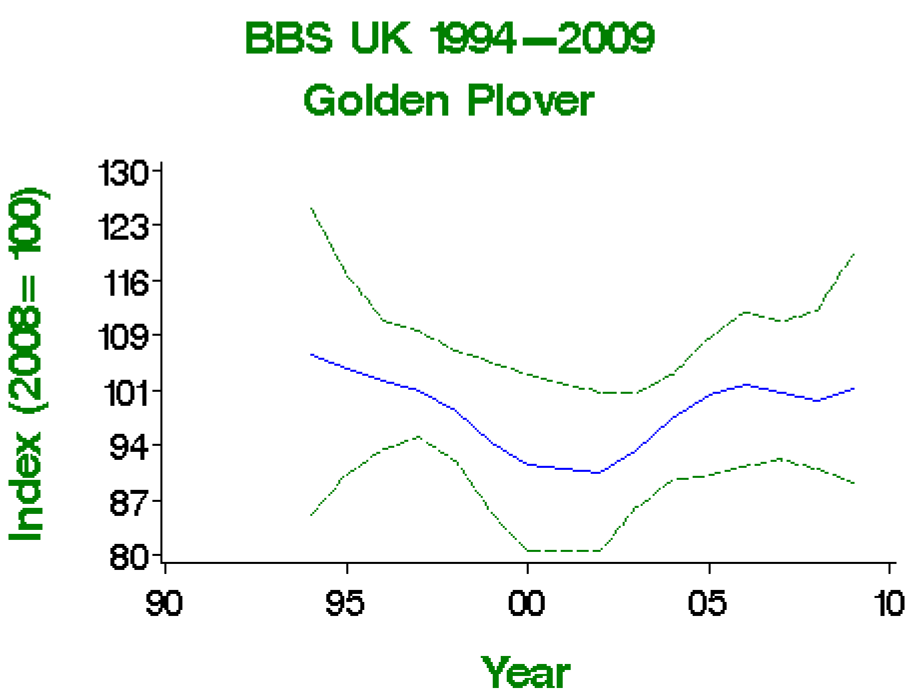
UK: possible decline

UK population size

22,600 pairs in 1981–84 (**Reed 1985**, **Stroud *et al.* 1987**: **APEP06**); 38,400–59,400 pairs in 1980–2000 (**BiE04**)

Status summary

There was no annual monitoring of the breeding population before the inception of BBS. Since 1994, BBS has shown some increase in Scotland and the UK, but this is believed to follow an earlier decline (**Gibbons *et al.* 1993**). A detailed survey has confirmed a sharp decline in Wales since the 1980s, with just 36 pairs located in 2007 (**Johnstone *et al.* 2008**). Nest survival on grass moors, unlike that on heather moors, may have declined over time (**Crick 1992**), perhaps linked to increased stocking densities of sheep (**Fuller 1996**). There is no clear trend in clutch size; a large number of late-season nest records, which provide higher proportions of two- and three-egg clutches, were submitted from an intensive study during 1996–98 (J.W. Pearce-Higgins, pers. comm.). Warmer springs are reported to advance the breeding phenology of Golden Plovers and of their tipulid prey (**Pearce-Higgins *et al.* 2005**). Winter numbers counted by WeBS, although mainly at coastal sites and omitting some big concentrations inland, have increased sharply in Britain since the mid 1980s (**Calbrade *et al.* 2010**); these birds are mainly of Fennoscandian or Russian origin. The species has recently been restored to the amber list because of the international importance of the UK's wintering population.



1995-2008: -4% (confidence interval -21% to 21%)

Population changes in detail

Table of population changes for Golden Plover

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
BBS UK	13	1995-2008	55	-4	-21	21		
	10	1998-2008	52	1	-15	22		
	5	2003-2008	55	7	-10	29		
BBS Scotland	13	1995-2008	41	-12	-33	16		
	10	1998-2008	37	-2	-22	19		
	5	2003-2008	38	2	-17	25		

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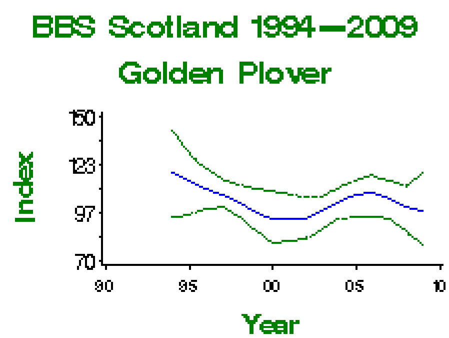


Demographic trends

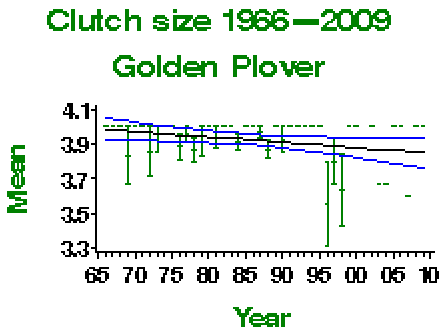
Table of demographic changes for Golden Plover

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment
Clutch size	40	1968-2008	13	None				Small sample

Insufficient data on fledglings per breeding attempt available for this species

Insufficient data on laying date available for this species

Insufficient data on brood size available for this species



Insufficient data on nest failure available for this species

Insufficient data on nestling failure available for this species

Additional information

- **Maps and statistics from British and Irish atlases**
- **BirdFacts page on species biology**
- **BirdTrack results**

LAPWING
Vanellus vanellus

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: SPEC category 2, vulnerable
UK: red
UK Biodiversity Action Plan: priority species

Long-term trend

UK: moderate decline

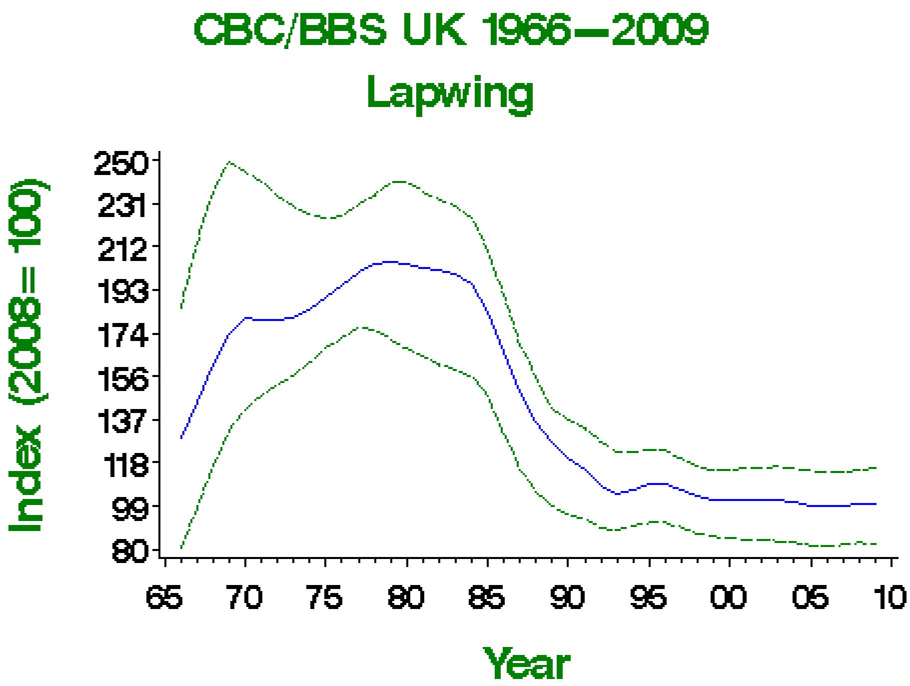
UK population size

156,000 (137,000–174,000) pairs in 1985–99 (**O'Brien 2005**: **BiE04**, **APEP06**)

Status summary

Although CBC recorded some increase in its early years, Lapwings have declined continuously on lowland farmland since the mid 1980s, probably because changes in agricultural practice have led to their breeding productivity dropping below a sustainable level (**Galbraith 1988**, **Hudson *et al.* 1994**, **Siriwardena *et al.* 2000a**, **Besbeas *et al.* 2002**, **Milsom 2005**). National surveys in England and Wales showed a 49% population decline between 1987 and 1998 (**Wilson *et al.* 2001**). Population declines of more than 50% over 15 years in Northern Ireland (**Henderson *et al.* 2002**) mirror similar declines throughout grassland areas of Wales and southeast England (**Wilson *et al.* 2001**, **2005**). BBS data indicate some increase in England since 1994, but steep decline in Scotland. Adult and first-year survival rates show no trend through time (**Peach *et al.* 1994**, **Catchpole *et al.* 1999**). Mean clutch size increased significantly as the population fell. Using NRS data for 1962–99, **Chamberlain & Crick (2003)** found that marginal upland had relatively low reproductive performance, and arable relatively high, while grazed grass had higher failure rates and lower clutch sizes than ungrazed grass: their results suggest that recent population change may have been influenced by changes in clutch failure rates, perhaps mediated by an increase in grazing intensity in marginal uplands and by increased predation, possibly associated with habitat change. There have been several very poor years for egg-stage survival since 1996, and the species is therefore now of NRS concern (**Leech & Barimore 2008**). A recent study has indicated that 88% of nest predations occurred during darkness, suggesting that nocturnal mammals were to blame (**Bolton *et al.* 2007**). Nests with close neighbours and furthest from field edges were most likely to survive (**MacDonald & Bolton 2008**). **Sharpe *et al.* (2008)**, however, conclude that chick mortality is the main determinant of poor Lapwing productivity and therefore of population decline.

Winter numbers counted by WeBS, mainly at coastal sites and omitting some big concentrations inland, increased in Britain during the 1980s and early 1990s and are now decreasing steeply (**Calbrade *et al.* 2010**); these birds are mainly of continental origin. Lapwing is one of the most strongly declining bird species in Europe, having decreased in all regions since 1980, although with differing regional timing (**PECBMS 2009**, **2010**). The 2009 review moved this species from amber to the UK red list, for which it qualifies on the strength of its UK decline.



1967-2008: -31% (confidence interval -60% to 14%)

Population changes in detail

Table of population changes for Lapwing

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS UK	41	1967-2008	260	-31	-60	14		
	25	1983-2008	386	-50	-62	-34	>50	
	10	1998-2008	689	-3	-13	8		
	5	2003-2008	758	-1	-11	8		
CBC/BBS England	41	1967-2008	219	-14	-55	25		
	25	1983-2008	325	-44	-59	-22	>25	
	10	1998-2008	591	8	-1	16		
	5	2003-2008	665	-6	-13	0		
WBS/WBBS waterways	28	1980-2008	66	-32	-65	24		

	25	1983-2008	70	-50	-70	-12	>50	
	10	1998-2008	112	-34	-49	-11	>25	
	5	2003-2008	121	-27	-37	-13	>25	
BBS UK	13	1995-2008	647	-13	-22	-4		
	10	1998-2008	680	-3	-14	10		
	5	2003-2008	758	-1	-9	7		
BBS England	13	1995-2008	535	2	-9	13		
	10	1998-2008	568	7	-5	16		
	5	2003-2008	641	-6	-12	1		
BBS Scotland	13	1995-2008	89	-27	-43	-14	>25	
	10	1998-2008	88	-12	-32	6		
	5	2003-2008	92	8	-14	30		

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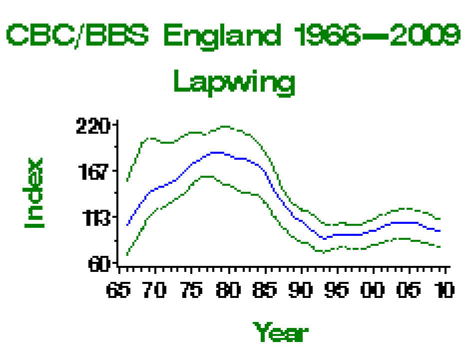
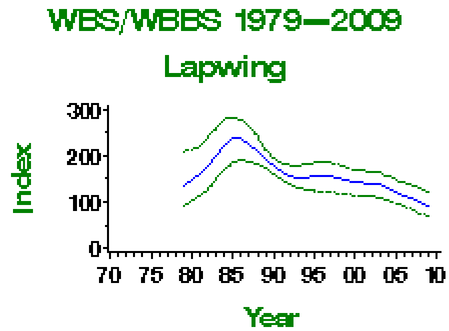
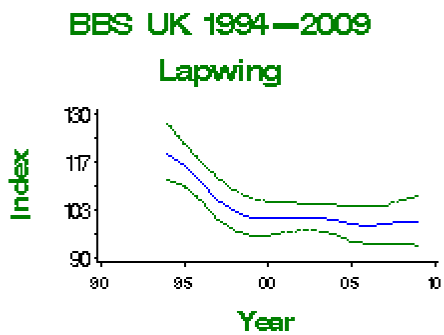
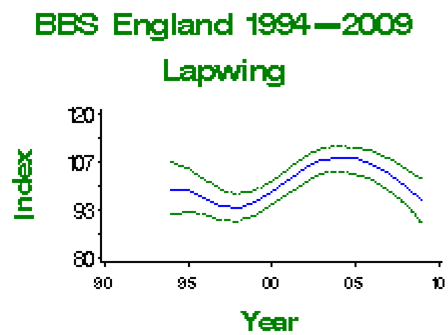
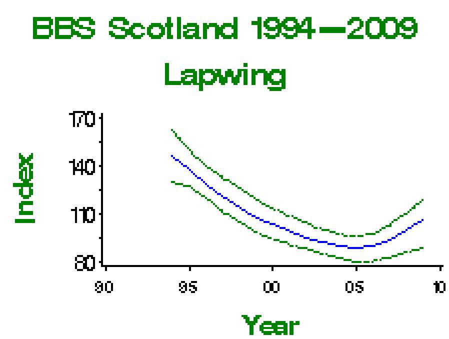








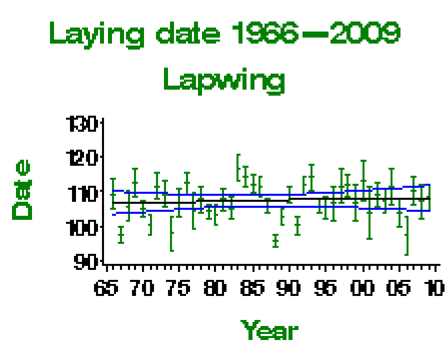


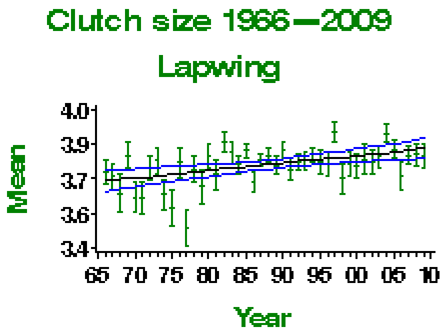
Demographic trends

Table of demographic changes for Lapwing

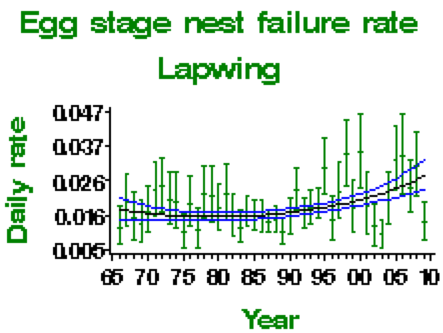
Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment
Clutch size	40	1968-2008	120	Linear increase	3.7 eggs	3.82 eggs	3.5%	
Daily failure rate (eggs)	40	1968-2008	132	Curvilinear	1.67% nests/day	2.64% nests/day	58.1%	
Laying date	40	1968-2008	29	None				Small sample

Insufficient data on fledglings per breeding attempt available for this species





Insufficient data on brood size available for this species



Insufficient data on nestling failure available for this species

Additional information

- **Maps and statistics from British and Irish atlases**
- **BirdFacts page on species biology**
- **BirdTrack results**

SNIPE
Gallinago gallinago

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: SPEC category 3 (declining)
UK: amber (European status)

Long-term trend

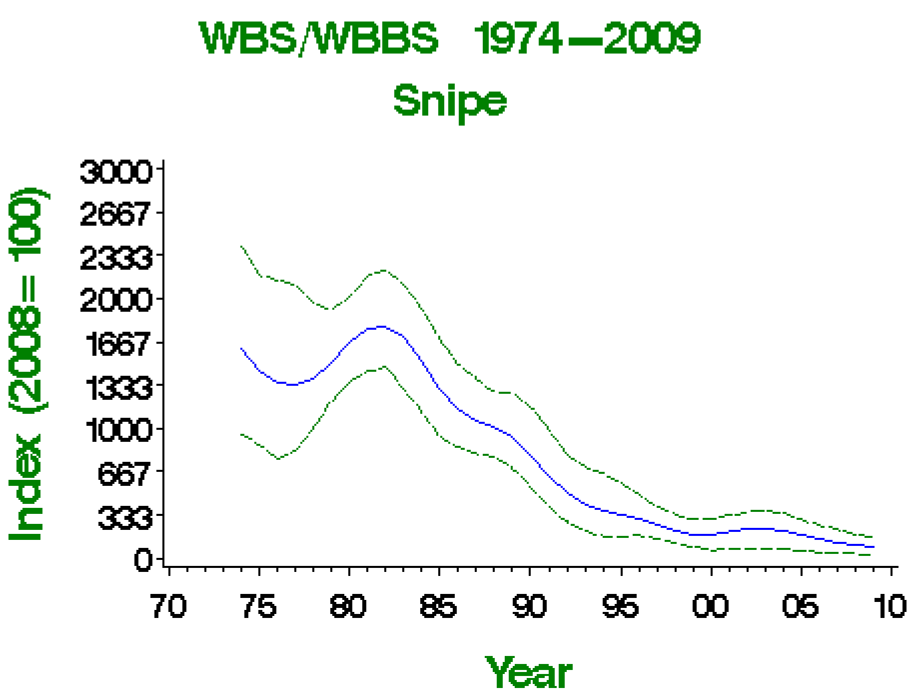
UK waterways: rapid decline

UK population size

59,300 (52,600–69,000) pairs in 1985–99 (**O'Brien 2005**: **BiE04**, **APEP06**)

Status summary

Snipe were monitored by the CBC mainly in lowland England, where numbers have fallen rapidly since the 1970s as farmland has been drained (**Gibbons *et al.* 1993**, **Siriwardena *et al.* 2000a**). The CBC index fell from the early 1970s until 1984, when the number of occupied plots became too small for further monitoring (**Marchant *et al*. 1990**), and the graph is not shown here. In Northern Ireland, a breeding decline of around 30% occurred between the mid 1980s and 1999 (**Henderson *et al.* 2002**). Surveys in England and Wales revealed a decrease of 62% in breeding birds in wet meadows between 1982 and 2002, with the remaining birds becoming highly aggregated into a tiny number of suitable sites (**Wilson *et al.* 2005**). Birds were more likely to persist where soils remained soft and wet; the fact that Snipe have continued to decline, despite soil conditions being improved for them at many lowland wetland reserves, suggests that other key aspects of habitat quality, such as prey abundance, are more likely to be driving the decline (**Smart *et al.* 2008**). The trend in the upland and moorland strongholds of the species is not fully known, but the 1988–91 atlas documented range loss widely in Wales, Northern Ireland and Scotland, as well as lowland England, and a general decrease is therefore highly probable. The BBS shows increases, especially in Scotland, since 1994, though with little change in recent seasons. Daily nest failure rates at the egg stage appear to have halved. Following declines across much of Europe since 1980 (**PECBMS 2010**), this previously 'secure' species is now provisionally evaluated as 'declining' (**BirdLife International 2004**).



1975-2008: -93% (confidence interval -99% to -78%)

Population changes in detail

Table of population changes for Snipe

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
WBS/WBBS waterways	33	1975-2008	12	-93	-99	-78	>50	Small sample
	25	1983-2008	14	-94	-98	-86	>50	Small sample
	10	1998-2008	23	-53	-80	-30	>50	
	5	2003-2008	25	-57	-72	-24	>50	
BBS UK	13	1995-2008	141	39	9	84		
	10	1998-2008	145	28	-3	63		
	5	2003-2008	165	-4	-21	21		
BBS England	13	1995-2008	76	1	-19	24		
	10	1998-2008	84	2	-17	21		
	5	2003-2008	104	-21	-34	-9		
BBS Scotland	13	1995-2008	56	60	13	133		
	10	1998-2008	55	41	-4	102		
	5	2003-2008	60	7	-21	52		

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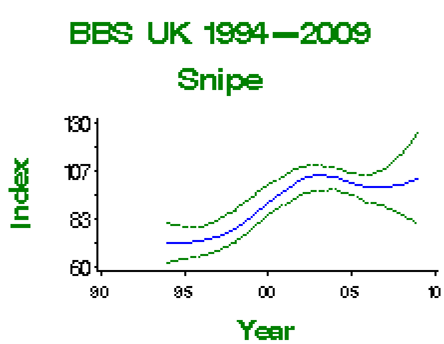
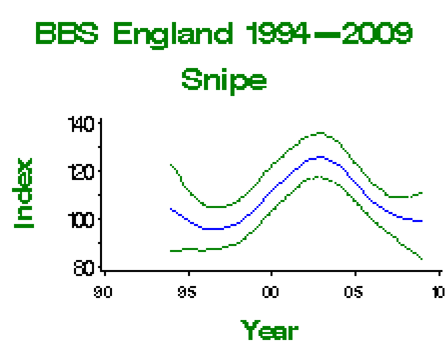
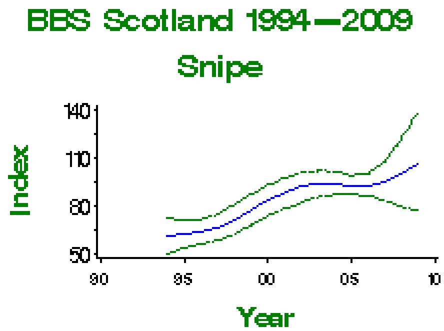






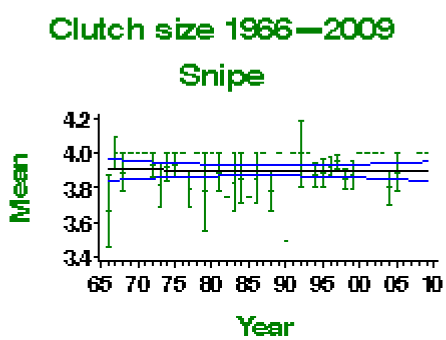
Demographic trends

Table of demographic changes for Snipe

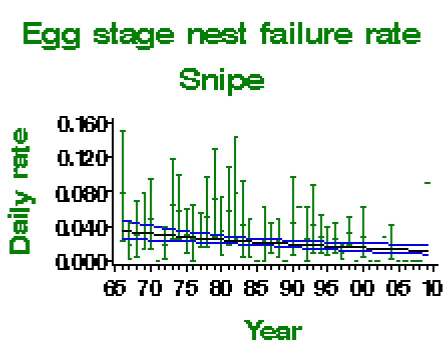
Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment
Clutch size	40	1968-2008	12	None				Small sample
Daily failure rate (eggs)	40	1968-2008	15	Linear decline	3.32% nests/day	1.28% nests/day	-61.4%	Small sample

Insufficient data on fledglings per breeding attempt available for this species

Insufficient data on laying date available for this species



Insufficient data on brood size available for this species



Insufficient data on nestling failure available for this species

Additional information

- Maps and statistics from British and Irish atlases
- BirdFacts page on species biology

- **BirdTrack results**

WOODCOCK
Scolopax rusticola

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: SPEC category 3 (declining)
UK: amber (European status)

Long-term trend

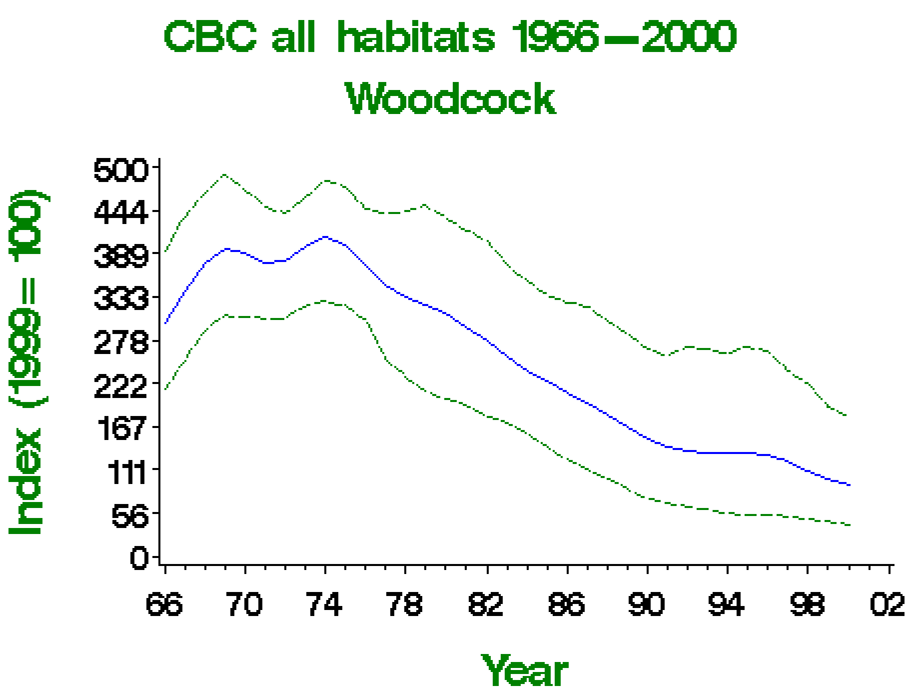
UK: probable rapid decline

UK population size

5,400–13,700 pairs in 2000 (1988–91 Atlas estimate updated using CBC trend: **BiE04**, **APEP06**); 78,346 (61,717–96,493) males in 2003 (**Hoodless *et al*. 2009**)

Status summary

The Woodcock declined rapidly and significantly on CBC plots for the three decades up to 2000. Because CBC did not include many coniferous forests and its plots were concentrated in lowland Britain, however, it is not certain how well this trend represents the whole UK population. Range contractions, that might have had the same cause as the decline in abundance, were recorded concurrently with part of the CBC decline (**Gibbons *et al.* 1993**). Recreational disturbance, the drying out of natural woodlands, overgrazing by deer, declining woodland management, and the maturation of new plantations are possible causes of the Woodcock's decline, but there is no strong hypothesis as yet (**Fuller *et al*. 2005**). BBS is inefficient at recording this scarce, mainly crepuscular species, and cannot continue the index series. The first special survey aimed at monitoring the UK's breeding Woodcock took place in 2003 and has provided a new, much higher baseline population estimate for future monitoring (**Hoodless *et al*. 2009**; also, **here**). It is important to note, though, that the upward revision of the population estimate is due to new methodology and carries no information about population trends. The CBC decline was discounted in 2009 as a reason for the species' amber listing (**BoCC3**), which now rests on the breeding declines recorded across Europe, especially European Russia (**BiE04**). Annual **numbers shot** in the UK, which include winter visitors from declining populations in Europe, have increased around threefold since 1945 and are currently running at a historically high level.



1968-1999: -74% (confidence interval -88% to -49%)

Population changes in detail

Table of population changes for Woodcock

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC all habitats	31	1968-1999	20	-74	-88	-49	>50	Small CBC sample
	25	1974-1999	20	-76	-88	-51	>50	Small CBC sample
	10	1989-1999	13	-40	-62	-11	>25	Small CBC sample
	5	1994-1999	13	-24	-44	-3		Small sample

Demographic trends

Demographic information is not currently available for this species

Additional information

- Maps and statistics from British and Irish atlases
- BirdFacts page on species biology
- BirdTrack results
- Atlas 2007–11 latest results

CURLEW
Numenius arquata

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: SPEC category 2 (declining)
UK: amber (>20% of European breeding and winter populations)
UK Biodiversity Action Plan: **priority species**

Long-term trend

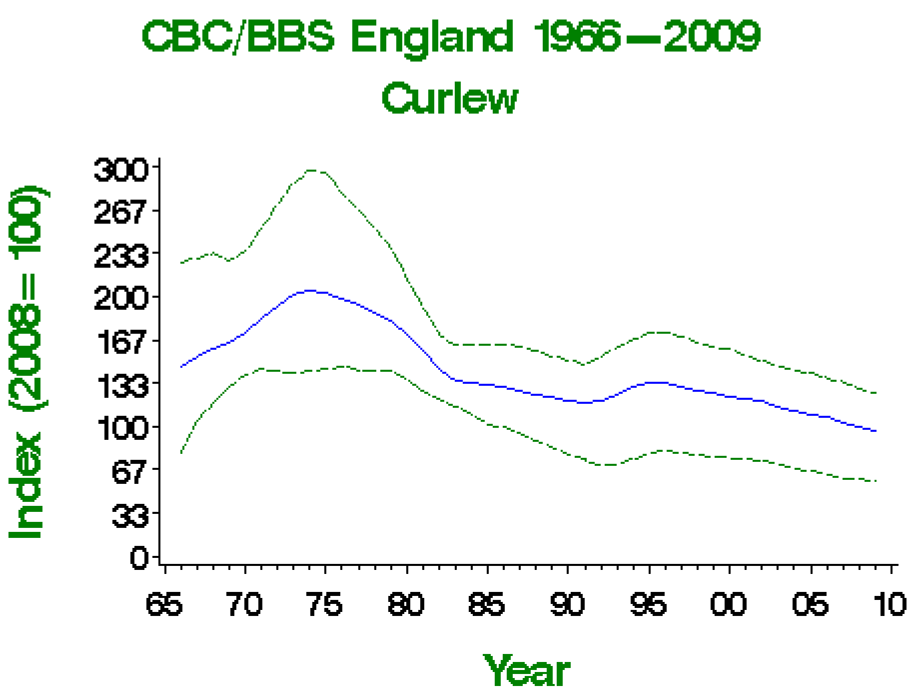
England: probable decline

UK population size

107,000 (99,500–125,000) pairs in 1985–99 (**O'Brien 2005**: **BiE04**, **APEP06**)

Status summary

Curlews monitored by CBC were mostly in lowland habitats and may have been affected primarily by drainage of farmland (**Gibbons *et al.* 1993**). Surveys of breeding birds in wet meadows in England and Wales revealed a decrease of 39% between 1982 and 2002 (**Wilson *et al.* 2005**). A 2006 survey highlighted the rapid decline of the species across all habitats in Wales, with low breeding success as a plausible mechanism (**Johnstone *et al.* 2007**). In Northern Ireland, a breeding decline of around 60% occurred between the mid 1980s and 1999 (**Henderson *et al.* 2002**). BBS data also show that decline has been widespread. WBS data, in contrast, indicate a moderate increase during the 1980s in Curlews nesting alongside waterways. Wintering Curlew abundance showed a shallow long-term increase to around 2000, but has since declined (**Calbrade *et al.* 2010**).



1967-2008: -35% (confidence interval -77% to 21%)

Population changes in detail

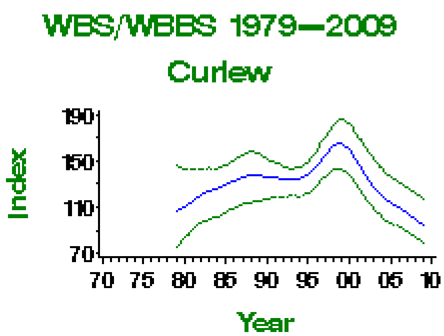
Table of population changes for Curlew

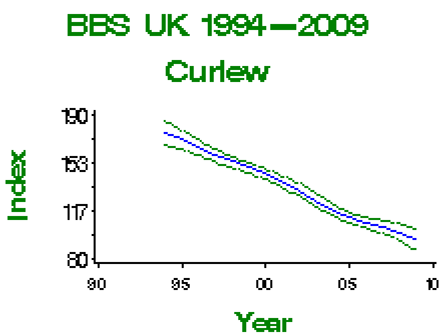
Source	Period	Years	Plots	Change	Lower	Upper	Alert	Comment

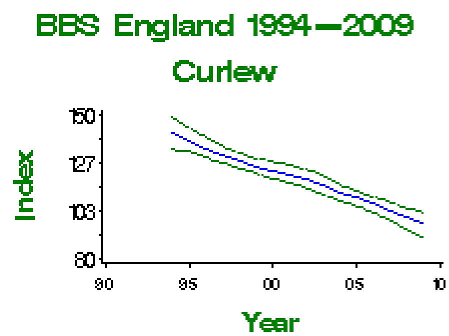
	(yrs)		(n)	(%)	limit	limit		
CBC/BBS England	41	1967-2008	114	-35	-77	21		Small CBC sample
	25	1983-2008	177	-26	-64	13		Small CBC sample
	10	1998-2008	328	-22	-30	-15		
	5	2003-2008	360	-13	-20	-5		
WBS/WBBS waterways	28	1980-2008	43	-10	-41	54		
	25	1983-2008	46	-19	-40	26		
	10	1998-2008	76	-39	-50	-22	>25	
	5	2003-2008	83	-21	-27	-12		
BBS UK	13	1995-2008	469	-42	-48	-34	>25	
	10	1998-2008	484	-35	-40	-28	>25	
	5	2003-2008	495	-19	-26	-13		
BBS England	13	1995-2008	304	-27	-34	-20	>25	
	10	1998-2008	323	-21	-28	-15		
	5	2003-2008	360	-13	-21	-6		
BBS Scotland	13	1995-2008	121	-53	-62	-45	>50	
	10	1998-2008	118	-45	-54	-38	>25	
	5	2003-2008	116	-25	-39	-13		
BBS Wales	13	1995-2008	38	-46	-58	-32	>25	
	10	1998-2008	40	-39	-50	-25	>25	
	5	2003-	36	-13	-29	0		

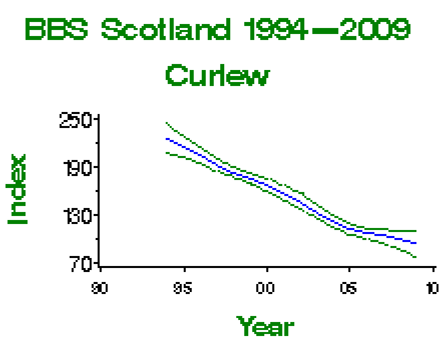
		2008						

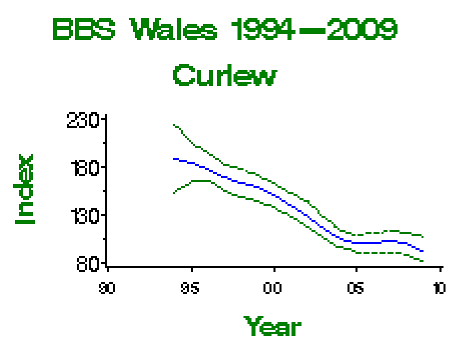
The Breeding Bird Survey is jointly funded by the BTO, JNCC & RSPB











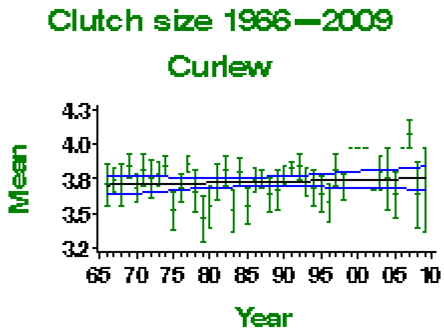
Demographic trends

Table of demographic changes for Curlew

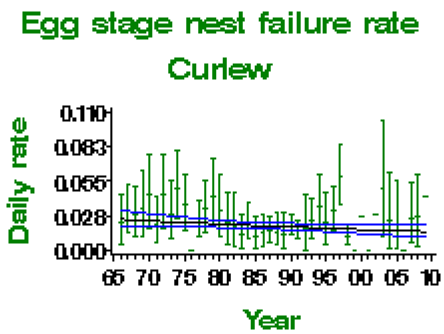
Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment
Clutch size	40	1968-2008	20	None				Small sample
Daily failure rate (eggs)	40	1968-2008	23	None				Small sample

Insufficient data on fledgling per breeding attempt available for this species

Insufficient data on laying date available for this species



Insufficient data on brood size available for this species



Insufficient data on nestling failure available for this species

Additional information

- **Maps and statistics from British and Irish atlases**
- **BirdFacts page on species biology**
- **BirdTrack results**

COMMON SANDPIPER
Actitis hypoleucos

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: SPEC category 3 (declining)
UK: amber (25–50% population decline)

Long-term trend

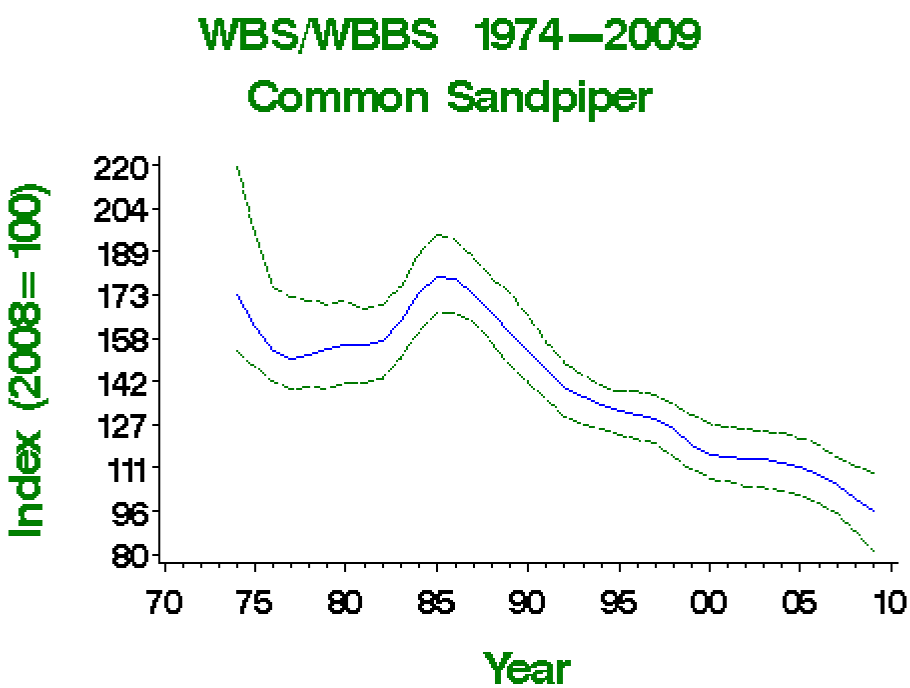
UK waterways: moderate decline

UK population size

12,000 pairs in 2000 (1988–91 Atlas estimate updated using WBS trend: **BiE04**, **APEP06**); about 24,000 pairs in Britain (**Dougall *et al.* 2004**)

Status summary

WBS/WBBS results for this species show a decline from 1985 onwards (after a more gradual increase) that has yet to be explained. The recent decrease is matched by BBS data from Scotland and from the UK as a whole, and warrants a BTO alert. Poorer breeding success and reduced survival of first-year birds over the winter in West Africa were both suggested as possible reasons for the failure of the Peak District population to recover after a hard-weather event in 1989 (**Holland & Yalden 2002**). UK clutch sizes appear to have shown a slight decline since the 1960s. Following declines during the 1990s in the large Swedish and Finnish populations, the European status of this species is no longer considered 'secure' (**BirdLife International 2004**). Widespread moderate decline across Europe since 1980 has since become evident (**PECBMS 2010**).The species has recently been moved to the amber list on the strength of its declines in UK and across Europe.



1975-2008: -38% (confidence interval -53% to -27%)

Population changes in detail

Table of population changes for Common Sandpiper

Source	Period	Years	Plots	Change	Lower	Upper	Alert	Comment

	(yrs)		(n)	(%)	limit	limit		
WBS/WBBS waterways	33	1975-2008	45	-38	-53	-27	>25	
	25	1983-2008	52	-39	-50	-27	>25	
	10	1998-2008	84	-20	-31	-8		
	5	2003-2008	91	-12	-21	-1		
BBS UK	13	1995-2008	61	-15	-33	4		
	10	1998-2008	60	-10	-31	9		
	5	2003-2008	59	3	-17	24		
BBS Scotland	13	1995-2008	31	-8	-29	12		

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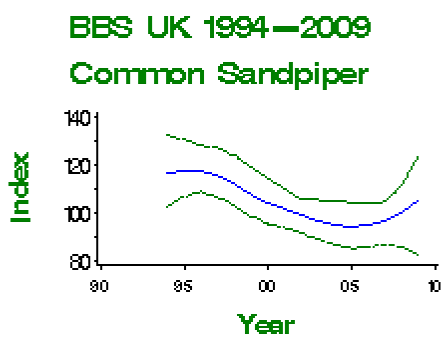
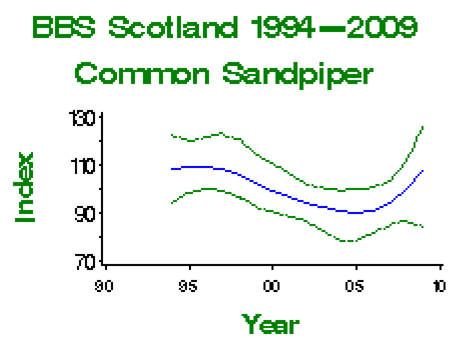




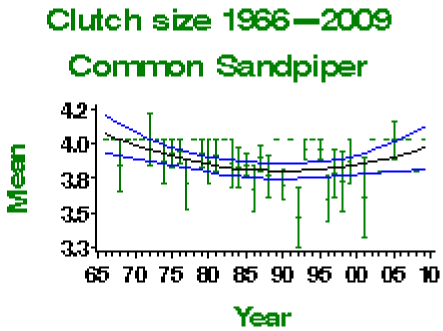
Demographic trends

Table of demographic changes for Common Sandpiper

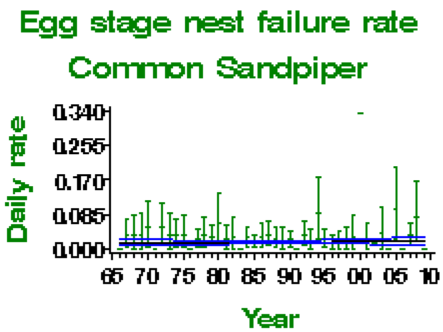
Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment
Clutch size	40	1968-2008	11	Curvilinear	4 eggs	3.93 eggs	-1.8%	Small sample
Daily failure rate (eggs)	40	1968-2008	12	None				Small sample

Insufficient data on fledglings per breeding attempt available for this species

Insufficient data on laying date available for this species



Insufficient data on brood size available for this species



Insufficient data on nestling failure available for this species

Additional information

- **Maps and statistics from British and Irish atlases**
- **BirdFacts page on species biology**
- **BirdTrack results**

REDSHANK
Tringa totanus

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: SPEC category 2 (declining)
UK: amber (>50% population decline but data possibly unrepresentative, >20% of East Atlantic Flyway population in winter)

Long-term trend

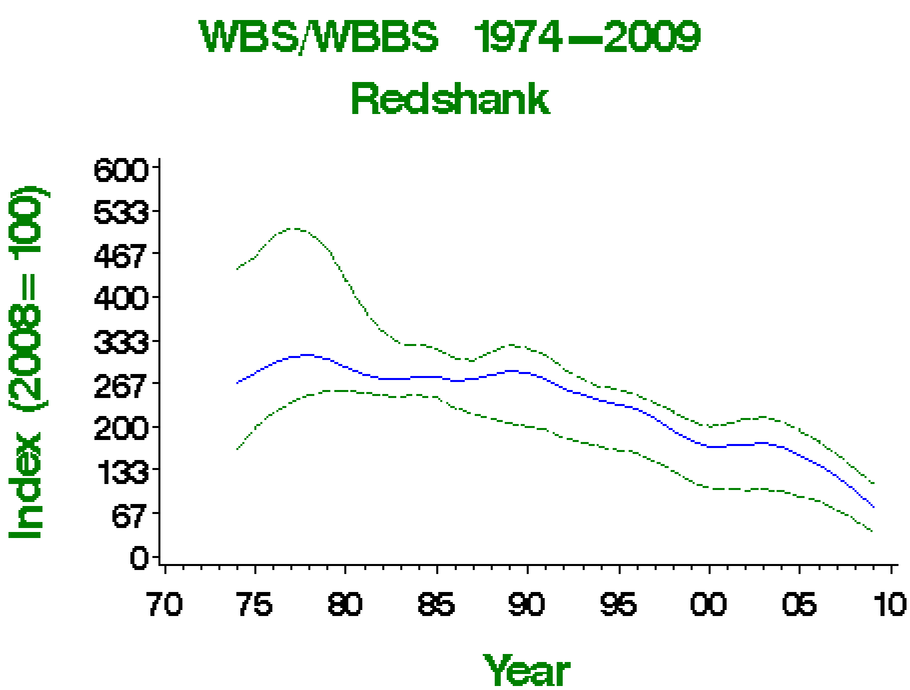
UK: decline
UK waterways: rapid decline

UK population size

38,800 (31,400–44,400) pairs in 1985–99 (**O'Brien 2005**: **BiE04**, **APEP06**)

Status summary

UK population decline has recently been added to the criteria by which Redshank qualifies for amber listing; the scale of decline reported here now meets the red-list criterion, however. Considerable range contraction had occurred from many areas of the UK by 1988–91, probably as a result of the drainage of farmland (**Gibbons *et al.* 1993**). WBS/WBBS results show a decline along waterways that apparently accelerated during the 1990s. BBS shows continuing overall decrease. Surveys in England and Wales revealed a decrease of 29% in breeding birds in wet meadows between 1982 and 2002 (**Wilson *et al.* 2005**). The substantial section of the British population that nests on saltmarshes decreased by 23% between 1985 and 1996, apparently as a result of increased grazing pressure (**Brindley *et al.* 1998**, **Norris *et al.* 1998**). Wintering populations (augmented by many Icelandic and some other northern European breeders) had been stable since the late 1980s but have declined in recent seasons (**Calbrade *et al.* 2010**). The failure rate of nests at the egg stage has fallen steeply since the 1960s. Numbers have shown widespread moderate decrease across Europe since 1980 (**PECBMS 2010**).



1975-2008: -65% (confidence interval -89% to -36%)

Population changes in detail

Table of population changes for Redshank

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
WBS/WBBS waterways	33	1975-2008	24	-65	-89	-36	>50	
	25	1983-2008	26	-63	-84	-46	>50	
	10	1998-2008	33	-49	-62	-31	>25	
	5	2003-2008	36	-42	-60	-21	>25	
BBS UK	13	1995-2008	80	-30	-42	-8	>25	
	10	1998-2008	84	-23	-35	-7		
	5	2003-2008	92	-15	-29	1		
BBS England	13	1995-2008	57	-27	-42	-3	>25	
	10	1998-2008	62	-35	-49	-14	>25	
	5	2003-2008	70	-32	-43	-17	>25	

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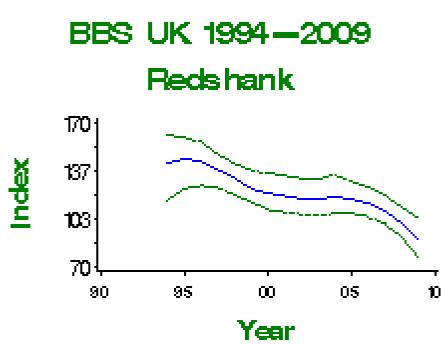
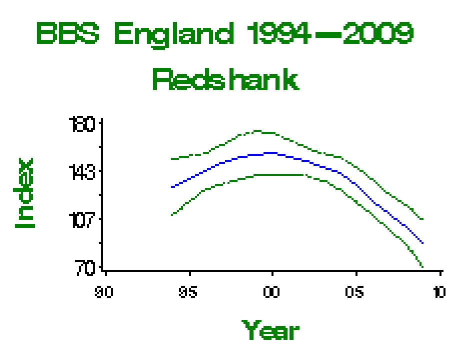




Demographic trends

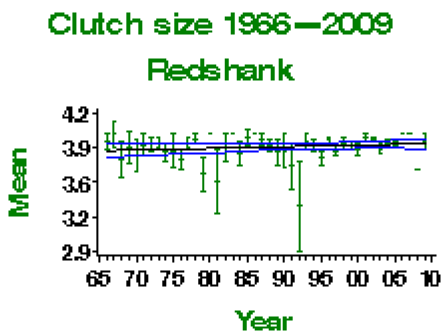
Table of demographic changes for Redshank

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment
Clutch size	40	1968-	30	None				Small

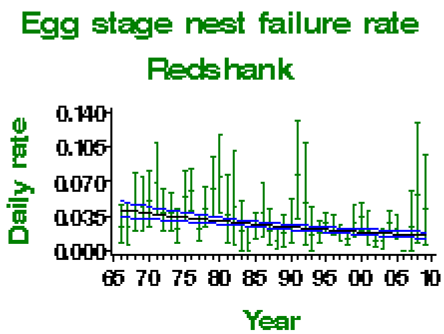
		2008						sample
Daily failure rate (eggs)	40	1968-2008	32	Linear decline	3.97% nests/day	1.61% nests/day	-59.4%	

Insufficient data on fledglings per breeding attempt available for this species

Insufficient data on laying date available for this species



Insufficient data on brood size available for this species



Insufficient data on nestling failure available for this species

Additional information

- Maps and statistics from British and Irish atlases
- BirdFacts page on species biology
- BirdTrack results

FERAL PIGEON
Columba livia

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe)
UK: green (Rock Dove *C. l. livia*)

Long-term trend

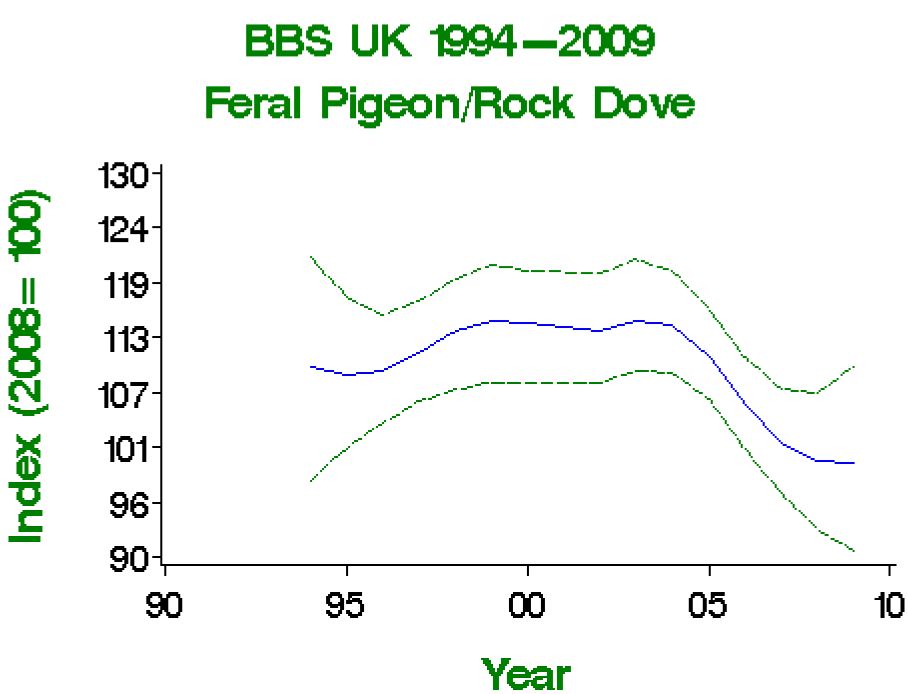
UK: possible increase

UK population size

>100,000 pairs in 1968–72 (1968–72 Atlas: **APEP06**);
100,000–250,000 pairs in 1988–91 (**BiE04**)

Status summary

CBC samples for Feral Pigeon were consistently too small for annual monitoring, and there was no trend information before BBS began in 1994. Breeding atlas data show a 39% increase in occupied 10-km squares between 1968–72 and 1988–91 (**Gibbons *et al*. 1993**), suggesting that Feral Pigeons may be on an upward trajectory, like the other *Columba* species in the UK. At the time of the first atlas, however, Feral Pigeons were more commonly overlooked during bird surveys, and some of the reported subsequent range increase may have been due to greater observer awareness. It is now clear that Feral Pigeons are almost ubiquitous in the UK, nesting in rural as well as urban habitats, and avoiding only the highest ground. No distinction can realistically be drawn between feral birds of domestic origin and true wild-type Rock Doves, although birds of wild-type plumage still predominate on some more-remote Scottish islands. In field conditions, it is often not possible to distinguish between pure native Rock Doves, wild-nesting Feral Pigeons, semicaptive dovecote breeders, and passing racing pigeons, nor between adults and young of the year, and BBS counts are likely to include birds from all of these groups. BBS indices suggest that a minor decrease has occurred in recent years.



1995-2008: -8% (confidence interval -19% to 4%)

Population changes in detail

Table of population changes for Feral Pigeon/Rock Dove

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
BBS UK	13	1995-2008	650	-8	-19	4		
	10	1998-2008	694	-12	-22	0		
	5	2003-2008	746	-13	-22	-2		
BBS England	13	1995-2008	542	-13	-23	0		
	10	1998-2008	576	-16	-25	-6		
	5	2003-2008	615	-17	-26	-7		
BBS Scotland	13	1995-2008	59	-2	-38	55		
	10	1998-2008	61	-9	-39	30		
	5	2003-2008	67	-5	-34	35		
BBS Wales	13	1995-2008	32	41	-12	99		
	10	1998-2008	37	7	-29	37		
	5	2003-2008	39	-7	-31	19		

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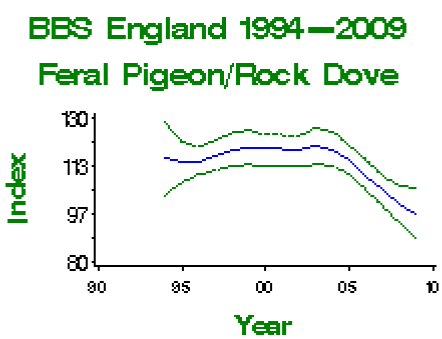
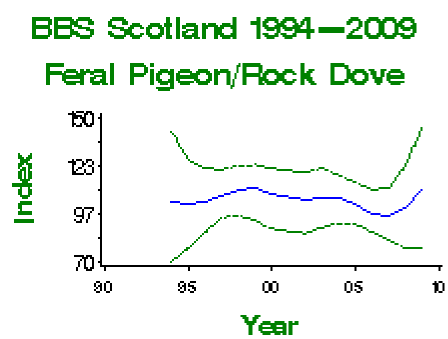
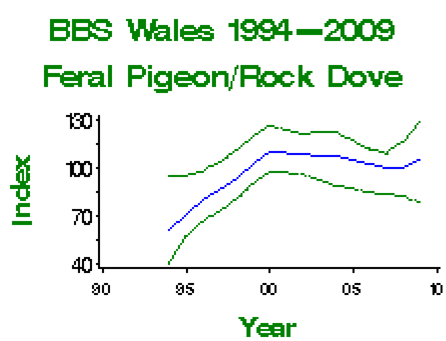






Demographic trends

Demographic information is not currently available for this species

Additional information

- Maps and statistics from British and Irish atlases
- BirdFacts page on species biology
- BirdTrack results
- Garden BirdWatch results

STOCK DOVE
Columba oenas

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: no SPEC category (concentrated in Europe, conservation status favourable)
UK: amber (>20% of European breeding population)

Long-term trend

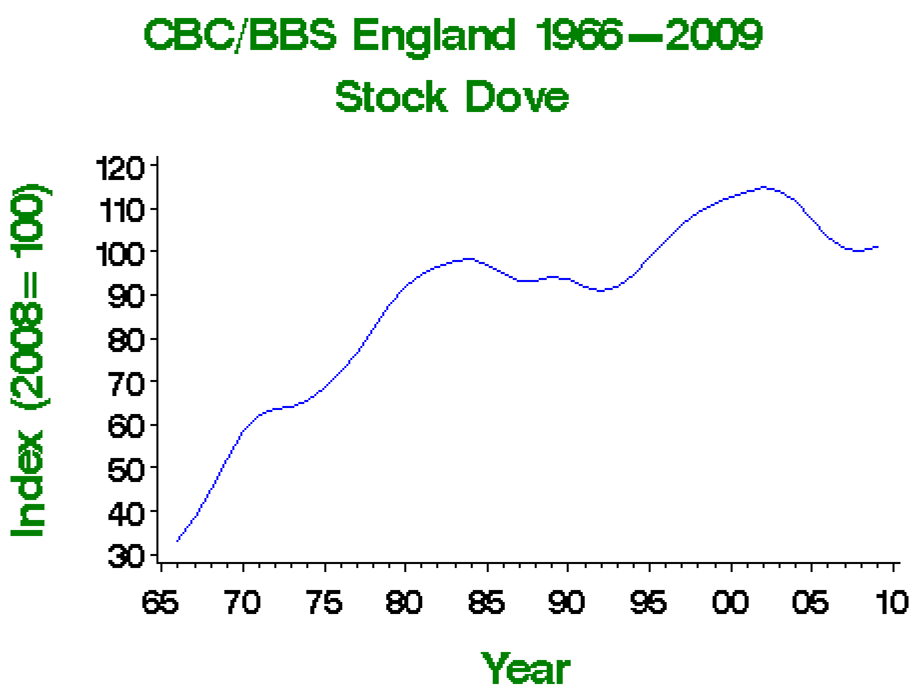
England: rapid increase

UK population size

309,000 territories in 2000 (1988–91 Atlas estimate updated using CBC trend: **BiE04**, **APEP06**)

Status summary

Following release from the lethal and sublethal effects of the organochlorine seed-dressings used in the 1950s and early 1960s, Stock Dove populations have increased very substantially (**O'Connor & Mead 1984**). Numbers appeared to level off in the early 1980s, and entered a further increasing phase in the early 1990s. Recent indices suggest that numbers have fallen significantly in the last few years. The increase in nest failure rates at the egg stage, now reversed, was not detectable in farmland habitats alone (**Siriwardena *et al.* 2000b**). Overall, nest failure rates have fallen substantially since the 1980s and there has been a major increase in the number of fledglings raised per breeding attempt.



1967-2008: 160% (confidence interval 77% to 304%)

Population changes in detail

Table of population changes for Stock Dove

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS	41	1967-	279	160	77	304		

England		2008						
	25	1983-2008	416	2	-18	24		
	10	1998-2008	731	-8	-18	1		
	5	2003-2008	777	-12	-19	-6		
BBS UK	13	1995-2008	717	0	-9	10		
	10	1998-2008	767	-5	-14	5		
	5	2003-2008	834	-10	-16	-4		
BBS England	13	1995-2008	661	-1	-12	9		
	10	1998-2008	706	-8	-17	2		
	5	2003-2008	767	-11	-17	-4		

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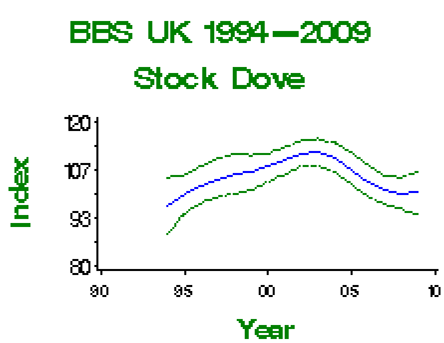
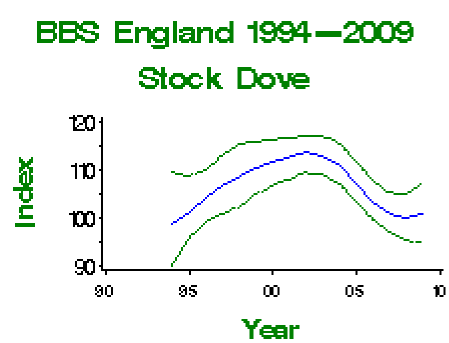
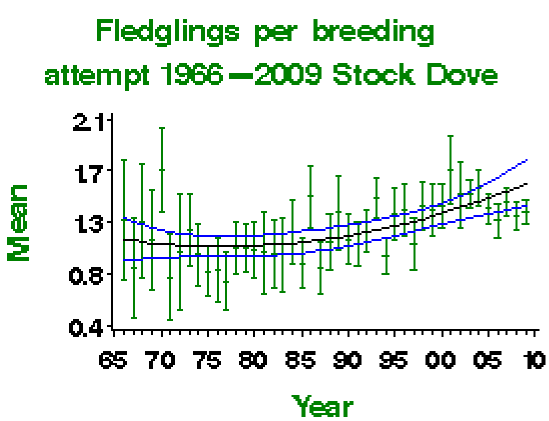
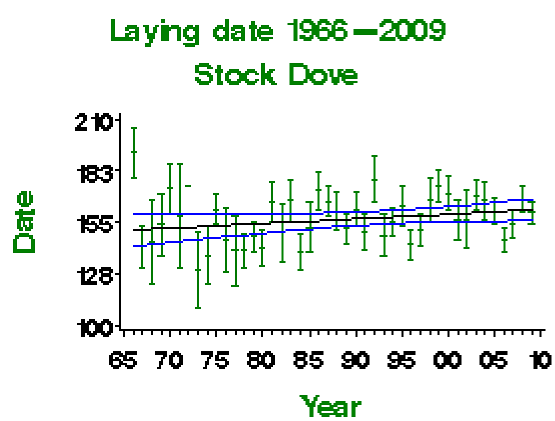




Demographic trends

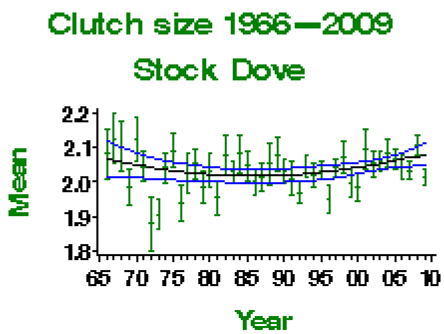


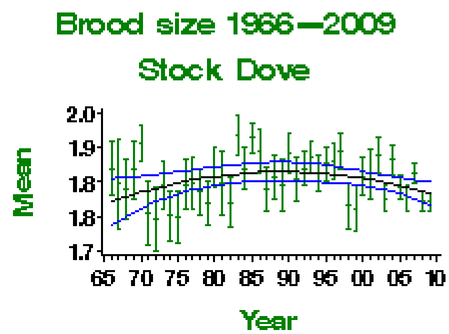


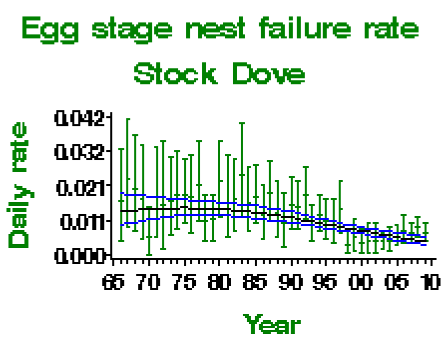
More on demographic trends

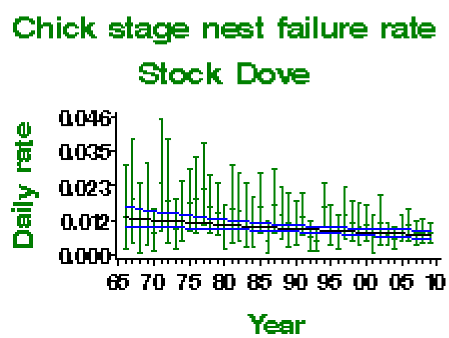
Table of demographic changes for Stock Dove

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment
Fledglings per breeding attempt	40	1968-2008	58	Curvilinear	1.09 fledglings	1.54 fledglings	41.3%	
Clutch size	40	1968-2008	90	Curvilinear	2.07 eggs	2.08 eggs	0.7%	
Brood size	40	1968-2008	134	Curvilinear	1.82 chicks	1.83 chicks	0.5%	
Daily failure rate (eggs)	40	1968-2008	87	Curvilinear	1.36% nests/day	0.46% nests/day	-66.2%	
Daily failure rate (chicks)	40	1968-2008	61	Linear decline	1.2% nests/day	0.68% nests/day	-43.3%	
Laying date	40	1968-2008	18	None				Small sample









Additional information

- Maps and statistics from British and Irish atlases
- BirdFacts page on species biology
- BirdTrack results

WOODPIGEON

Columba palumbus

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: no SPEC category (concentrated in Europe, conservation status favourable)
UK: green

Long-term trend

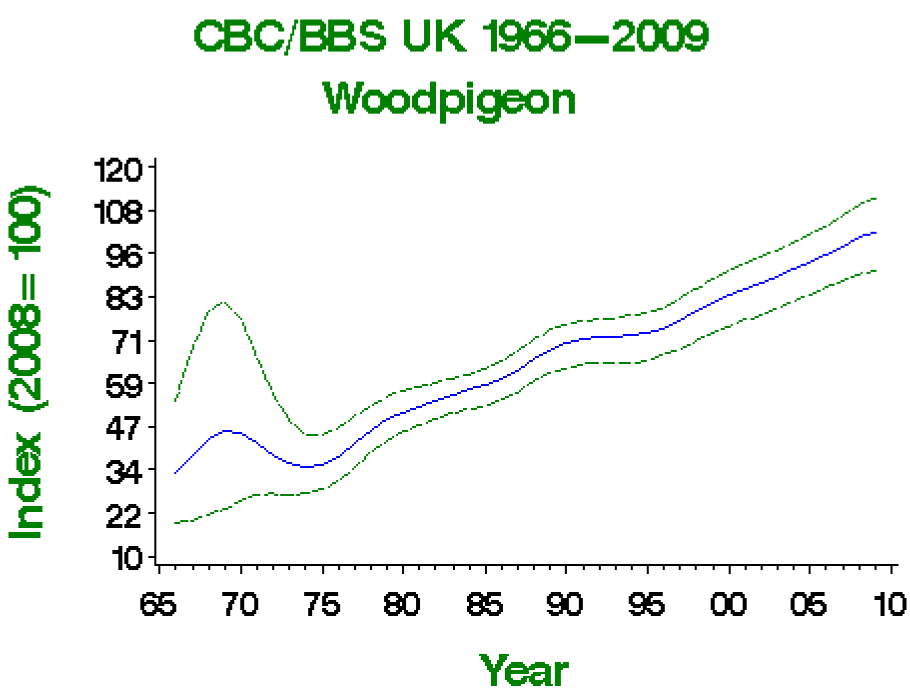
UK, England: rapid increase

UK population size

2,570,000–3,160,000 territories in 2000 (1988–91 Atlas estimate updated using CBC/BBS trend: **BiE04**, **APEP06**)

Status summary

The CBC/BBS trend for this species is of a steady, steep increase since at least the mid 1970s. The spread of intensive arable cultivation, especially of oilseed rape, which has been shown to promote overwinter survival, may explain the rise in numbers (**Gibbons *et al.* 1993**). Since 1994, BBS has recorded significant increase in the UK, and in England, Wales and Northern Ireland separately, but stability in Scotland. **O'Connor & Shrubb (1986)** found that the breeding season had advanced in response to the switch to autumn sowing, and thus earlier ripening, of cereals, with more pairs nesting in May and June and relatively fewer in July–September. A trend toward earlier nesting could have led CBC, with its fieldwork finishing in early July, to overestimate the rate of increase (**Marchant *et al*. 1990**). Numbers have risen rapidly across Europe since 1980 (**PECBMS 2010**).



1967-2008: 160% (confidence interval 20% to 501%)

Population changes in detail

Table of population changes for Woodpigeon

Source	Period	Years	Plots	Change	Lower	Upper	Alert	Comment

	(yrs)		(n)	(%)	limit	limit		
CBC/BBS UK	41	1967-2008	842	160	20	501		
	25	1983-2008	1348	79	53	110		
	10	1998-2008	2512	26	22	32		
	5	2003-2008	2720	12	9	16		
CBC/BBS England	41	1967-2008	681	186	39	554		
	25	1983-2008	1090	98	67	137		
	10	1998-2008	2023	33	28	39		
	5	2003-2008	2206	16	12	21		
BBS UK	13	1995-2008	2299	35	29	41		
	10	1998-2008	2469	27	22	31		
	5	2003-2008	2720	12	9	16		
BBS England	13	1995-2008	1839	43	36	50		
	10	1998-2008	1968	32	27	39		
	5	2003-2008	2177	15	11	20		
BBS Scotland	13	1995-2008	186	-2	-22	16		
	10	1998-2008	193	-1	-14	12		
	5	2003-2008	211	-3	-14	9		
BBS Wales	13	1995-2008	182	32	18	48		
	10	1998-2008	204	22	11	36		
	5	2003-2008	216	12	5	22		

BBS N.Ireland	13	1995-2008	78	71	32	109		
	10	1998-2008	90	30	15	45		
	5	2003-2008	99	6	-3	13		

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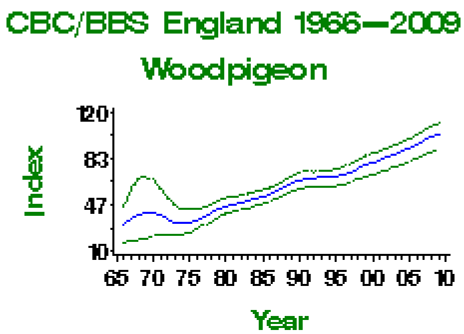
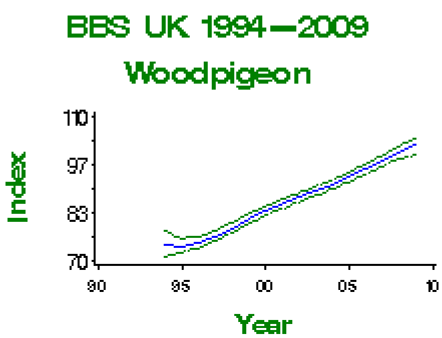
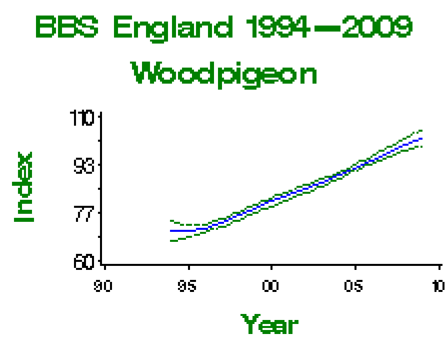
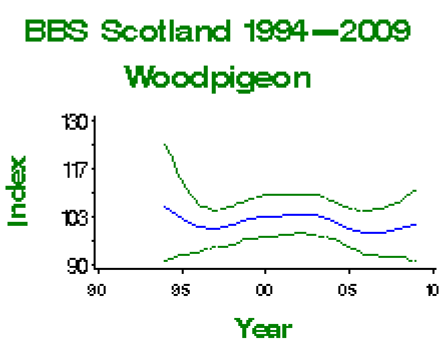
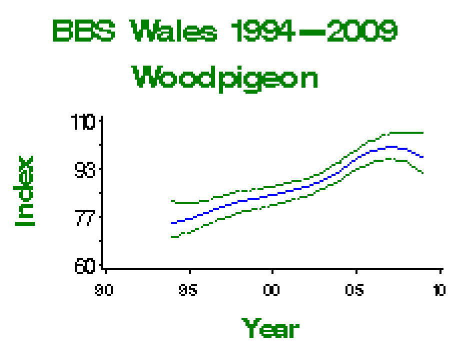
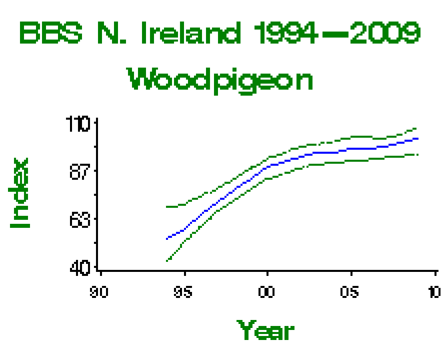










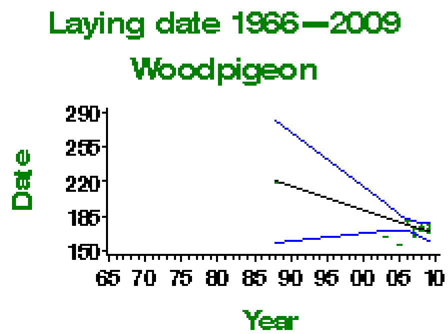


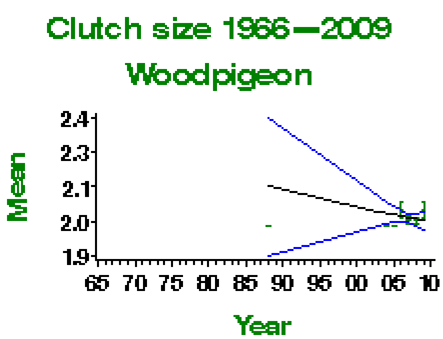
Demographic trends

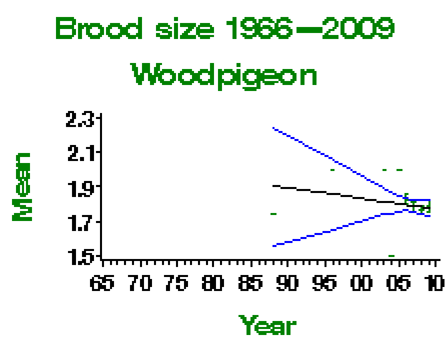
Table of demographic changes for Woodpigeon

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment
Clutch size	40	1968-2008	63	None				
Brood size	40	1968-2008	92	None				
Laying date	40	1968-2008	96	None				

Insufficient data on fledglings per breeding attempt available for this species







Insufficient data on nest failure available for this species

Insufficient data on nestling failure available for this species

Additional information

- Maps and statistics from British and Irish atlases
- BirdFacts page on species biology
- BirdTrack results
- Garden BirdWatch results

COLLARED DOVE
Streptopelia decaocto

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe)
UK: green

Long-term trend

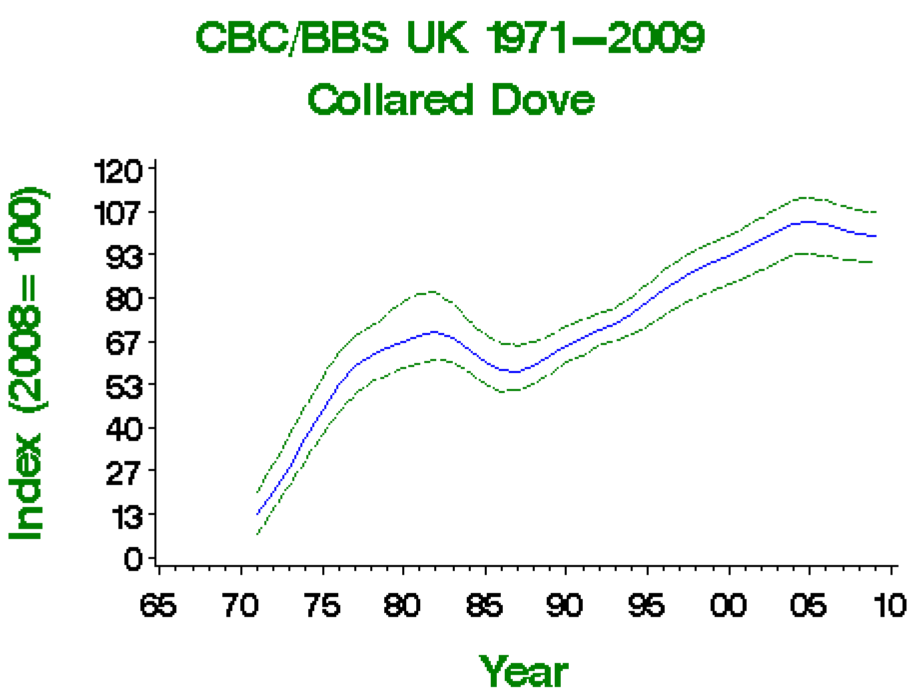
UK, England: rapid increase

UK population size

298,000 territories in 2000 (1988–91 Atlas estimate updated using CBC/BBS trend: **BiE04**, **APEP06**)

Status summary

Collared Dove abundance has increased rapidly since the species first colonised Britain in 1955. From just four birds known to be present in that year, the population was put conservatively at 15,000–25,000 pairs by 1970 (**Hudson 1972**). The CBC index showed an almost exponential rise as colonisation continued during the early 1970s, but had levelled off by about 1980. BBS shows continuing increases, at least in England and Wales. The UK population size now rivals that of **Stock Dove**. Despite the population increase, the number of fledglings per breeding attempt has also increased, perhaps as the species has become better adapted to its new environment. Numbers have shown widespread moderate increase across Europe since 1980 (**PECBMS 2010**).



1972-2008: 403% (confidence interval 206% to 649%)

Population changes in detail

Table of population changes for Collared Dove

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment

CBC/BBS UK	36	1972-2008	540	403	206	649		
	25	1983-2008	744	48	12	77		
	10	1998-2008	1391	13	8	18		
	5	2003-2008	1528	0	-4	3		
CBC/BBS England	36	1972-2008	476	434	240	741		
	25	1983-2008	657	51	18	85		
	10	1998-2008	1222	13	9	19		
	5	2003-2008	1335	0	-5	3		
BBS UK	13	1995-2008	1269	26	20	35		
	10	1998-2008	1373	13	8	19		
	5	2003-2008	1528	0	-3	3		
BBS England	13	1995-2008	1117	27	18	35		
	10	1998-2008	1202	13	7	19		
	5	2003-2008	1330	0	-5	4		
BBS Scotland	13	1995-2008	46	-8	-36	30		
	10	1998-2008	49	4	-17	30		
	5	2003-2008	59	8	-15	35		
BBS Wales	13	1995-2008	68	51	12	99		
	10	1998-2008	78	21	0	42		
	5	2003-2008	85	8	-6	22		

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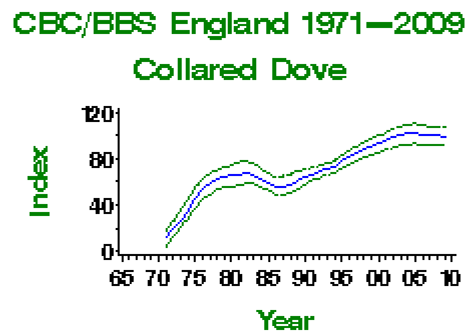
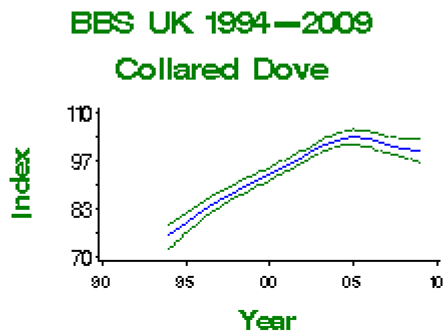
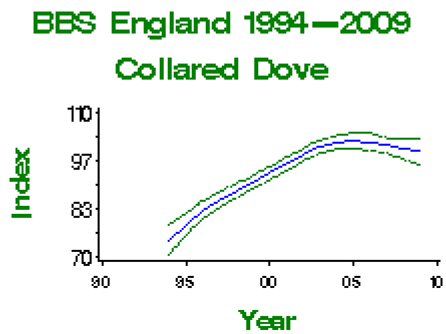
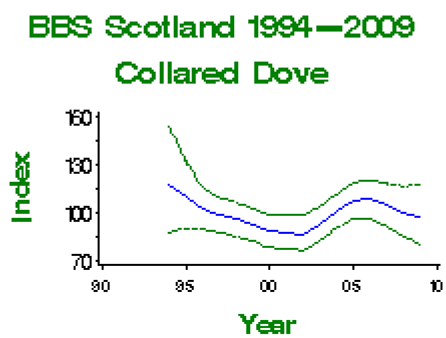
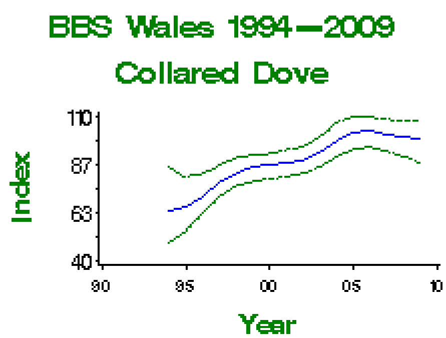


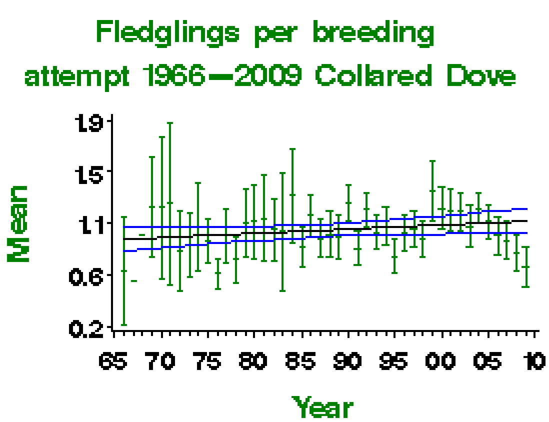


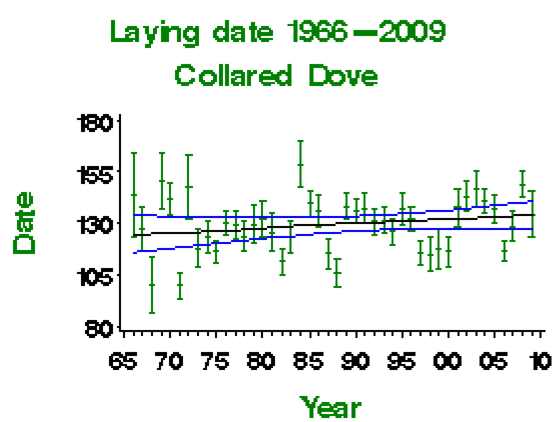






Demographic trends

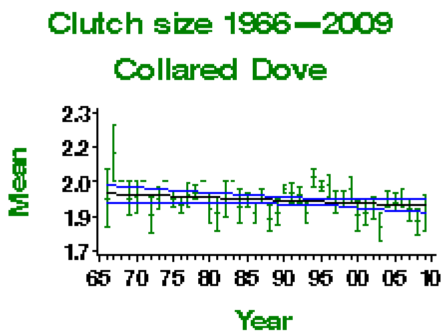


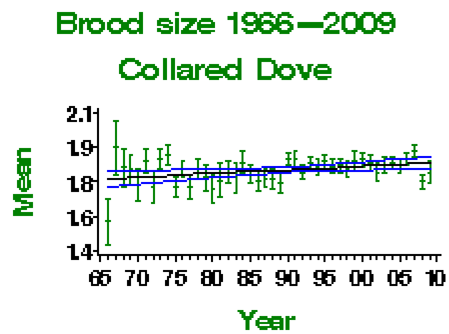


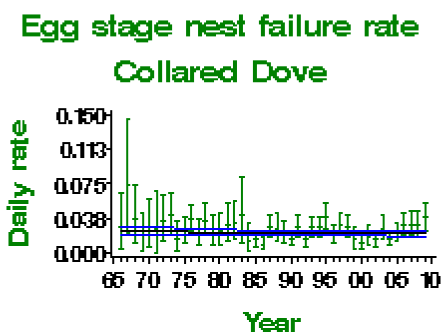
More on demographic trends

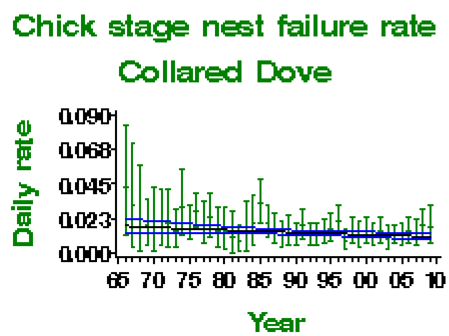
Table of demographic changes for Collared Dove

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment
Fledglings per breeding attempt	40	1968-2008	27	None				
Clutch size	40	1968-2008	43	None				
Brood size	40	1968-2008	71	Linear increase	1.77 chicks	1.85 chicks	4.3%	
Daily failure rate (eggs)	40	1968-2008	63	None				
Daily failure rate (chicks)	40	1968-2008	57	Linear decline	1.74% nests/day	1.11% nests/day	-36.2%	
Laying date	40	1968-2008	44	None				









Additional information

- Maps and statistics from British and Irish atlases
- BirdFacts page on species biology
- BirdTrack results
- Garden BirdWatch results

TURTLE DOVE
Streptopelia turtur

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: SPEC category 3 (declining)
UK: red (>50% population decline)
UK Biodiversity Action Plan: **click here**, **priority species**

Long-term trend

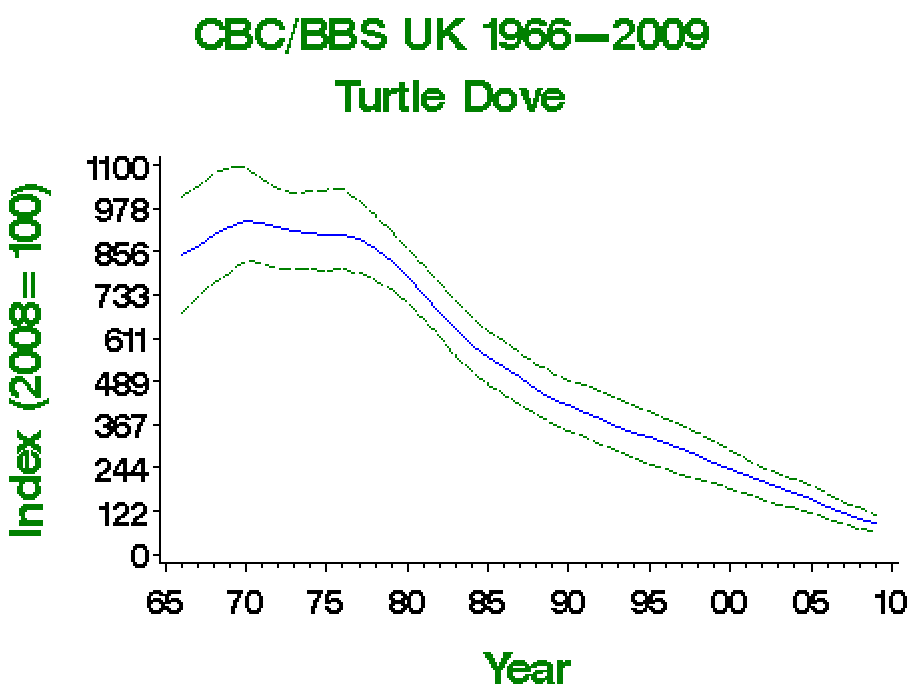
UK, England: rapid decline

UK population size

44,000 territories in 2000 (1988–91 Atlas estimate updated using CBC/BBS trend: **BiE04**, **APEP06**)

Status summary

The CBC/BBS trend is of severe declines in Turtle Dove abundance, beginning in the late 1970s and continuing to the present. Hunting during migration is a possible cause of the UK decline, to add to those related to agricultural intensification that have been postulated for other farmland seed-eaters (**O'Connor & Shrubb 1986**, **Krebs *et al.* 1999**). Analysis of nest record cards and ringing data for farmland Turtle Doves suggests, although without statistical significance, that productivity per nesting attempt has increased while annual survival has fallen (**Siriwardena *et al.* 2000a**, **2000b**, **Browne *et al.* 2005**). **Browne & Aebischer (2004**, **2005)** conclude that Turtle Doves today have a substantially earlier close to the breeding season and consequently produce barely half the number of clutches and young per pair they did in the 1960s. Thus, the recovery of Turtle Doves in Britain would benefit from the provision and sympathetic management of nesting as well as foraging habitats. Turtle Dove is one of the most strongly declining bird species in Europe (**PECBMS 2010**). Conditions in winter may also be influencing trends: a recent study has demonstrated a positive correlation between survival rate among breeding adults in France and food supply in West Africa, as measured by cereal production (**Eraud *et al.* 2009**).



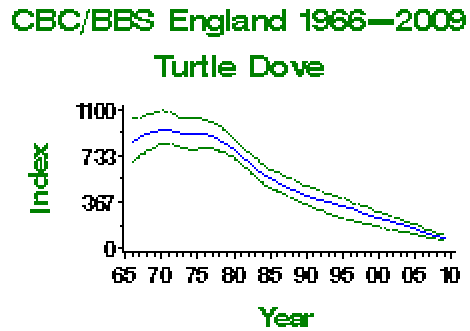
1967-2008: -89% (confidence interval -93% to -83%)

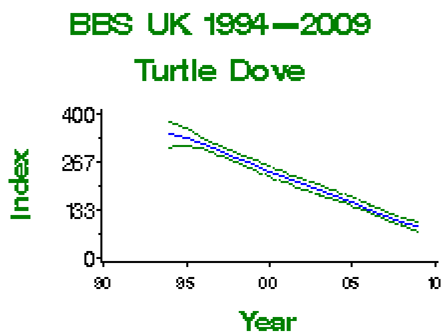
Population changes in detail

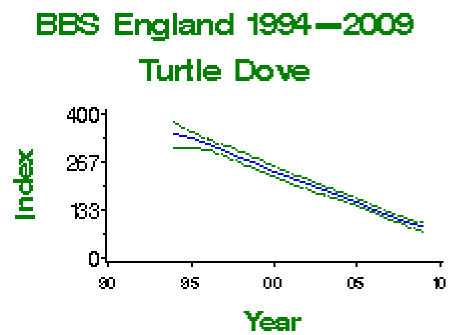
Table of population changes for Turtle Dove

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS UK	41	1967-2008	106	-89	-93	-83	>50	
	25	1983-2008	127	-84	-89	-79	>50	
	10	1998-2008	176	-64	-70	-58	>50	
	5	2003-2008	146	-47	-55	-39	>25	
CBC/BBS England	41	1967-2008	106	-89	-93	-83	>50	
	25	1983-2008	126	-84	-89	-80	>50	
	10	1998-2008	174	-64	-70	-58	>50	
	5	2003-2008	144	-47	-54	-37	>25	
BBS UK	13	1995-2008	173	-70	-74	-64	>50	
	10	1998-2008	169	-64	-69	-59	>50	
	5	2003-2008	146	-47	-54	-38	>25	
BBS England	13	1995-2008	171	-70	-74	-64	>50	
	10	1998-2008	167	-64	-70	-59	>50	
	5	2003-2008	144	-47	-54	-38	>25	

BTO JNCC RSPB The Breeding Bird Survey is jointly funded by the BTO, JNCC & RSPB





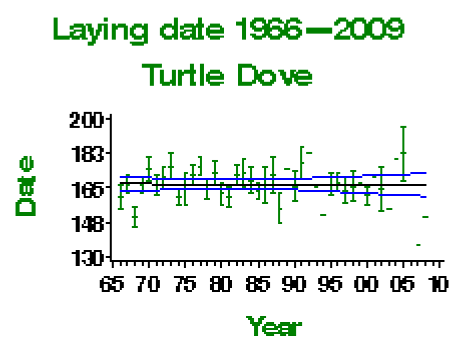


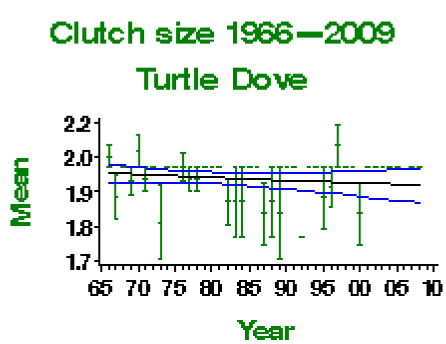
Demographic trends

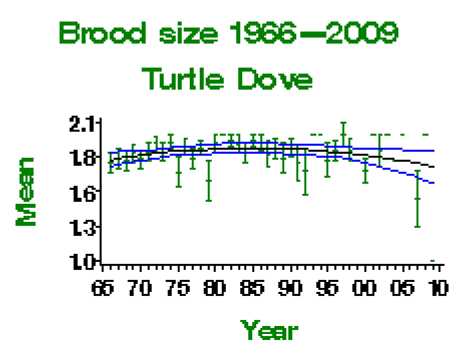
Table of demographic changes for Turtle Dove

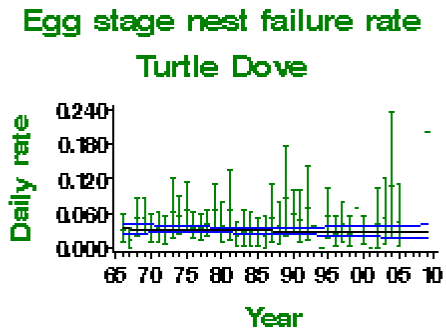
Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment
Clutch size	40	1968-2008	12	None				Small sample
Brood size	40	1968-2008	16	Curvilinear	1.82 chicks	1.77 chicks	-3.2%	Small sample
Daily failure rate (eggs)	40	1968-2008	15	None				Small sample
Daily failure rate (chicks)	40	1968-2008	12	None				Small sample
Laying date	40	1968-2008	12	None				Small sample

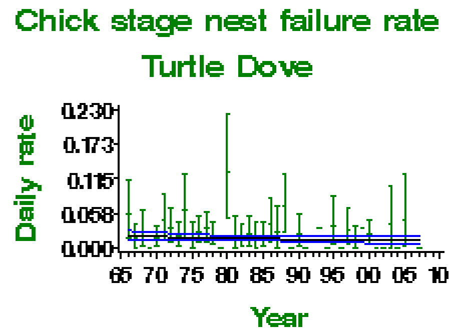
Insufficient data on fledglings per breeding attempt available for this species











Additional information

- **Maps and statistics from British and Irish atlases**
- **BirdFacts page on species biology**
- **BirdTrack results**

RING-NECKED PARAKEET
Psittacula krameri

- Population changes
- Productivity trends
- Additional information

Conservation listings

Europe: not evaluated (introduced)
UK: not listed (**introduced**)

Long-term trend

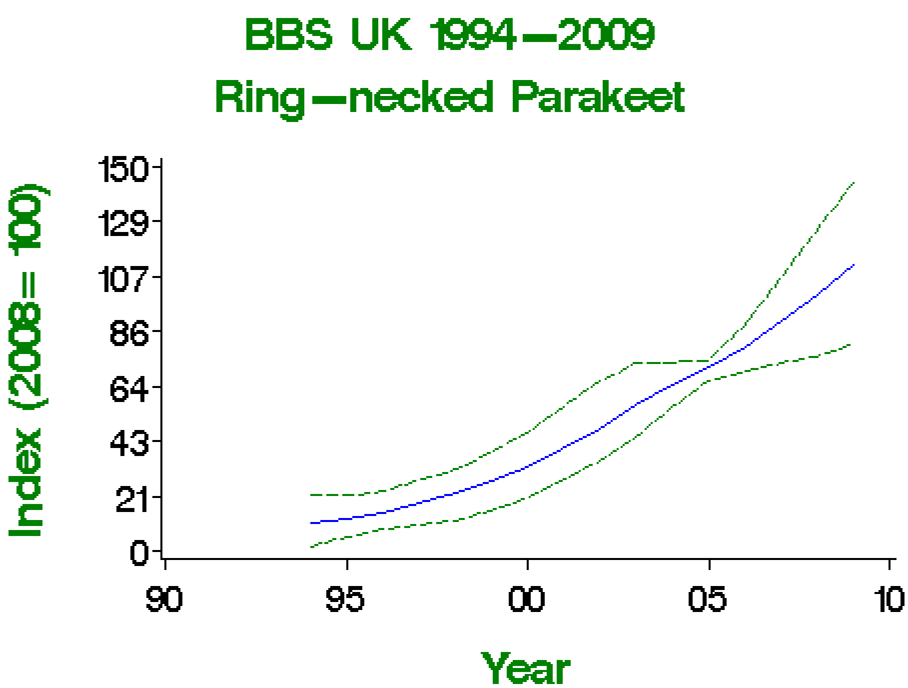
England: rapid increase

UK population size

4,300 individual adults in winter 2000/01 (**Butler 2002**: **APEP06**); further growth (**Holling & RBBP 2007b**)

Status summary

Following escapes and releases over many decades, this African and Asian parrot began breeding annually in the UK in 1969. Substantial but highly localised self-sustaining populations of this species have since built up, with the two largest being in the southern part of Greater London and in the Isle of Thanet, east Kent. Population modelling has revealed that populations in Greater London have increased by approximately 30% per year, and those in Thanet by 15% per year, but that the range has expanded by only 0.4 km per year in the Greater London area and so far not at all in Thanet (**Butler 2003**). A single roost site used each night by birds from throughout the south London range held 6,818 birds in August 2003 (**Holling & RBBP 2007b**). There have been subsequent estimates of up to 30,000 birds, but no source can yet be identified for such figures. The species has already been reported causing economic damage to crops, as has occurred elsewhere in its native and introduced range (**Butler 2003**). A recent study in Belgium has identified negative effects on breeding **Nuthatch**, but not on other native hole-nesting species, such as **Starling** (**Strubbe & Matthysen 2007**, **Strubbe *et al.* 2010**).



1995-2008: 696% (confidence interval 284% to 2408%)

Population changes in detail

Table of population changes for Ring-necked Parakeet

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
BBS UK	13	1995-2008	46	696	284	2408		
	10	1998-2008	58	336	128	1021		
	5	2003-2008	83	75	-2	192		
BBS England	13	1995-2008	46	696	236	2053		
	10	1998-2008	58	336	121	992		
	5	2003-2008	83	75	0	184		

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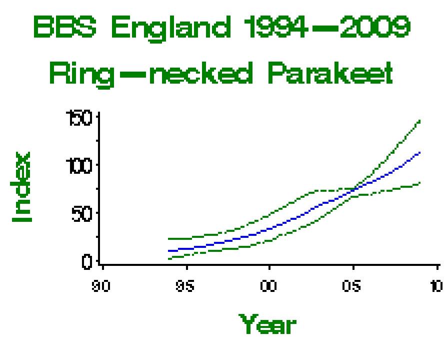


Demographic trends

Demographic information is not currently available for this species

Additional information

- Maps and statistics from British and Irish atlases
- BirdFacts page on species biology
- BirdTrack results
- Garden BirdWatch page

BARN OWL
Tyto alba

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: SPEC category 3 (declining)
UK: amber (25–50% distribution decline)

Long-term trend

UK: decline

UK population size

4,000 (3,000–5,000) pairs in 1995–97 (**Toms *et al.* 2001**: **BiE04**, **APEP06**)

Status summary

Distributional data provide good evidence for a decline in this species that lasted throughout the 20th century, although annual monitoring started only very recently. Productivity has tended to improve since the 1950s and 1960s, when Barn Owls appear to have been affected by organochlorine pesticides (**Percival 1990**). A national census during 1995–97, organised jointly by Hawk & Owl Trust and BTO, provided a replicable baseline population estimate (**Toms *et al.* 2000**, **2001**; for more information, click **here**). The lack of detailed demographic data for this species is now being addressed by the BTO's **Barn Owl Monitoring Programme (BOMP)**, which began in 2000 (**Leech *et al.* 2005**). BOMP already provides evidence that fewer pairs attempt to nest following cold or wet winters (**Leech *et al*. 2006a**). In earlier decades, the plight of such a charismatic and popular bird led to extensive releasing of captive-bred birds in well-meaning attempts at restocking: by 1992, when licensing became a requirement for such schemes, it was estimated that between 2,000 and 3,000 birds were being released annually by about 600 operators, although many birds died quickly and few would have joined the nesting population (**Balmer *et al*. 2000**). More recently, the erection of Barn Owl nest boxes, already numbering c. 25,000 by the mid 1990s, has enabled the species to occupy areas (notably the Fens) that were previously devoid of nesting sites, and may have been a factor in improving nesting success. RBBP provide a county breakdown of 2005 nesting totals **here** (**Holling & RBBP 2008**). Provisional BBS data for the UK show an increase of 464% since 1995, with the caveat that BBS monitors nocturnal species poorly (**Risely *et al.* 2010**). This trend suggests that the current population estimate is much too low.

Population changes in detail

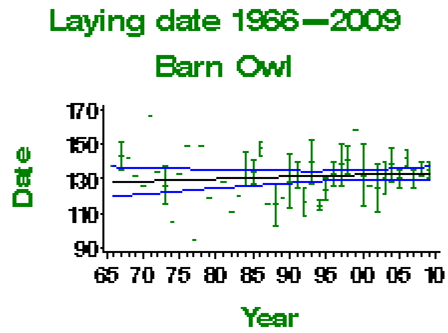
Annual breeding population changes for this species are not currently monitored by BTO

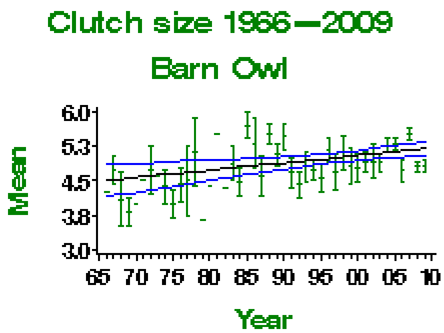
Demographic trends

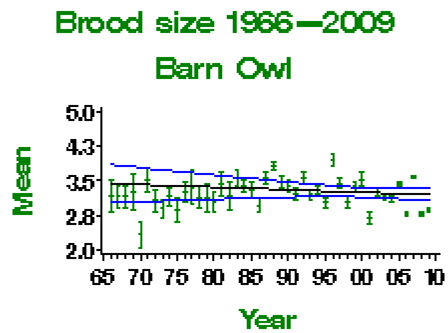
Table of demographic changes for Barn Owl

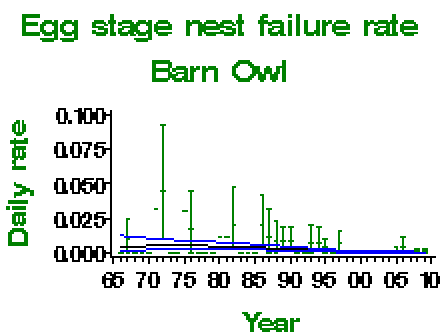
Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment
Clutch size	40	1968-2008	29	Linear increase	4.54 eggs	5.18 eggs	14.3%	Small sample
Brood size	40	1968-2008	216	None				
Daily failure rate (eggs)	40	1968-2008	22	Curvilinear	0.5% nests/day	0.03% nests/day	-94%	Small sample
Daily failure rate (chicks)	40	1968-2008	93	Linear decline	0.23% nests/day	0.02% nests/day	-91.3%	
Laying date	40	1968-2008	12	None				Small sample

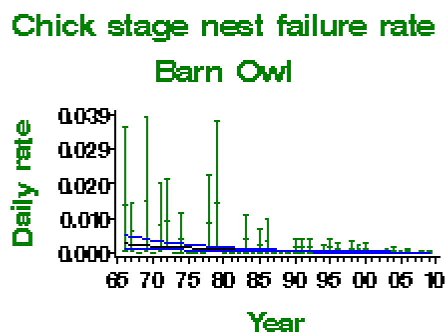
Insufficient data on fledglings per breeding attempt available for this species











Additional information

- **Maps and statistics from British and Irish atlases**
- **BirdFacts page on species biology**
- **BirdTrack results**
- **Atlas 2007–11 latest results**

LITTLE OWL
Athene noctua

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: SPEC category 3, declining
UK: not listed (**introduced**)

Long-term trend

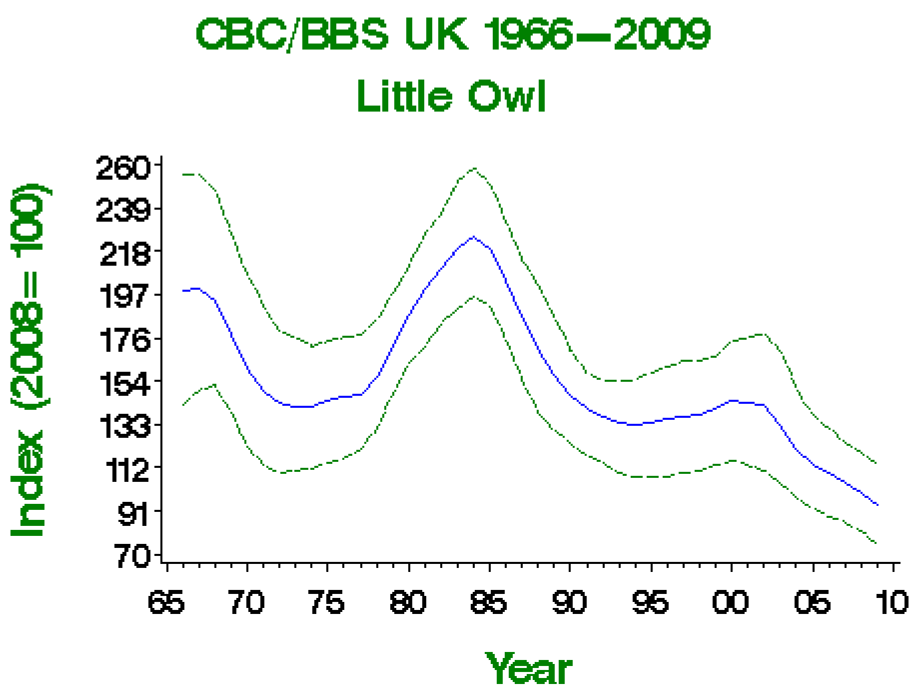
UK, England: moderate decline

UK population size

5,800–11,600 pairs in 2000 (1988–91 Atlas estimate updated using CBC/BBS trend: **BiE04**, **APEP06**)

Status summary

The CBC/BBS trend for Little Owl in the UK shows very wide variation, but a downturn in recent seasons suggests that a moderate long-term decline probably lies behind the observed fluctuations. Trends are poorly known, however, because the species has large breeding territories and, being largely inactive during the day, is difficult to detect except by dedicated surveys. A population estimate of c. 7,000 pairs from the BTO/Hawk & Owl Trust's **Project Barn Owl** (**Toms *et al.* 2000**) is the first replicable estimate for Little Owls in the UK. No trends are evident in the number of fledglings per breeding attempt, but few nest records are available.



1967-2008: -50% (confidence interval -69% to -22%)

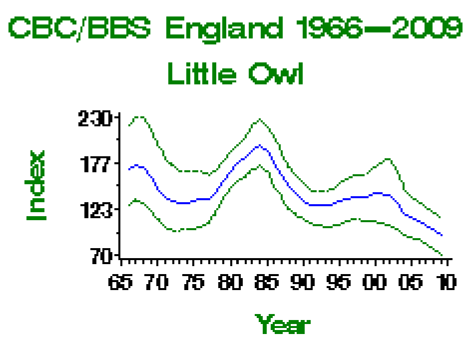
Population changes in detail

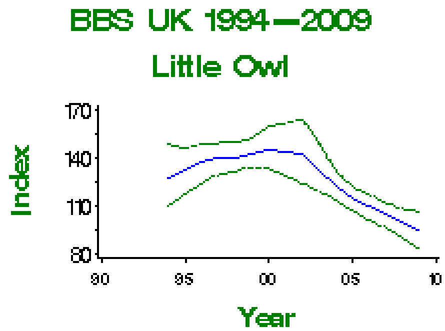
Table of population changes for Little Owl

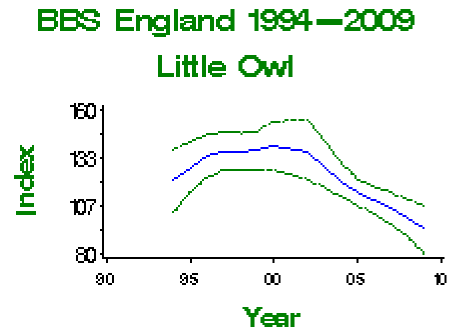
Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS UK	41	1967-	57	-50	-69	-22	>25	

		2008						
	25	1983-2008	76	-54	-67	-39	>50	
	10	1998-2008	111	-27	-37	-16	>25	
	5	2003-2008	109	-25	-37	-11		
CBC/BBS England	41	1967-2008	55	-43	-66	-9	>25	
	25	1983-2008	73	-48	-64	-31	>25	
	10	1998-2008	109	-27	-38	-17	>25	
	5	2003-2008	109	-23	-35	-9		
BBS UK	13	1995-2008	101	-24	-37	-11		
	10	1998-2008	104	-28	-38	-19	>25	
	5	2003-2008	109	-25	-38	-10		
BBS England	13	1995-2008	98	-22	-36	-5		
	10	1998-2008	101	-27	-37	-14	>25	
	5	2003-2008	107	-22	-37	-6		

The Breeding Bird Survey is jointly funded by the BTO, JNCC & RSPB



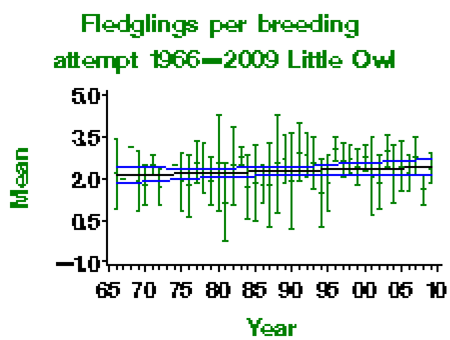




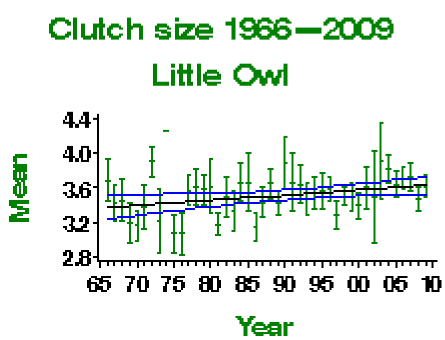
Demographic trends

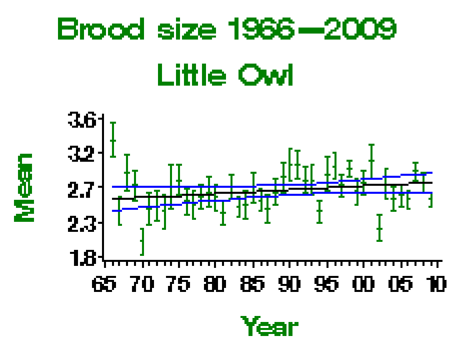
Table of demographic changes for Little Owl

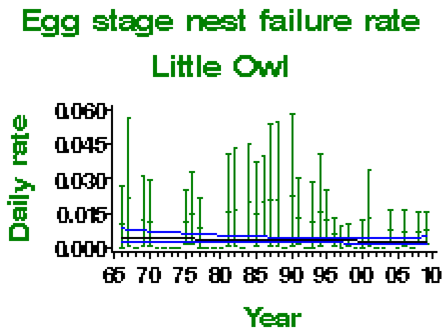
Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment
Fledglings per breeding attempt	40	1968-2008	14	None				
Clutch size	40	1968-2008	19	Linear increase	3.39 eggs	3.63 eggs	7%	Small sample
Brood size	40	1968-2008	41	None				
Daily failure rate (eggs)	40	1968-2008	17	None				Small sample
Daily failure rate (chicks)	40	1968-2008	20	None				Small sample

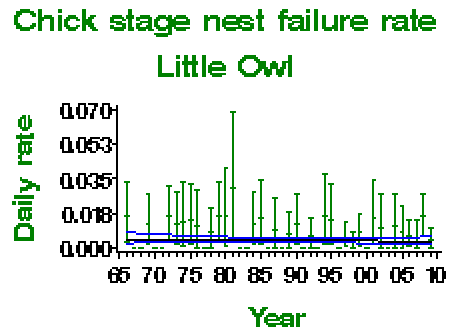


Insufficient data on laying date available for this species









Additional information

- **Maps and statistics from British and Irish atlases**
- **BirdFacts page on species biology**
- **BirdTrack results**

TAWNY OWL
Strix aluco

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: no SPEC category (concentrated in Europe, conservation status favourable)
UK: green

Long-term trend

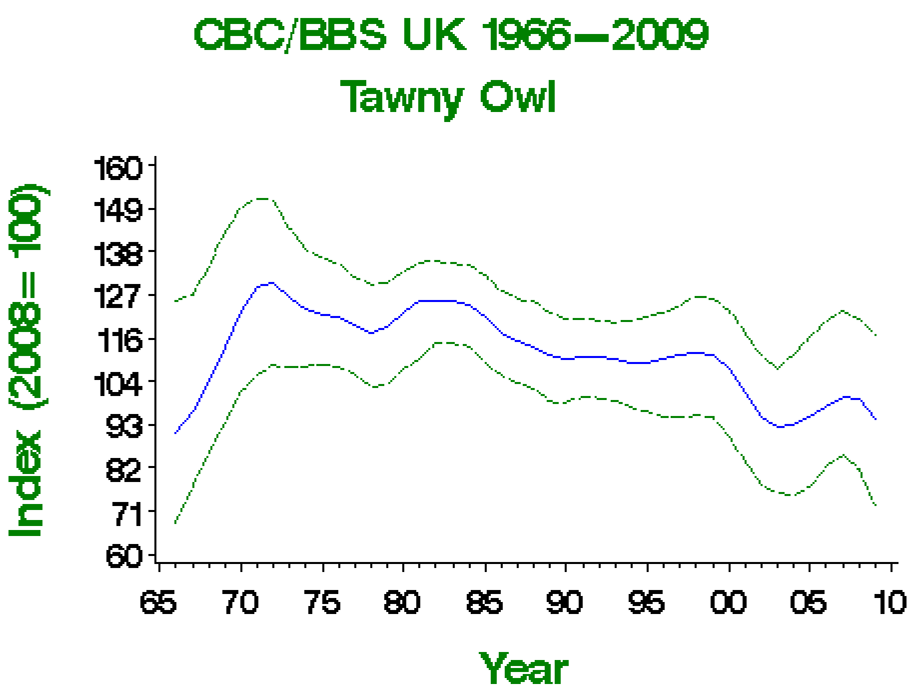
UK: probably stable
England: probable shallow decline

UK population size

19,400 pairs in 2000 (1988–91 Atlas estimate updated using CBC/BBS trend: **BiE04**, **APEP06**)

Status summary

As a nocturnal species, Tawny Owl is covered relatively poorly by the BTO's monitoring schemes. The pattern shown by CBC/BBS is a relatively stable one, however, in keeping with the longevity, sedentary behaviour, and slow breeding rate of this species. There has been a shallow downward trend in the index since the early 1970s. It may be relevant to this possible long-term decline that **Gibbons *et al.* (1993)** found evidence for a contraction of the species' UK range between the two atlas periods. The substantial improvements in nest success during the c.29-day egg stage could be linked to the declining impact of organochlorine pesticides, which were banned in the early 1960s. The numbers of fledglings per breeding attempt have increased steeply. Special post-breeding surveys of this species were conducted in autumn 2005 (**click here**), following methodology established by an earlier survey in 1989 (**Percival 1990**).



1967-2008: 3% (confidence interval -34% to 60%)

Population changes in detail

Table of population changes for Tawny Owl

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS UK	41	1967-2008	77	3	-34	60		
	25	1983-2008	90	-20	-40	5		
	10	1998-2008	106	-11	-28	11		
	5	2003-2008	94	8	-9	34		
CBC/BBS England	41	1967-2008	65	-11	-49	34		
	25	1983-2008	77	-27	-44	-7	>25	
	10	1998-2008	92	-21	-34	-6		
	5	2003-2008	83	-18	-33	4		
BBS UK	13	1995-2008	87	-7	-24	20		Nocturnal species
	10	1998-2008	92	-10	-24	14		Nocturnal species
	5	2003-2008	94	6	-10	29		Nocturnal species
BBS England	13	1995-2008	74	-13	-29	2		Nocturnal species
	10	1998-2008	78	-18	-30	-2		Nocturnal species
	5	2003-2008	81	-15	-31	0		Nocturnal species

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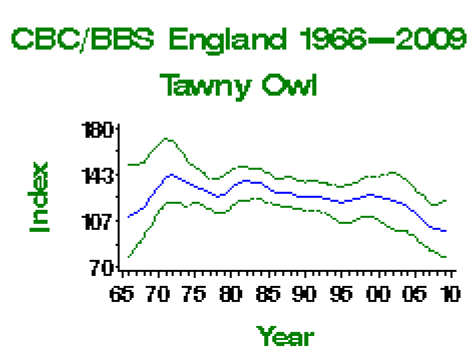
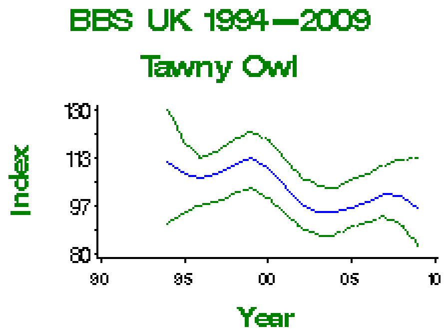
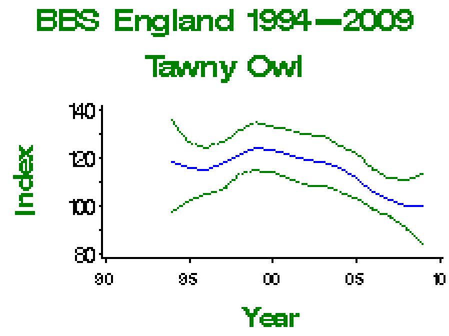
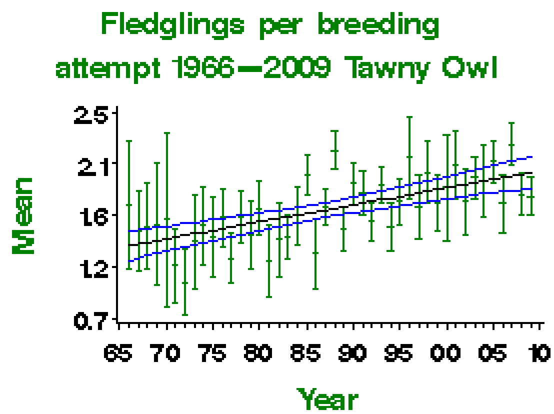
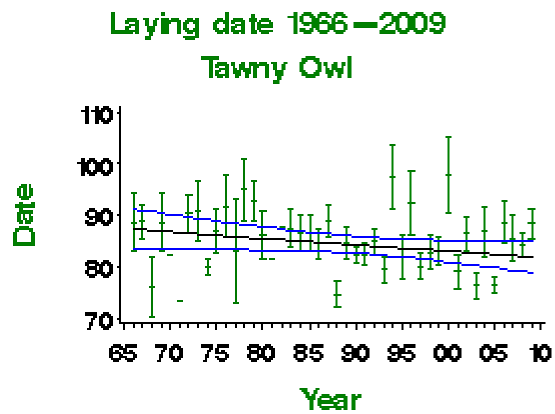






Demographic trends

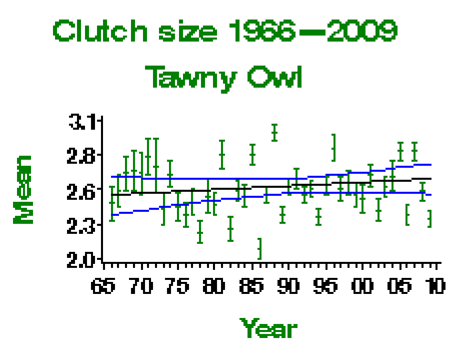


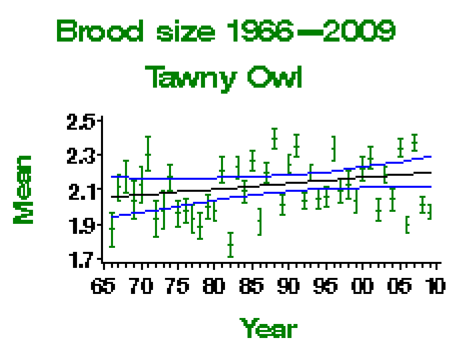


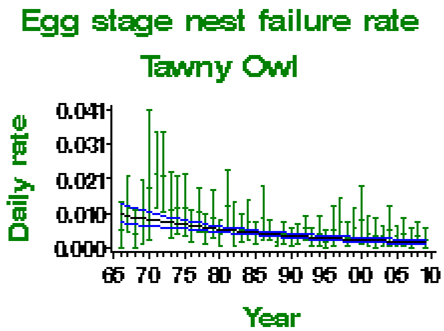
More on demographic trends

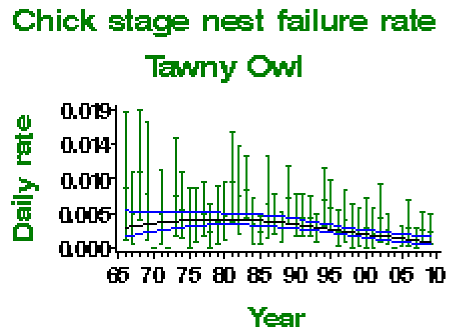
Table of demographic changes for Tawny Owl

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment
Fledglings per breeding attempt	40	1968-2008	53	Linear increase	1.37 fledglings	1.96 fledglings	43.3%	
Clutch size	40	1968-2008	81	None				
Brood size	40	1968-2008	151	None				
Daily failure rate (eggs)	40	1968-2008	56	Linear decline	0.92% nests/day	0.18% nests/day	-80.4%	
Daily failure rate (chicks)	40	1968-2008	87	Curvilinear	0.31% nests/day	0.1% nests/day	-67.7%	
Laying date	40	1968-2008	14	None				Small sample









Additional information

- **Maps and statistics from British and Irish atlases**
- **BirdFacts page on species biology**
- **BirdTrack results**
- **Garden BirdWatch results**

NIGHTJAR
Caprimulgus europaeus

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: SPEC category 2, (declining)
UK: red (>50% distribution decline)
UK Biodiversity Action Plan: **click here**, **priority species**

Long-term trend

UK: uncertain

UK population size

3,400 males in 1992 (**Morris *et al.* 1994**: **BiE04**, **APEP06**); 4,600 males in 2004 (**Conway *et al*. 2007**)

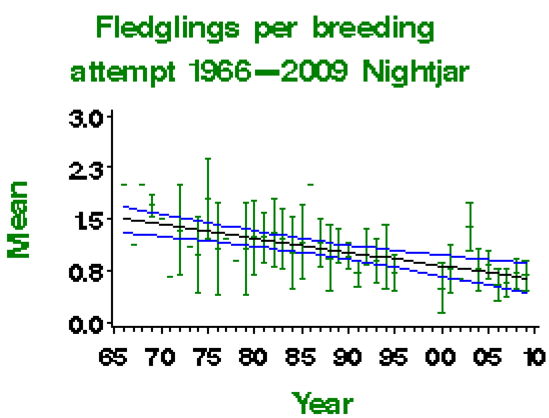
Status summary

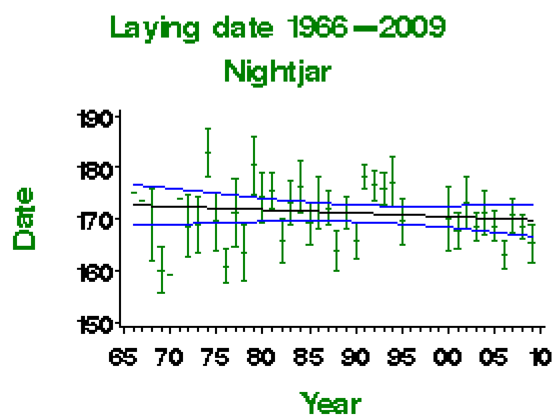
Following a catastrophic decline in range of more than 50% of 10-km squares between breeding atlases, the 1992 national survey revealed a welcome increase of 50% in population size since 1981, probably due to the increased availability of young forest habitat as plantations were felled and replanted (**Morris *et al.* 1994**). A **National Nightjar Survey** in 2004 revealed that a further 36% increase had taken place in the UK population in 12 years, with a 2.6% increase in the number of 10-km squares occupied (**Conway *et al*. 2007**). There was evidence of population declines and range contractions since 1992, however, in North Wales, northwest England, and Scotland. Although annual nest record sample are very small, the increases in nest failure rates and decreases in clutch and brood sizes have resulted in the inclusion of Nightjar on the NRS concern list (**Leech & Barimore 2008**). A steep linear decrease is evident in the number of fledglings per breeding attempt. A recent study suggests that nest failure is most likely in areas heavily frequented by walkers and dogs (**Langston *et al.* 2007**).

Population changes in detail

Annual population changes are not monitored for this species

Demographic trends



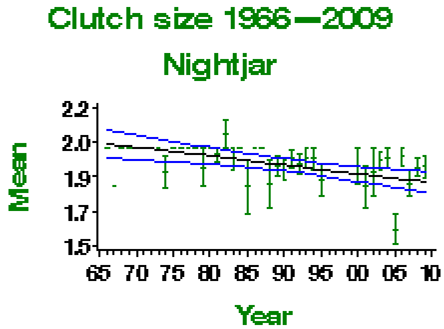


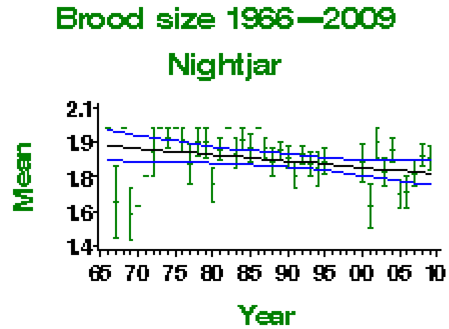
More on demographic trends

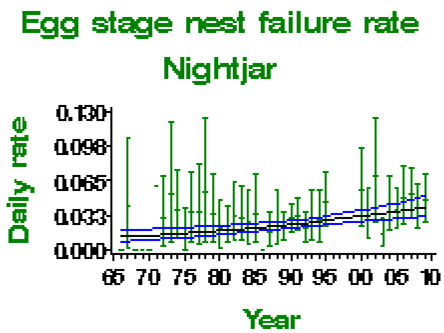
Table of demographic changes for Nightjar

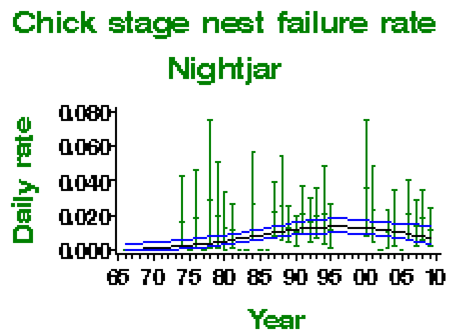
Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment
Fledglings per breeding	40	1968-	13	Linear	1.45	0.66	-54.8%	

attempt		2008		decline	fledglings	fledglings		
Clutch size	40	1968-2008	18	Linear decline	2.01 eggs	1.83 eggs	-8.9%	Small sample
Brood size	40	1968-2008	25	Linear decline	1.9 chicks	1.77 chicks	-6.7%	Small sample
Daily failure rate (eggs)	40	1968-2008	24	Linear increase	1.32% nests/day	3.93% nests/day	197.7%	Small sample
Daily failure rate (chicks)	40	1968-2008	22	Curvilinear	0.08% nests/day	0.81% nests/day	912.5%	Small sample
Laying date	40	1968-2008	19	None				Small sample









Additional information

- Maps and statistics from British and Irish atlases
- BirdFacts page on species biology
- BirdTrack results

COMMON SWIFT
Apus apus

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe)
UK: amber (25–50% decline)

Long-term trend

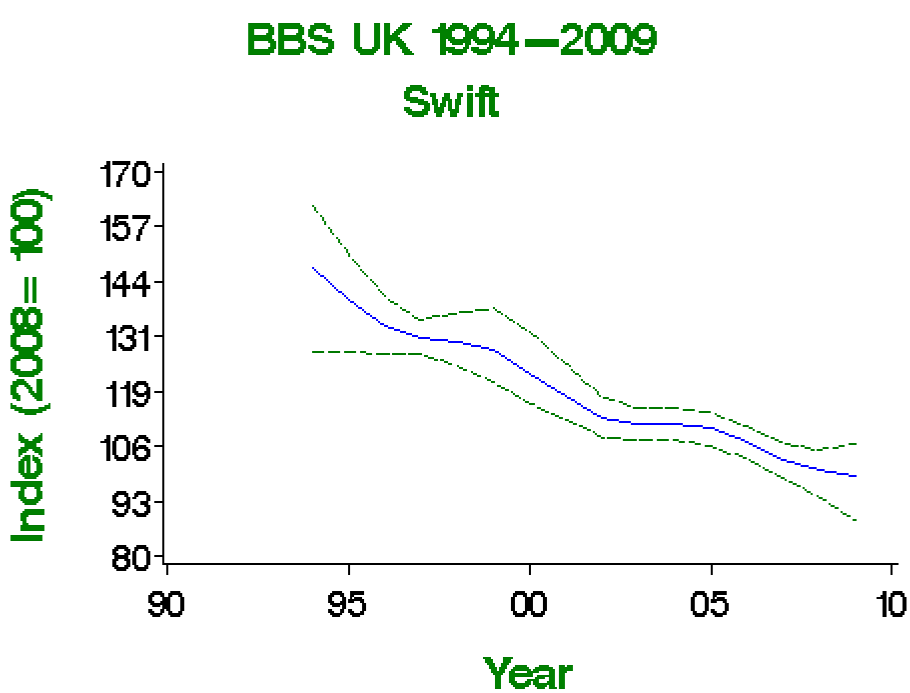
UK: decline

UK population size

85,000 pairs in 1990 (1988–91 Atlas: **APEP06**); 20,000–100,000 pairs in 2000 (**BiE04**)

Status summary

Swifts were not monitored before the inception of the BBS. Their monitoring is complicated by the difficulty of finding occupied nests, by the weather-dependent and sometimes extraordinary distances from the nest at which breeding adults may forage, and by the often substantial midsummer influx of non-breeding individuals to the vicinity of breeding colonies. Since Swifts do not normally begin breeding until they are four years old, non-breeding numbers can be large. BBS results suggest steep declines in England, Scotland and Wales. Many Swifts seen on BBS visits will not be nesting nearby, however, and the relationship between BBS transect counts and nesting numbers is not properly understood so far. On the strength of the BBS decline, Swift has recently been moved from the green to the amber list of conservation concern (**Eaton *et al.* 2009**). **Concern for Swifts**, a small private organisation, is trying to promote the deliberate provision of nesting sites for this species, as so many suitable cavities are being lost to redevelopment. It is also gathering information on populations to try to clarify the breeding status of the species. A moderate decrease has been recorded in the Republic of Ireland since 1998 (**Crowe *et al.* 2010**).



1995-2008: -29% (confidence interval -38% to -17%)

Population changes in detail

Table of population changes for Swift

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
BBS UK	13	1995-2008	1005	-29	-38	-17	>25	
	10	1998-2008	1068	-23	-30	-16		
	5	2003-2008	1149	-10	-17	-2		
BBS England	13	1995-2008	867	-29	-40	-15	>25	
	10	1998-2008	916	-25	-30	-20		
	5	2003-2008	988	-12	-19	-6		
BBS Scotland	13	1995-2008	49	-29	-54	-3	>25	
	10	1998-2008	52	0	-36	39		
	5	2003-2008	57	30	-16	96		
BBS Wales	13	1995-2008	67	-52	-63	-34	>50	
	10	1998-2008	75	-52	-67	-36	>50	
	5	2003-2008	75	-43	-53	-31	>25	

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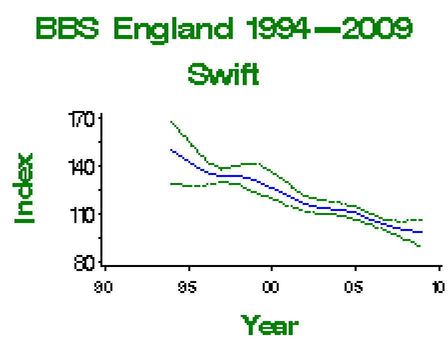
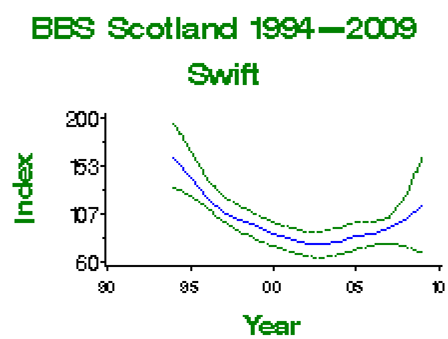
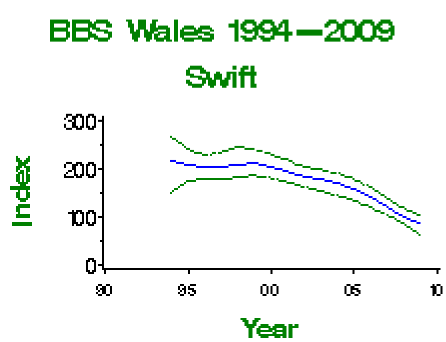






Demographic trends

Demographic information is not currently available for this species

Additional information

- **Maps and statistics from British and Irish atlases**
- **BirdFacts page on species biology**
- **BirdTrack results**

KINGFISHER
Alcedo atthis

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: SPEC category 3, depleted
UK: amber (European status)

Long-term trend

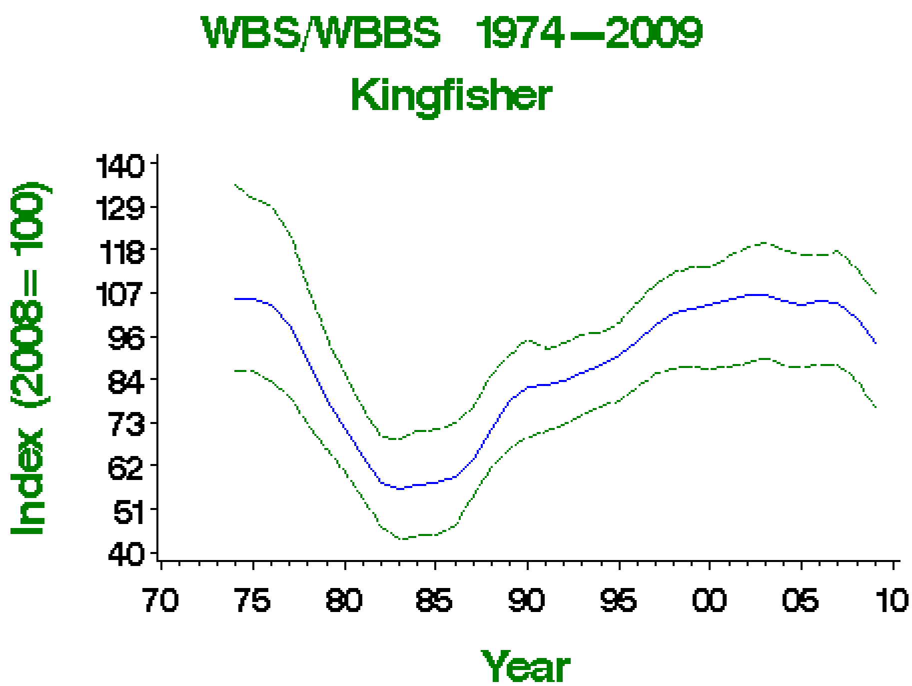
UK waterways: fluctuating, with no long-term trend

UK population size

4,800–8,000 pairs in 2000 (1988–91 Atlas estimate updated using WBS trend: **BiE04**, **APEP06**)

Status summary

The Kingfisher declined along linear waterways (its principal habitat) until the mid 1980s, since when it seems to have made a complete recovery. The decline was associated with a contraction of range in England (**Gibbons *et al.* 1993**). Kingfishers suffer severe mortality during harsh winters but, with up to three broods in a season, and up to six chicks in a brood, their potential for rapid population growth is unusually high. Amber listing of this species in the UK results from its 'depleted' status in Europe as a whole, following declines between 1970 and 1990 (**BirdLife International 2004**).



1975-2008: -5% (confidence interval -36% to 34%)

Population changes in detail

Table of population changes for Kingfisher

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
WBS/WBBS waterways	33	1975-2008	53	-5	-36	34		

	25	1983-2008	61	78	25	156		
	10	1998-2008	102	-1	-16	16		
	5	2003-2008	108	-6	-16	8		
BBS UK	13	1995-2008	54	-2	-28	27		
	10	1998-2008	59	13	-12	44		
	5	2003-2008	67	-22	-46	2		
BBS England	13	1995-2008	48	7	-22	39		
	10	1998-2008	52	25	-2	54		
	5	2003-2008	60	-7	-23	10		

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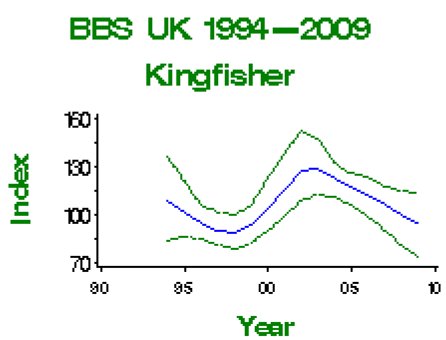
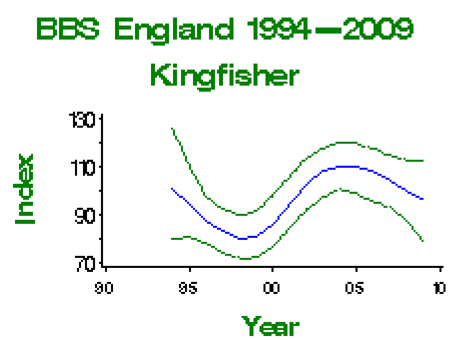




Demographic trends

Demographic information is not currently available for this species

Additional information

- **Maps and statistics from British and Irish atlases**
- **BirdFacts page on species biology**
- **BirdTrack results**

GREEN WOODPECKER
Picus viridis

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: SPEC category 2 (depleted)
UK: amber (European status)

Long-term trend

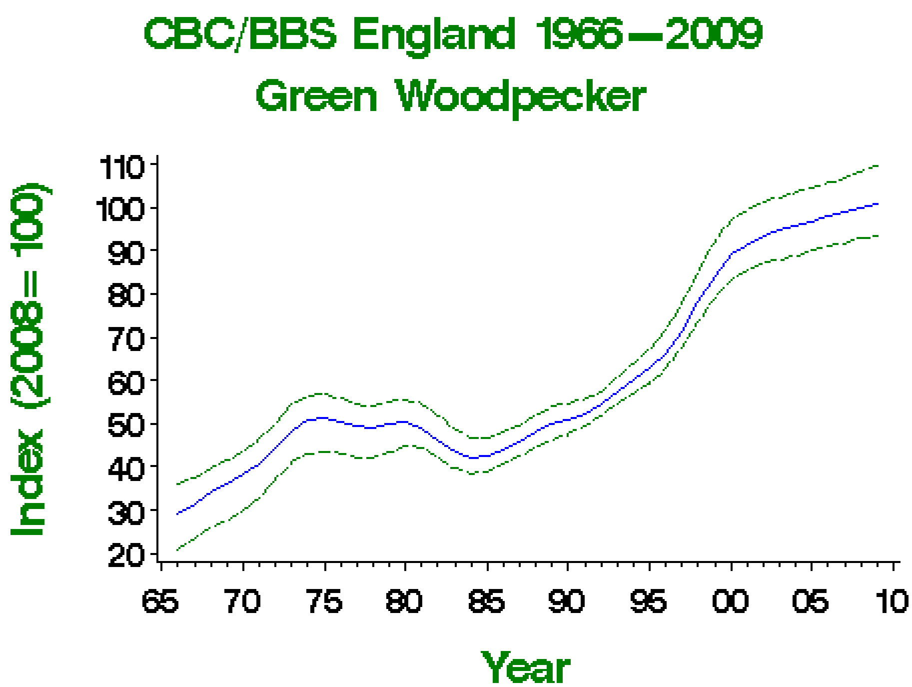
England: rapid increase

UK population size

24,200 pairs in 2000 (1988–91 Atlas estimate updated using CBC trend: **BiE04**, **APEP06**)

Status summary

Green Woodpecker populations have risen steadily in Britain since 1966, except for a period of stability or shallow decline centred around 1980 that was probably the result of a series of harsh winters. There was considerable range expansion in central and eastern Scotland between the 1968–72 and 1988–91 atlas periods. Recent results indicate that the current phase of increase is continuing across England, but not Wales, where some contraction of range has recently been detected. The ecological factors underlying the increase are not yet known but, given the species' susceptibility to cold weather, it may be related to climate change. Numbers have shown widespread moderate increase across Europe since 1980 (**PECBMS 2010**).



1967-2008: 217% (confidence interval 147% to 369%)

Population changes in detail

Table of population changes for Green Woodpecker

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment

CBC/BBS England	**41**	**1967-2008**	**292**	**217**	**147**	**369**		
	25	**1983-2008**	**439**	**130**	**92**	**176**		
	10	**1998-2008**	**814**	**28**	**22**	**33**		
	5	**2003-2008**	**887**	**6**	**1**	**10**		
BBS UK	**13**	**1995-2008**	**753**	**47**	**37**	**58**		
	10	**1998-2008**	**840**	**25**	**18**	**30**		
	5	**2003-2008**	**943**	**5**	**1**	**9**		
BBS England	**13**	**1995-2008**	**700**	**57**	**45**	**67**		
	10	**1998-2008**	**781**	**28**	**20**	**32**		
	5	**2003-2008**	**880**	**5**	**1**	**9**		
BBS Wales	**13**	**1995-2008**	**47**	**-9**	**-34**	**18**		
	10	**1998-2008**	**52**	**-10**	**-33**	**15**		
	5	**2003-2008**	**55**	**-7**	**-23**	**9**		

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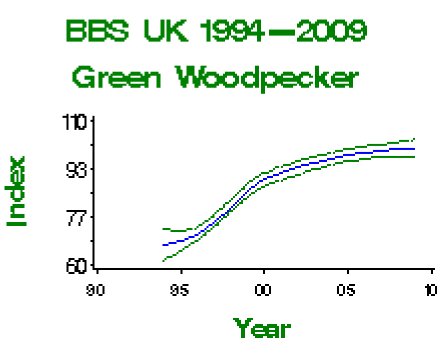
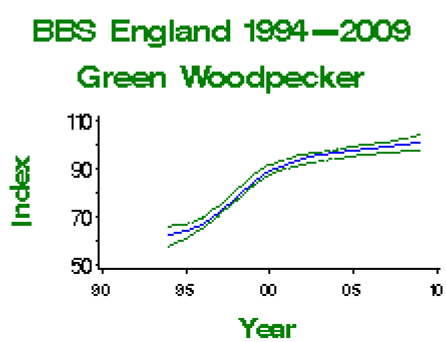
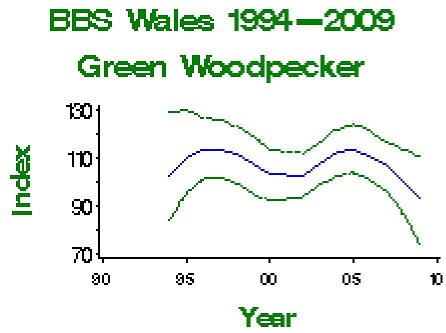






Demographic trends

Demographic information is not currently available for this species

Additional information

- **Maps and statistics from British and Irish atlases**
- **BirdFacts page on species biology**
- **BirdTrack results**

GREAT SPOTTED WOODPECKER
Dendrocopos major

- Population changes
- Productivity trends
- Additional information

Conservation listings

Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe)
UK: green (species level); amber (race *anglicus*, >20% of European breeders)

Long-term trend

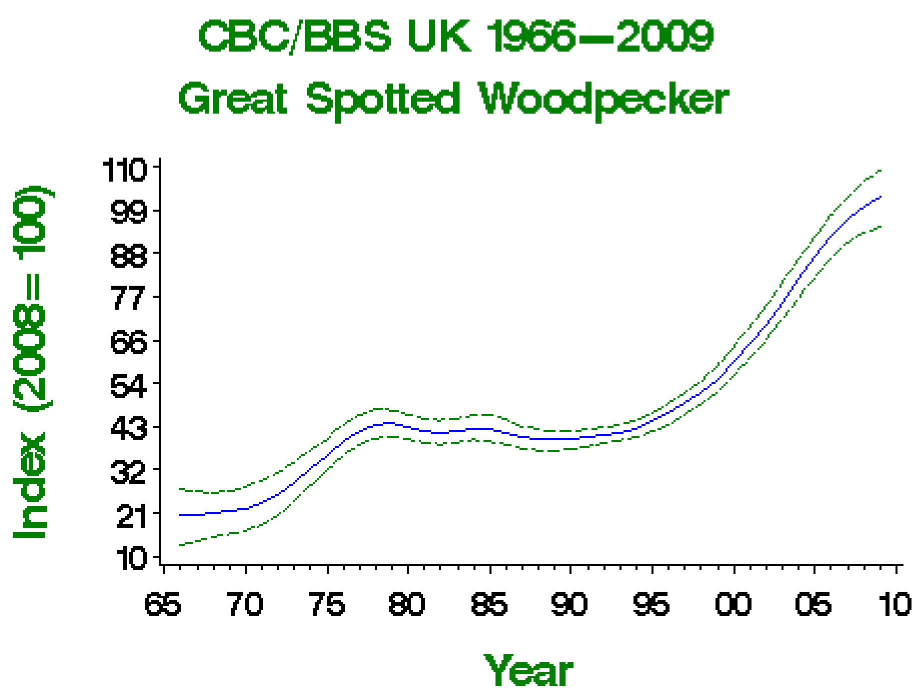
UK, England: rapid increase

UK population size

37,000–44,400 pairs in 2000 (1988–91 Atlas estimate updated using CBC/BBS trend: **BiE04**, **APEP06**)

Status summary

This species increased rapidly in the 1970s and began a further increase in the early 1990s. Dutch Elm Disease, which greatly increased the amount of standing dead timber and its associated insects, has been linked to the increase that occurred during the 1970s (**Marchant *et al.* 1990**). The ecological factors underlying the current increase are not yet known, but the species may be benefiting from the maturation of new forests and from the increasing provision of winter food in gardens. The decline in **Starling** numbers in recent decades has led to increased breeding success of this woodpecker and may have allowed it to expand its breeding distribution into more open, less wooded habitats (**Smith 2005**, **2006**). Nesting phenology in Hertfordshire woodlands has advanced over the last two decades in response to warmer spring weather (**Smith 2006**). Numbers have shown widespread moderate increase across Europe since 1980 (**PECBMS 2010**).



1967-2008: 386% (confidence interval 251% to 700%)

Population changes in detail

Table of population changes for Great Spotted Woodpecker

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS UK	41	1967-2008	380	386	251	700		
	25	1983-2008	572	138	105	171		
	10	1998-2008	1071	92	80	102		
	5	2003-2008	1240	33	27	39		
CBC/BBS England	41	1967-2008	341	356	221	594		
	25	1983-2008	512	126	94	160		
	10	1998-2008	954	79	69	89		
	5	2003-2008	1104	25	19	31		
BBS UK	13	1995-2008	919	129	114	141		
	10	1998-2008	1037	89	78	99		
	5	2003-2008	1240	33	26	38		
BBS England	13	1995-2008	814	115	100	134		
	10	1998-2008	916	76	66	87		
	5	2003-2008	1093	25	18	32		
BBS Scotland	13	1995-2008	39	300	191	430		
	10	1998-2008	46	188	109	297		
	5	2003-2008	63	62	32	94		
BBS Wales	13	1995-2008	68	159	114	229		
	10	1998-2008	79	126	97	185		
	5	2003-2008	92	69	46	105		

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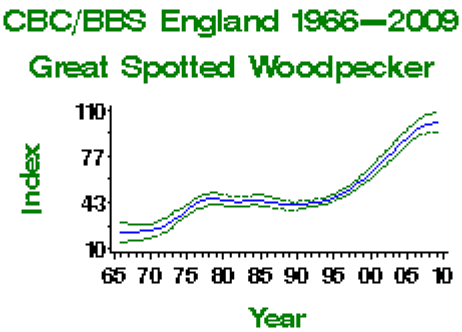
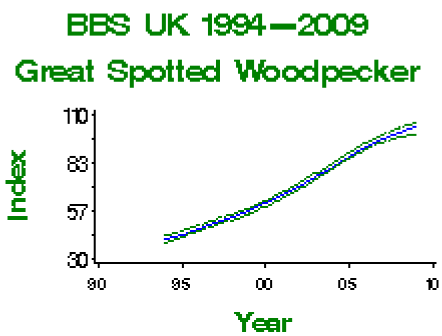
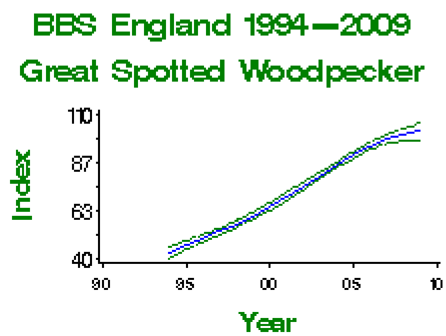
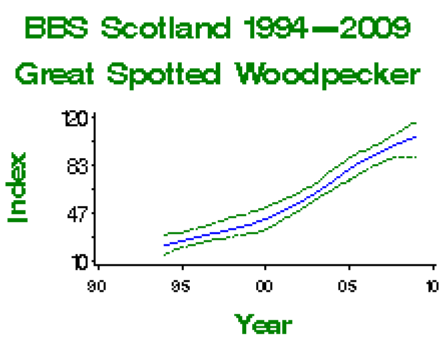
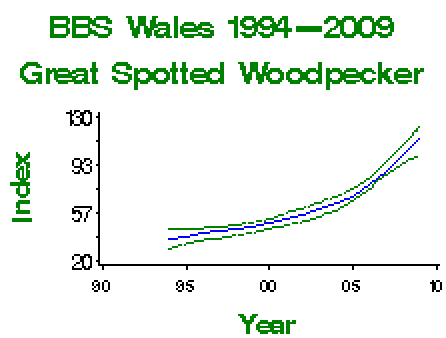










Demographic trends

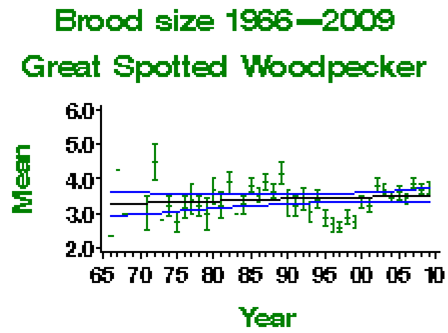
Table of demographic changes for Great Spotted Woodpecker

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment
Brood size	40	1968-2008	26	None				Small sample
Daily failure rate (chicks)	40	1968-2008	33	None				

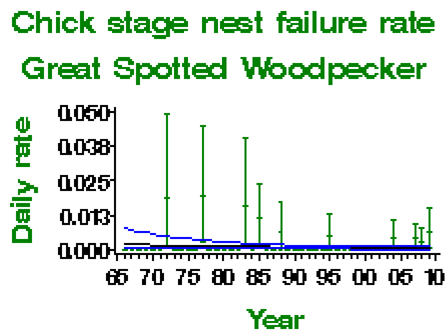
Insufficient data on fledglings per breeding attempt available for this species

Insufficient data on laying date available for this species

Insufficient data on clutch size available for this species



Insufficient data on egg nest failure available for this species



Additional information

- Maps and statistics from British and Irish atlases
- BirdFacts page on species biology
- BirdTrack results
- Garden BirdWatch results

LESSER SPOTTED WOODPECKER
Dendrocopos minor

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe)
UK: red (>50% population decline)
UK Biodiversity Action Plan: priority species

Long-term trend

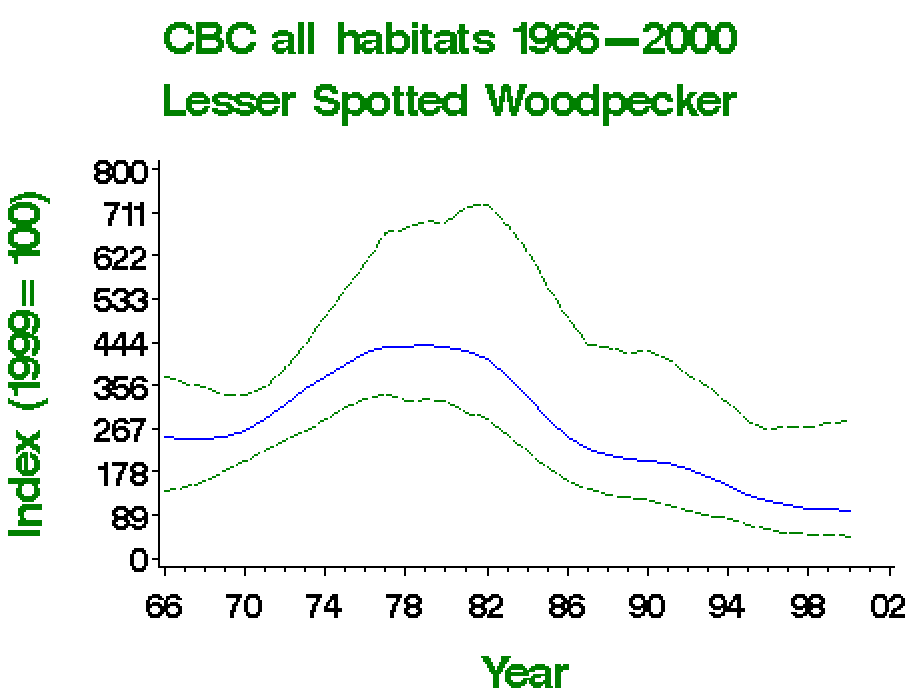
UK: rapid decline

UK population size

1,400–2,900 pairs in 2000 (1988–91 Atlas estimate updated using CBC trend: BiE04, APEP06)

Status summary

The Lesser Spotted Woodpecker has declined significantly and very rapidly since around 1980, following a shallower increase; it had already contracted in range between the two atlas periods (Gibbons *et al.* 1993), and has subsequently disappeared from many more of its former localities. It has become so rare that BBS observers have been unable to continue the annual monitoring that was possible until 2000 through CBC. The species qualifies easily for red listing. Competition with and predation by Great Spotted Woodpeckers, and reductions in small-diameter dead wood suitable for foraging, are the most likely causes of decline, while the species' large home ranges suggest that landscape-scale changes in woodland (loss of mature broadleaved woodland, losses of non-woodland trees such as elms, and woodland fragmentation) may also be important (Fuller *et al.* 2005). Continued presence is now strongly associated with heavily wooded landscapes (Charman *et al.* 2010). Lesser Spotted Woodpecker has been one of the most strongly declining bird species in Europe, with widespread rapid decrease since 1980 (PECBMS 2007, 2010).



1968-1999: -60% (confidence interval -81% to 40%)

Population changes in detail

Table of population changes for Lesser Spotted Woodpecker

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC all habitats	31	1968-1999	17	-60	-81	40		Small CBC sample
	25	1974-1999	18	-73	-86	-31	>50	Small CBC sample
	10	1989-1999	11	-51	-75	-22	>50	Small CBC sample
	5	1994-1999	9	-33	-56	0		Small sample

The Breeding Bird Survey is jointly funded by the BTO, JNCC & RSPB

Demographic trends

Demographic information is not currently available for this species

Additional information

- Maps and statistics from British and Irish atlases
- BirdFacts page on species biology
- BirdTrack results

WOODLARK

Lullula arborea

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: SPEC category 2 (depleted)
UK: amber (European status, long-term UK range contraction, localised UK breeding)
UK Biodiversity Action Plan: **click here**, **priority species**

Long-term trend

UK: increase

UK population size

1,426–1,552 pairs in 1997 (**Wotton & Gillings 2000**: **APEP06**, rounded to 1,400–1,600 **BiE04**); 3,064 (2,472–3,687) territories in 2006 (**Conway *et al.* 2009**)

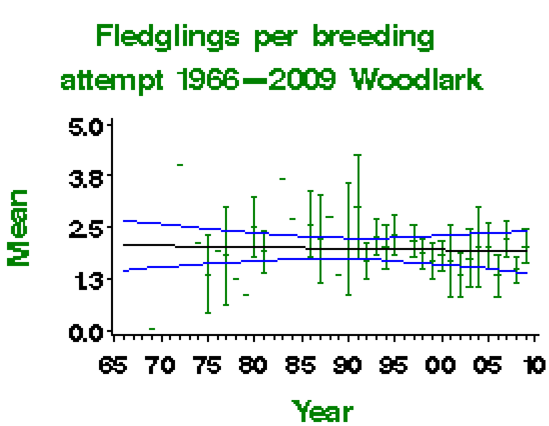
Status summary

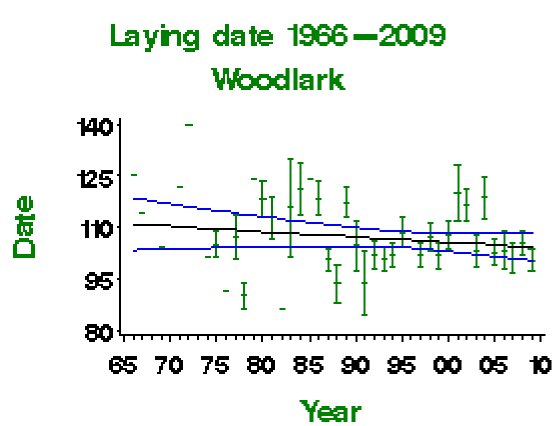
This species is too rare and restricted in range for population changes to be monitored annually by BTO volunteer surveys. A 62% reduction occurred in the number of 10-km squares occupied between 1968–72 and 1988–91; the species had ceased to breed in Wales and in several southern English counties over this period (**Gibbons *et al.* 1993**). **Sitters *et al.* (1996)** report that the UK population increased from c.250 pairs in 1986 to c.600 pairs in 1993, probably helped by mild winters and increased habitat availability due to storm damage in plantations, forest restocking, and heathland management. A repeat national survey in 1997 showed that the population had increased further, accompanied by expansion of the range into new areas (**Wotton & Gillings 2000**; for more information, click **here**). A further repeat in 2006 recorded an increase since 1997 of 88% accompanied by major range expansion, with a pair breeding in Wales for the first time since 1981 (**Conway *et al.* 2009**; also **here**). Farmland setaside, especially close to forest, was valuable additional habitat for the expanding population, although clutch sizes may be lower there than in more traditional habitats (**Wright *et al.* 2007**). Climate change may benefit Woodlark, because it is able to make more nesting attempts in warmer years (**Wright *et al.* 2009**).The small NRS sample suggests that nest failure rates have become less frequent at the egg stage. There has been no trend, however, in the number of fledglings per breeding attempt. Human disturbance at heathland sites apparently reduces population density, but the effects are partly offset by higher breeding productivity at lower densities (**Mallord *et al.* 2007**). The species' partial recovery in numbers and range resulted in a move from the red to the amber list at the 2009 review (**Eaton *et al.* 2009**). There has been widespread shallow increase across Europe since 1980 (**PECBMS 2010**).

Population changes in detail

Annual breeding population changes for this species are not currently monitored by BTO

Demographic trends

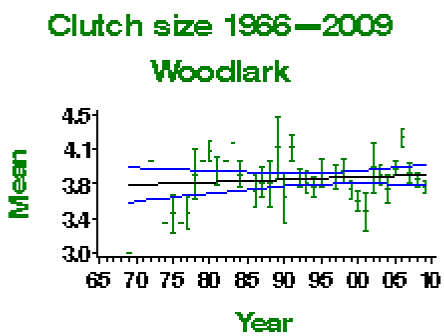


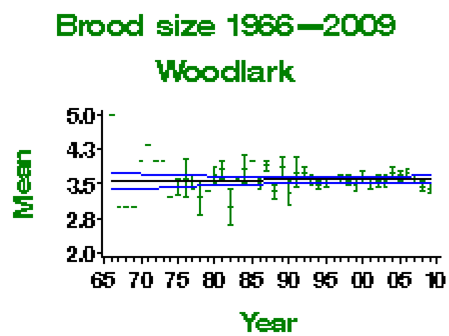


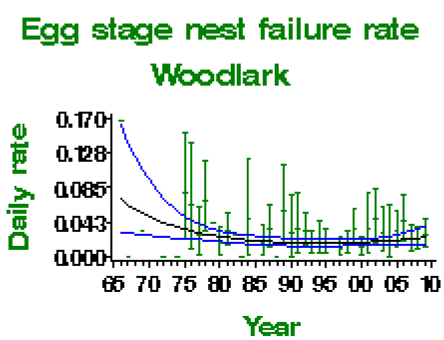
More on demographic trends

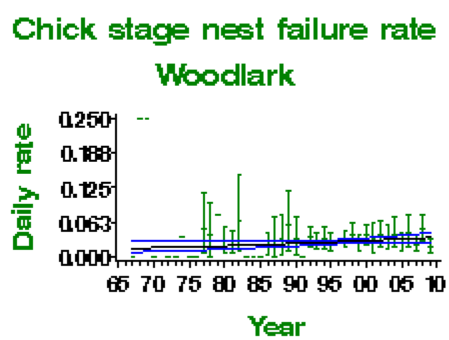
Table of demographic changes for Woodlark

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment
Fledglings per breeding attempt	40	1968-2008	11	None				
Clutch size	40	1968-2008	18	None				Small sample
Brood size	40	1968-2008	29	None				Small sample
Daily failure rate (eggs)	40	1968-2008	22	Curvilinear	5.93% nests/day	2.34% nests/day	-60.5%	Small sample
Daily failure rate (chicks)	40	1968-2008	31	Linear increase	1.63% nests/day	3.43% nests/day	110.4%	
Laying date	40	1968-2008	19	None				Small sample









Additional information

- Maps and statistics from British and Irish atlases
- BirdFacts page on species biology
- BirdTrack results

SKYLARK
Alauda arvensis

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: SPEC category 3 (depleted)
UK: red (species level, race *arvensis*); amber (race *scotica*, >20% of European breeders)
UK Biodiversity Action Plan: click here, priority species

Long-term trend

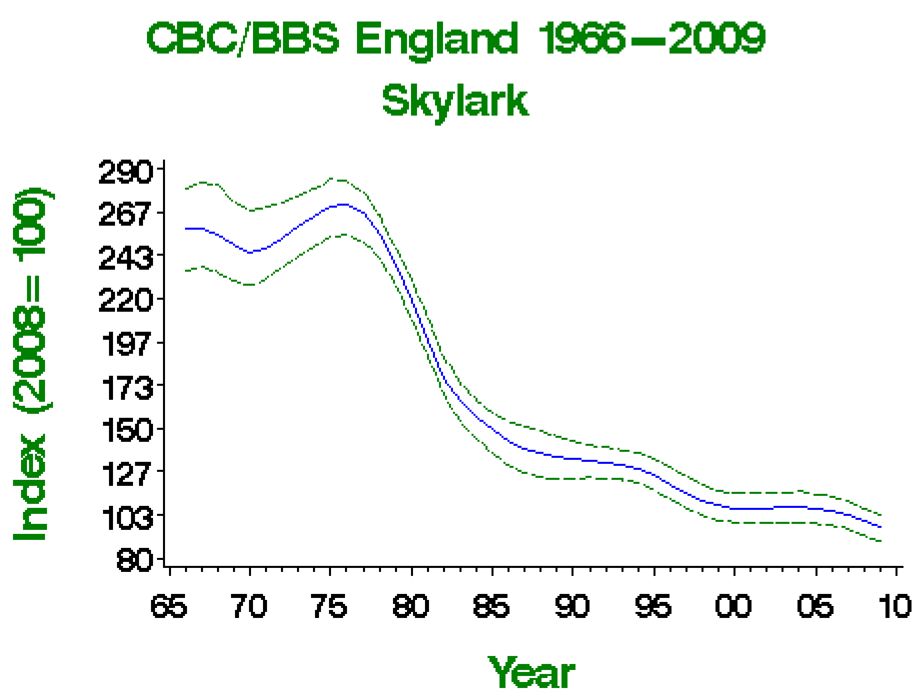
England: rapid decline

UK population size

1,785,000 territories in 2000 (1988–91 Atlas estimate updated using CBC/BBS trend: **BiE04**, **APEP06**); 801,000–1,003,000 pairs in Britain in 1997 (**Browne *et al.* 2000**)

Status summary

The Skylark declined rapidly from the mid 1970s until the mid 1980s, when the rate of decline slowed; more recent data show further decline, however, at least in England. Considerable effort by BTO and other researchers in recent years has indicated that the most likely cause of the decline is the change to autumn sowing of cereals: this practice restricts opportunities for late-season nesting attempts, because the crop is by then too tall, and may depress overwinter survival by reducing the area of stubbles (**Wilson *et al*. 1997**, **Donald & Vickery 2000**, **2001**; for more information, click **here**). **Chamberlain & Siriwardena (2000)** have provided a general review of the effects of agricultural practice on Skylark population trends. More recently, **Gillings *et al.* (2005)** have identified better population performance in areas with extensive winter stubble, presumably because overwinter survival is relatively high. Breeding success per nesting attempt increased during the steepest period of decline (**Chamberlain & Crick 1999**, **Siriwardena *et al.* 2000b**), but since 2000 has shown signs of reversal. Leaving small, rectangular patches of bare ground ('**Skylark plots**') within autumn-sown cereals appears to provide many of the benefits of spring-sown cereals at very low cost to the farmer (**Donald & Morris 2005**). Numbers have shown widespread moderate decrease across Europe since 1980 (**PECBMS 2010**).



1967-2008: -61% (confidence interval -68% to -55%)

Population changes in detail

Table of population changes for Skylark

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS England	41	1967-2008	523	-61	-68	-55	>50	
	25	1983-2008	782	-39	-45	-32	>25	
	10	1998-2008	1409	-10	-13	-6		
	5	2003-2008	1522	-7	-10	-4		
BBS UK	13	1995-2008	1628	-11	-17	-4		
	10	1998-2008	1708	-5	-11	2		
	5	2003-2008	1846	-2	-7	3		
BBS England	13	1995-2008	1288	-19	-23	-15		
	10	1998-2008	1360	-9	-12	-5		
	5	2003-2008	1479	-6	-9	-3		
BBS Scotland	13	1995-2008	201	8	-9	30		
	10	1998-2008	199	11	-4	28		
	5	2003-2008	213	7	-3	21		
BBS Wales	13	1995-2008	102	-15	-30	0		
	10	1998-2008	112	-17	-33	0		
	5	2003-2008	116	-13	-28	4		
BBS N.Ireland	13	1995-2008	34	-33	-45	-22	>25	
	10	1998-	36	-43	-54	-37	>25	

		2008						
	5	2003-2008	36	-30	-41	-25	>25	

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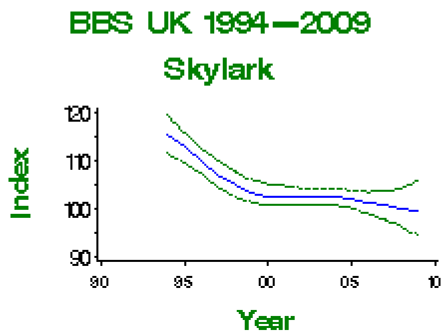
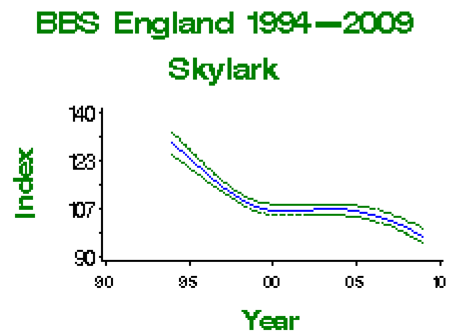
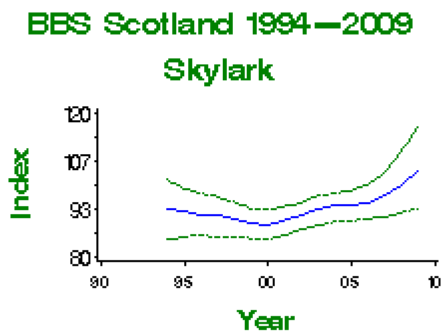
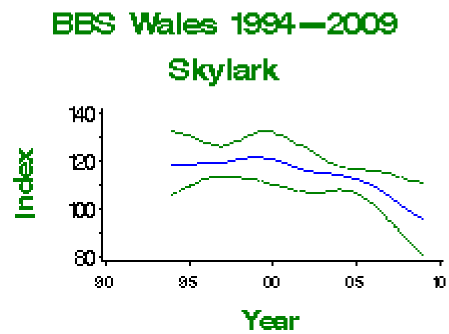
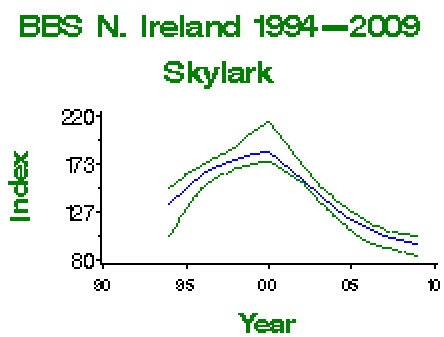


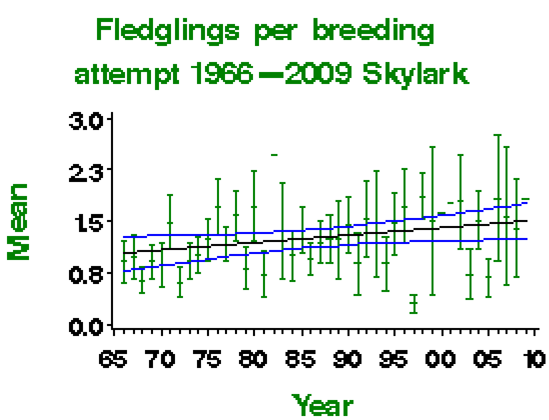


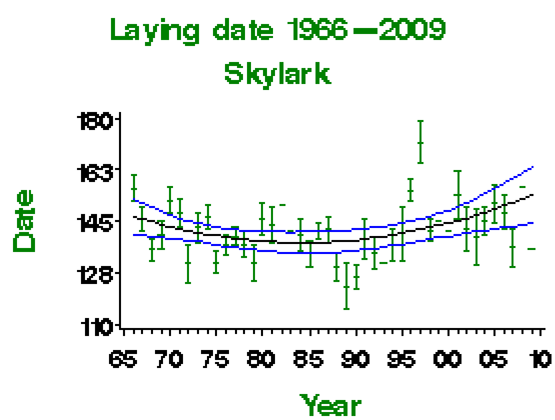






Demographic trends

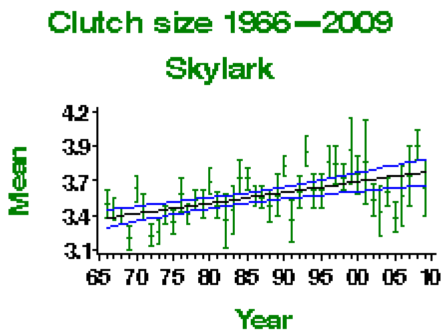


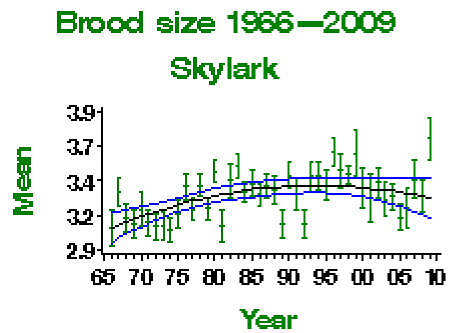


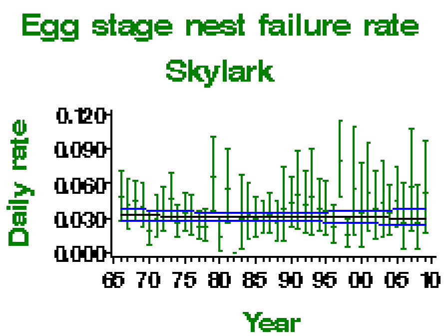
More on demographic trends

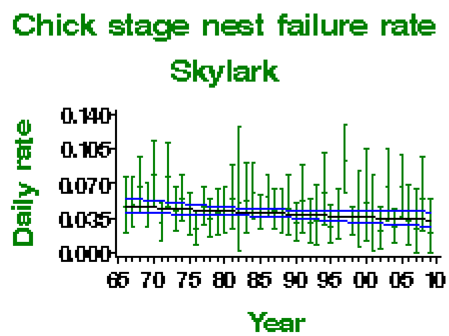
Table of demographic changes for Skylark

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment
Fledglings per breeding attempt	40	1968-2008	23	Linear increase	1.05 fledglings	1.49 fledglings	41.9%	
Clutch size	40	1968-2008	37	Linear increase	3.38 eggs	3.72 eggs	10.1%	
Brood size	40	1968-2008	65	Curvilinear	3.1 chicks	3.29 chicks	6%	
Daily failure rate (eggs)	40	1968-2008	46	None				
Daily failure rate (chicks)	40	1968-2008	54	Linear decline	4.66% nests/day	3.39% nests/day	-27.3%	
Laying date	40	1968-2008	20	Curvilinear	May 25	Jun 2	8 days	Small sample









Additional information

- Maps and statistics from British and Irish atlases
- BirdFacts page on species biology
- BirdTrack results
- Atlas 2007–11 latest results

SAND MARTIN
Riparia riparia

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: SPEC category 3 (depleted)
UK: amber (European status)

Long-term trend

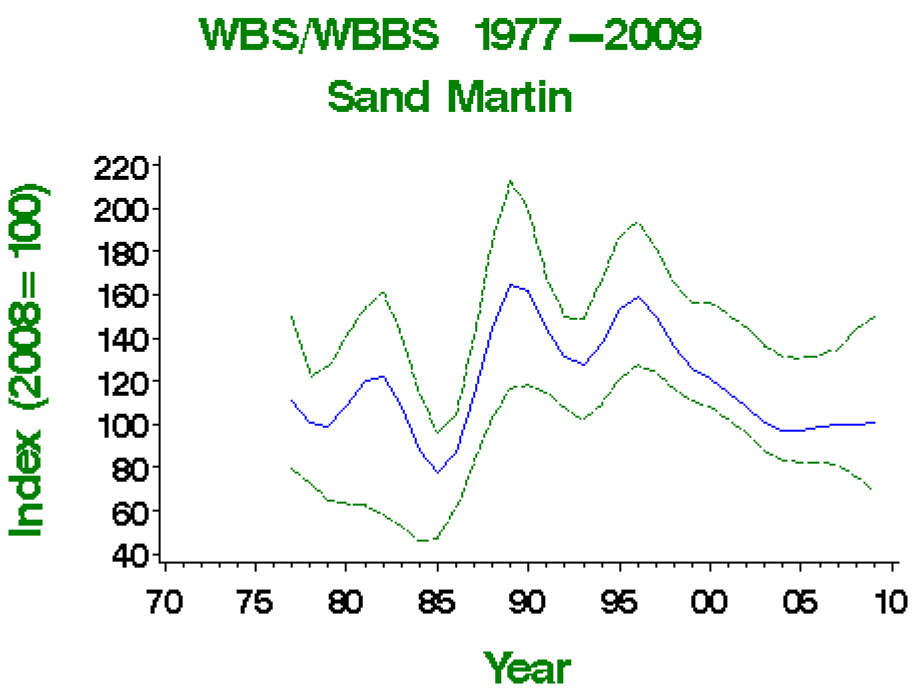
UK: fluctuating, with no long-term trend

UK population size

85,000–270,000 nests in 1990 (1988–91 Atlas: **APEP06**); 66,300–211,000 pairs in 2000 (updated using WBS trend: **BiE04**)

Status summary

This species is unusually difficult to monitor, because active and inactive nest holes are difficult to distinguish, and because whole colonies frequently disperse or shift to new locations as suitable sand cliffs are created and destroyed. WBS counts, which are of apparently occupied nest holes along riverbanks, suggest a stable or shallowly increasing population, with wide fluctuations, although the ongoing decrease since the late 1990s has been steep enough to raise BTO alerts. BBS counts, which are of birds seen, show clearly that large year-to-year changes occur, but do not yet reveal a clear long-term trend. Nest record samples are small, but indicate that nest failure rates have decreased enormously since the 1960s; clutch size has increased, but brood size has fallen and no trend can be detected in the numbers of fledglings per breeding attempt. Rainfall in the species' trans-Saharan wintering grounds prior to the birds' arrival promotes annual survival and thus abundance in the following breeding season (**Szép 1995**). Annual survival rates from RAS sites in the UK for 1990–2004 were correlated positively with minimum monthly rainfall during the wet season in West Africa (**Robinson *et al*. 2008**). More recently, it has been discovered that summer rainfall on the breeding grounds has a negative influence on survival rates through the following winter (**Cowley & Siriwardena 2005**).



1978-2008: 0% (confidence interval -35% to 85%)

Population changes in detail

Table of population changes for Sand Martin

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
WBS/WBBS waterways	30	1978-2008	42	0	-35	85		
	25	1983-2008	48	-8	-43	205		
	10	1998-2008	89	-26	-48	9		
	5	2003-2008	99	-1	-24	26		
BBS UK	13	1995-2008	120	22	-24	105		
	10	1998-2008	127	20	-12	53		
	5	2003-2008	138	30	1	42		
BBS England	13	1995-2008	80	11	-27	49		
	10	1998-2008	84	-5	-29	22		
	5	2003-2008	91	8	-13	27		

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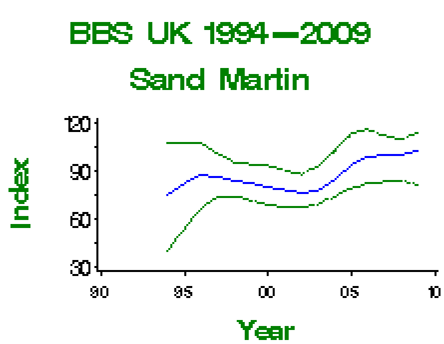
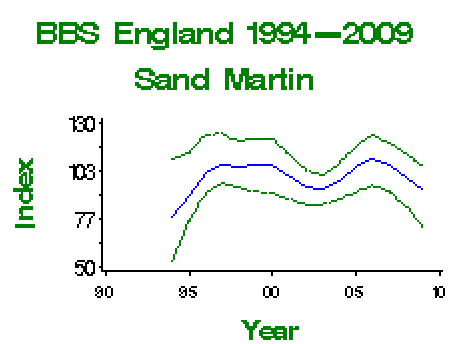




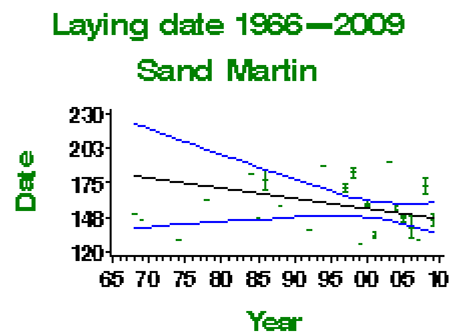
Demographic trends

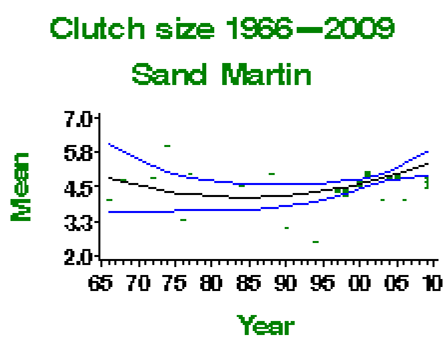
Table of demographic changes for Sand Martin

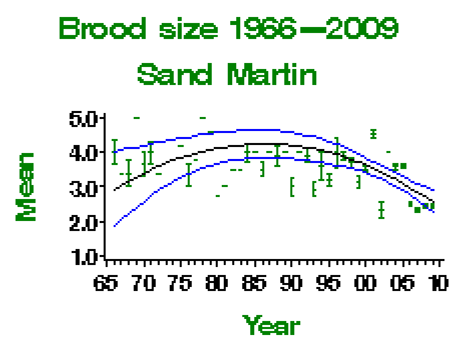
Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment
Clutch size	40	1968-	31	Curvilinear	4.68 eggs	5.25 eggs	12.1%	

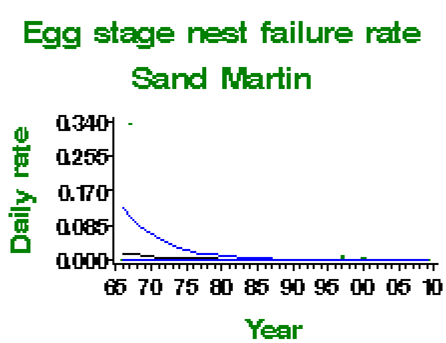
		2008						
Brood size	40	1968-2008	42	Curvilinear	3.17 chicks	2.72 chicks	-14%	
Daily failure rate (eggs)	40	1968-2008	29	Linear decline	1.38% nests/day	0.01% nests/day	-99.3%	Small sample
Daily failure rate (chicks)	40	1968-2008	45	Linear decline	1.77% nests/day	0.06% nests/day	-96.6%	
Laying date	40	1968-2008	29	None				Small sample

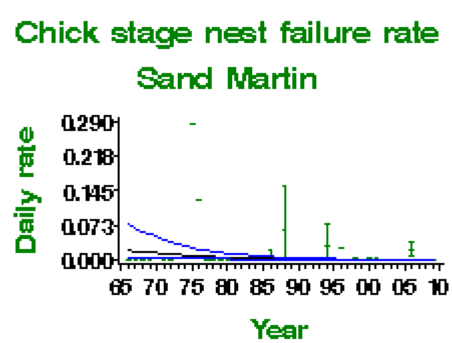
Insufficient data on fledglings per breeding attempt available for this species











Additional information

- Maps and statistics from British and Irish atlases
- BirdFacts page on species biology
- BirdTrack results

SWALLOW
Hirundo rustica

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: SPEC category 3 (depleted)
UK: amber (European status)

Long-term trend

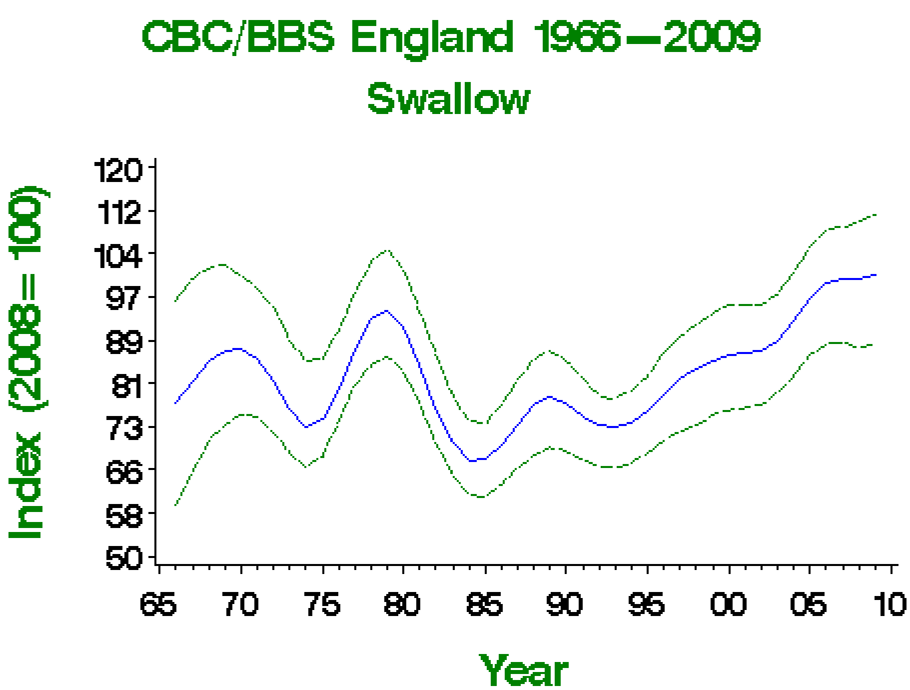
England: possible shallow increase

UK population size

726,000 territories in 2000 (1988–91 Atlas estimate updated using CBC/BBS trend: **BiE04**, **APEP06**)

Status summary

Swallow was originally amber-listed partly on the strength of a perceived CBC decline, but continues to qualify through its widespread decline across the European continent (**BirdLife International 2004**). Modern methods of estimating population change from CBC give evidence of fluctuations but not for long-term decline in the UK (**Robinson *et al.* 2003**). BBS data suggest increases throughout the UK since 1994. Analysis has shown that the population fluctuations are most strongly related to variable losses on their wintering grounds (**Baillie & Peach 1992**). Population change has been shown to be correlated with rainfall in the western Sahel prior to the birds' spring passage through West Africa, but with neither cattle numbers nor nest-site availability in the UK (**Robinson *et al.* 2003**). Annual survival rates from RAS sites in the UK for 1998–2004 were correlated positively with mean monthly rainfall during the early austral summer in southern Africa (**Robinson *et al*. 2008**). It is likely that, in eastern parts of the UK, the loss of livestock farming and grazed grassland, together with arable intensification, has caused the Swallow population to decline, while an increase in the area of pasture in the west and north has promoted a population increase which apparently has more than compensated for declines elsewhere (**Evans & Robinson 2004**). A link between regional changes in the availability of preferred feeding habitats and the regional patterns of UK population change again suggests that habitat change on the breeding grounds may explain population trend, at least partly (**Henderson *et al*. 2007**). Clutch and brood sizes increased up to the late 1980s, and may now be falling again, while the numbers of fledglings per breeding attempt show no trend. Climatic warming is leading to both an earlier start and later finish to the breeding season for European Swallows, but there has been increased chick mortality in hot, dry summers and reduced post-fledging survival because of poor conditions for birds migrating through North Africa (**Turner 2009**).



1967-2008: 22% (confidence interval -9% to 73%)

Population changes in detail

Table of population changes for Swallow

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS England	41	1967-2008	516	22	-9	73		
	25	1983-2008	805	42	12	72		
	10	1998-2008	1521	20	13	28		
	5	2003-2008	1682	13	8	18		
BBS UK	13	1995-2008	1804	34	27	43		
	10	1998-2008	1948	20	14	28		
	5	2003-2008	2154	11	6	15		
BBS England	13	1995-2008	1385	29	21	37		
	10	1998-2008	1488	19	13	25		
	5	2003-2008	1653	12	7	17		
BBS Scotland	13	1995-2008	160	53	31	79		
	10	1998-2008	168	41	22	63		
	5	2003-2008	185	24	9	39		
BBS Wales	13	1995-2008	166	35	16	60		
	10	1998-2008	186	6	-8	21		
	5	2003-2008	199	-3	-13	9		
BBS N.Ireland	13	1995-2008	81	19	-4	51		

	10	1998-2008	92	1	-13	16		
	5	2003-2008	101	-7	-16	1		

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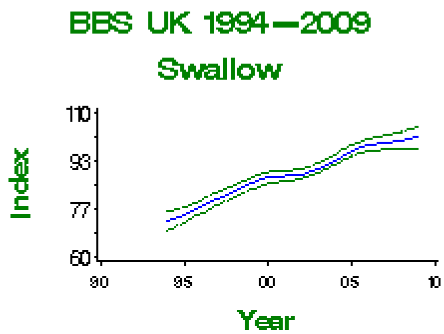
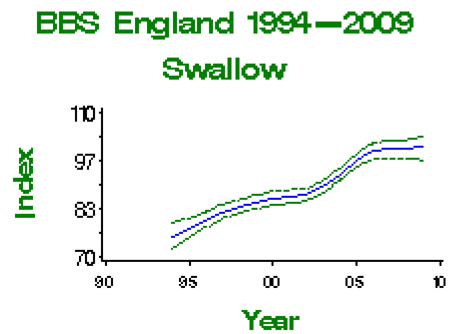
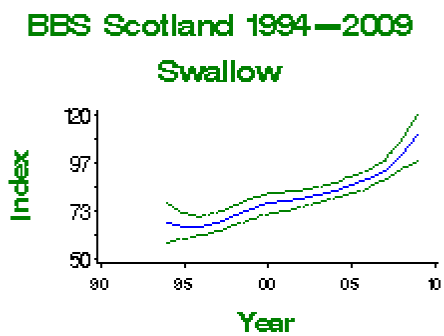
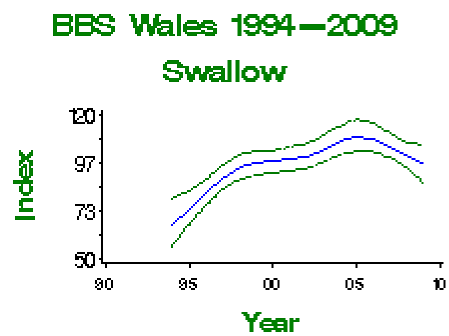
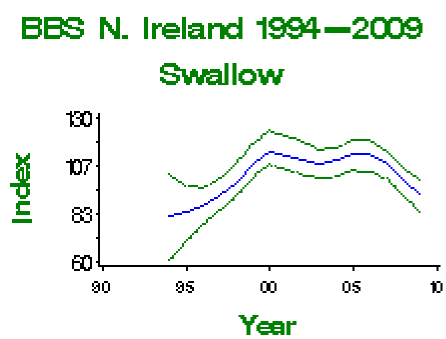


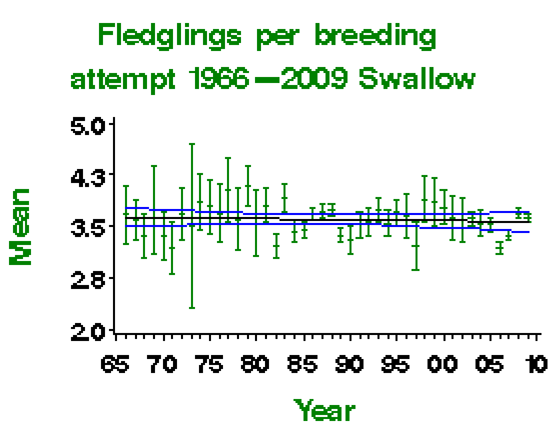


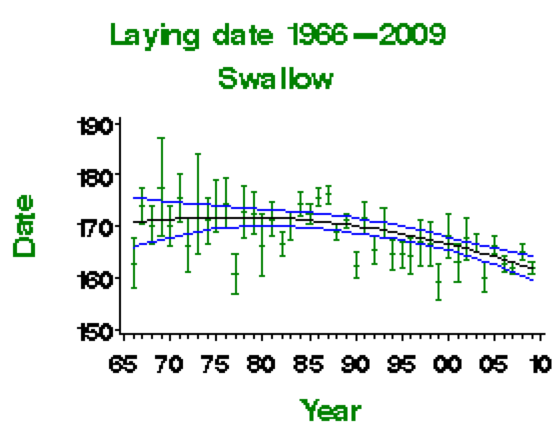






Demographic trends

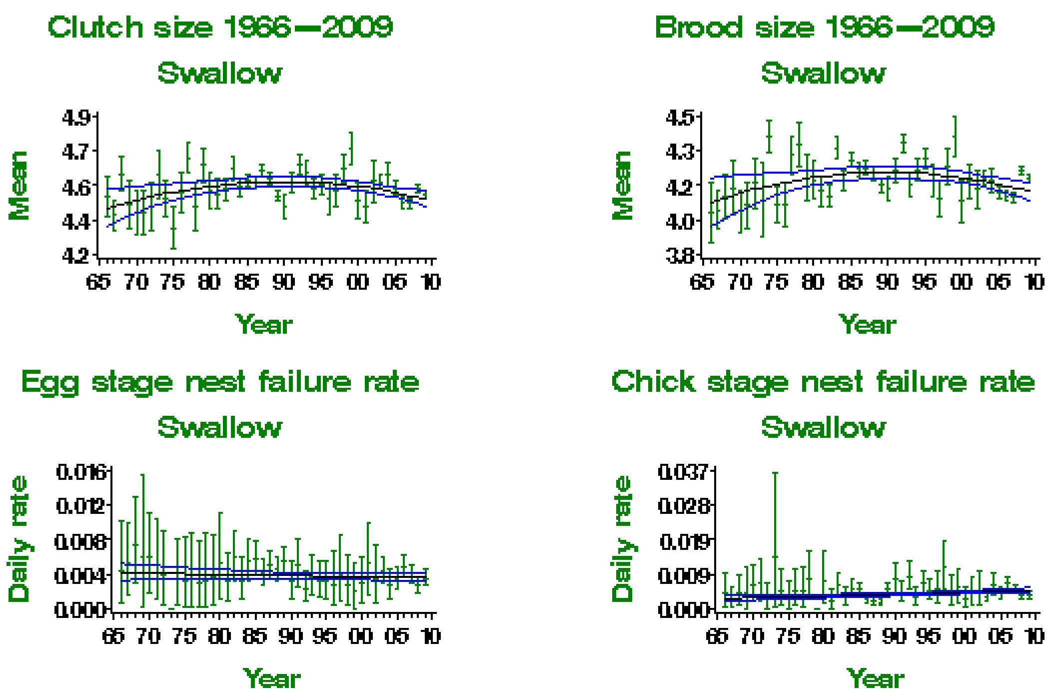




More on demographic trends

Table of demographic changes for Swallow

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment
Fledglings per breeding attempt	40	1968-2008	217	None				
Clutch size	40	1968-2008	259	Curvilinear	4.46 eggs	4.49 eggs	0.7%	
Brood size	40	1968-2008	458	Curvilinear	4.09 chicks	4.13 chicks	1%	
Daily failure rate (eggs)	40	1968-2008	331	None				
Daily failure rate (chicks)	40	1968-2008	297	Linear increase	0.3% nests/day	0.5% nests/day	66.7%	
Laying date	40	1968-2008	120	Curvilinear	Jun 20	Jun 11	-9 days	



Additional information

- Maps and statistics from British and Irish atlases
- BirdFacts page on species biology
- BirdTrack results

HOUSE MARTIN
Delichon urbicum

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: SPEC category 3 (declining)
UK: amber (25–50% population decline)

Long-term trend

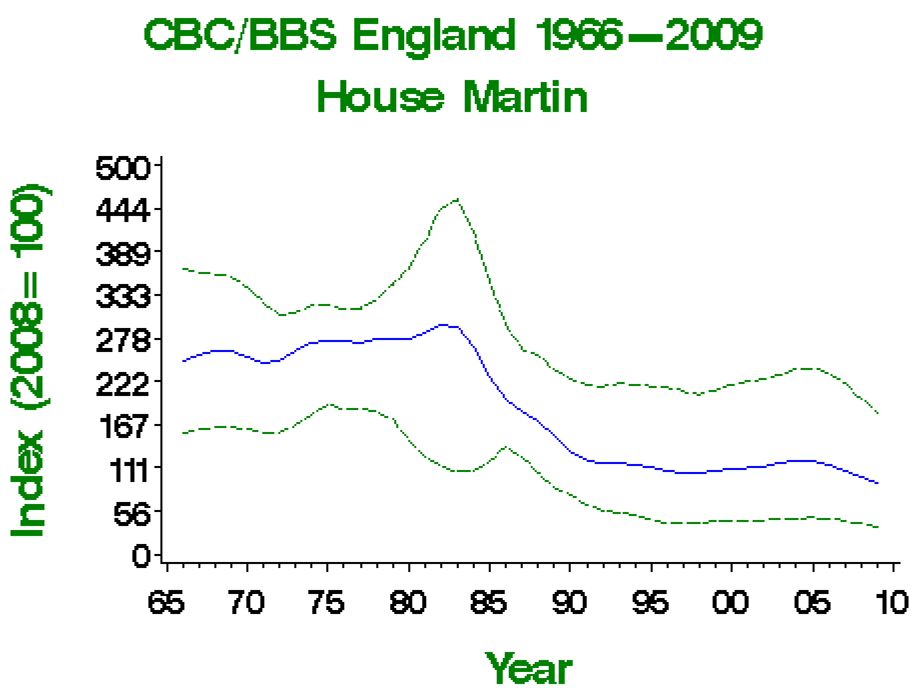
England: probable rapid decline

UK population size

273,000–535,000 pairs in 2000 (1988–91 Atlas estimate updated using CBC trend: **BiE04**, **APEP06**)

Status summary

The House Martin's loosely colonial nesting habits and its strong association with human settlements mean that it is extraordinarily difficult to monitor. Anecdotal evidence of decline is often unreliable, because demise of a colony may be balanced by single nests or small groups becoming established elsewhere. For these reasons, study areas should be large, covered thoroughly, and ideally randomly selected. The available long-term data suggest a rapid decline, although BBS shows overall increase since 1994. The species was moved from the green to the amber list in 2002, because of moderate decline in the CBC trend for 1974–99, and is newly listed as of European concern following declines elsewhere in Europe (**BirdLife International 2004**). The mean change across all European countries during the 1990s was a significant decline (**Sanderson *et al.* 2006**). Annual survival rates from RAS sites in the UK for 1994–2004 were correlated positively with maximum monthly rainfall in West Africa; some decline in survival rate is apparent over this period but does not correspond to the population decline (**Robinson *et al*. 2008**).



1967-2008: -61% (confidence interval -89% to 29%)

Population changes in detail

Table of population changes for House Martin

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS England	41	1967-2008	254	-61	-89	29		Small CBC sample
	25	1983-2008	403	-66	-92	97		Small CBC sample
	10	1998-2008	766	-4	-12	5		
	5	2003-2008	842	-14	-20	-7		
BBS UK	13	1995-2008	903	1	-7	11		
	10	1998-2008	967	-7	-15	1		
	5	2003-2008	1058	-13	-18	-8		
BBS England	13	1995-2008	714	-8	-14	3		
	10	1998-2008	757	-4	-10	4		
	5	2003-2008	835	-13	-19	-6		
BBS Scotland	13	1995-2008	57	103	50	174		
	10	1998-2008	63	-2	-30	22		
	5	2003-2008	71	-6	-20	14		
BBS Wales	13	1995-2008	87	2	-16	34		
	10	1998-2008	96	-22	-38	2		
	5	2003-2008	96	-21	-33	-3		
BBS N.Ireland	13	1995-2008	39	51	-10	125		
	10	1998-2008	44	6	-25	41		
	5	2003-2008	50	-6	-28	19		

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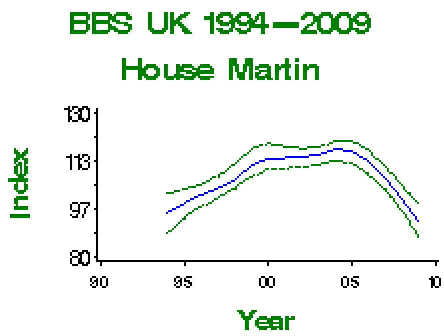
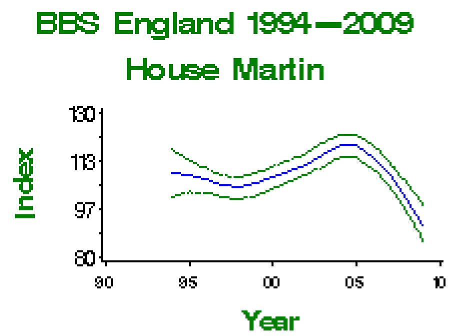
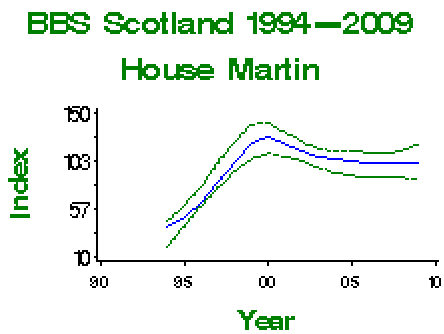
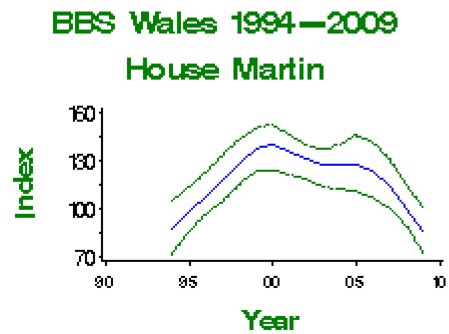
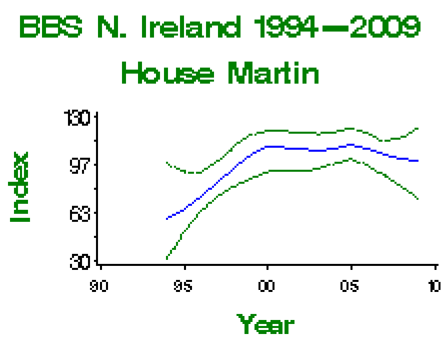










Demographic trends

Demographic information is not currently available for this species

Additional information

- Maps and statistics from British and Irish atlases
- BirdFacts page on species biology
- BirdTrack results

TREE PIPIT
Anthus trivialis

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe)
UK: red
UK Biodiversity Action Plan: **priority species**

Long-term trend

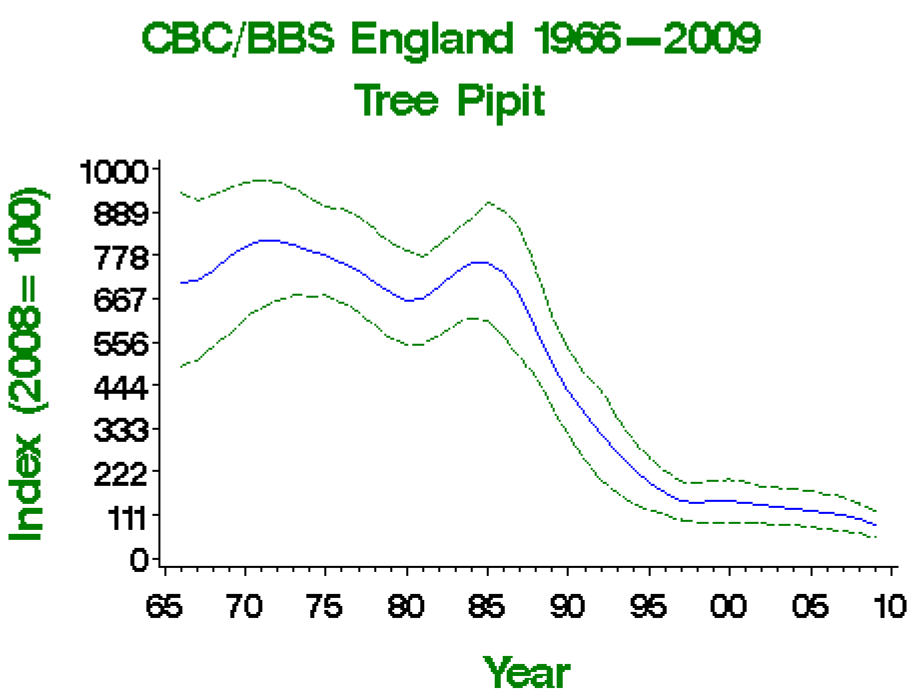
England: rapid decline

UK population size

74,400 territories in 2000 (1988–91 Atlas estimate updated using CBC/BBS trend: **BiE04**, **APEP06**)

Status summary

Tree Pipits occur in greatest abundance in Wales, northern England and Scotland, and thus the marked CBC decline between the two atlas periods may reflect the range contraction that occurred then in central and southeast England (**Gibbons *et al.* 1993**). Since 1994, CBC/BBS data have shown further severe decrease, especially in England. The causes of the population decline are unclear, but may be linked to changing forest structure, as new plantations mature, and reduced management of lowland woods (**Fuller *et al.* 2005**). In Thetford Forest, Tree Pipits prefer large blocks of habitat and benefit from targeted management such as the retention of mature trees for use as songposts (**Burton 2007**). There has been an increase in brood size and a substantial decline in failure rates over the 17-day egg stage; the species is on the NRS concern list, however, because of an overall decrease in nest survival (**Leech & Barimore 2008**). Although the species has no European conservation listing as yet, numbers have shown widespread moderate decrease across Europe since 1980 (**PECBMS 2010**), and the mean change across all European countries during the 1990s was a significant decline (**Sanderson *et al.* 2006**). The species was moved from the green to the amber list in 2002, and most recently to red, on the strength of its UK population decline (**Eaton *et al.* 2009**).



1967-2008: -86% (confidence interval -93% to -73%)

Population changes in detail

Table of population changes for Tree Pipit

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS England	41	1967-2008	46	-86	-93	-73	>50	
	25	1983-2008	53	-86	-92	-79	>50	Small CBC sample
	10	1998-2008	77	-30	-47	-10	>25	
	5	2003-2008	77	-24	-37	-11		
BBS UK	13	1995-2008	125	-5	-26	21		
	10	1998-2008	128	-18	-36	0		
	5	2003-2008	124	-9	-24	9		
BBS England	13	1995-2008	72	-47	-62	-23	>25	
	10	1998-2008	74	-31	-48	-6	>25	
	5	2003-2008	77	-24	-38	-6		
BBS Scotland	13	1995-2008	30	47	8	95		
	10	1998-2008	31	-2	-30	38		
	5	2003-2008	35	-3	-26	43		
BBS Wales	13	1995-2008	32	-29	-56	11		
	10	1998-2008	34	-39	-61	-6	>25	
	5	2003-2008	31	-21	-44	22		

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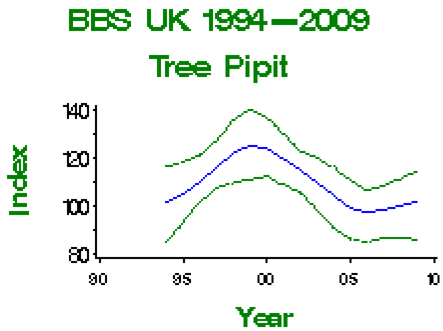
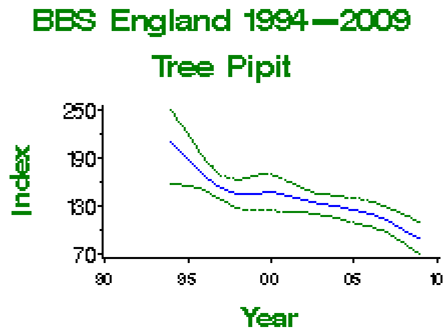
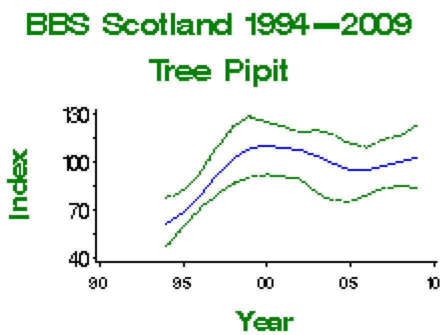
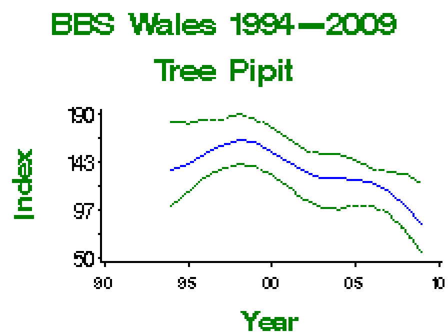






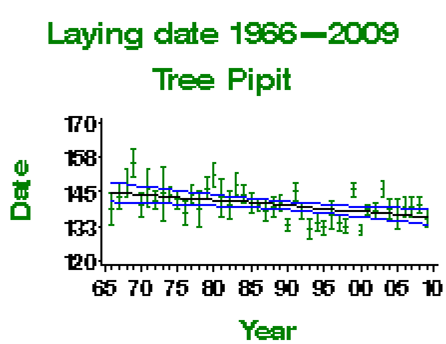


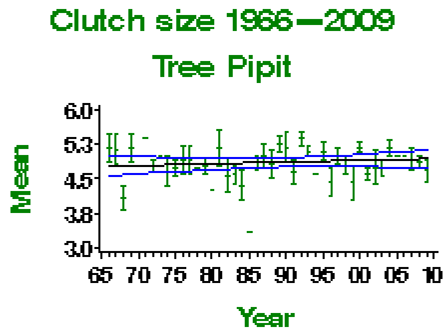
Demographic trends

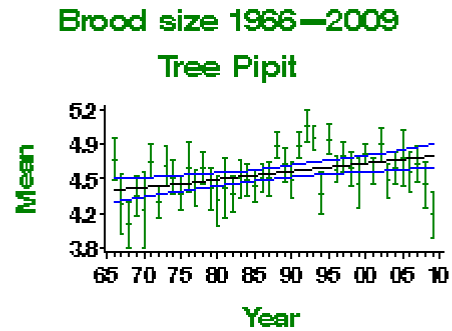
Table of demographic changes for Tree Pipit

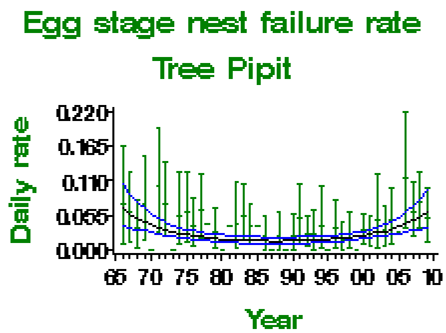
Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment
Clutch size	40	1968-2008	10	None				Small sample
Brood size	40	1968-2008	28	Linear increase	4.4 chicks	4.72 chicks	7.3%	Small sample
Daily failure rate (eggs)	40	1968-2008	13	Curvilinear	5.1% nests/day	5.25% nests/day	2.9%	Small sample
Daily failure rate (chicks)	40	1968-2008	20	Curvilinear	3.23% nests/day	3.93% nests/day	21.7%	Small sample
Laying date	40	1968-2008	19	Linear decline	May 25	May 16	-9 days	Small sample

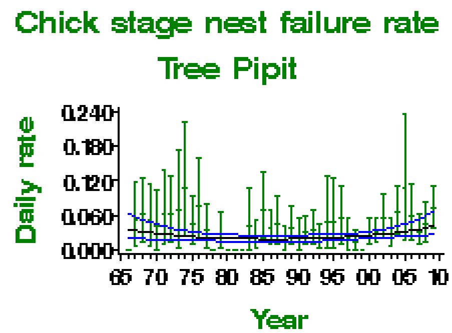
Insufficient data on fledglings per breeding attempt available for this species











Additional information

- **Maps and statistics from British and Irish atlases**
- **BirdFacts page on species biology**
- **BirdTrack results**

MEADOW PIPIT
Anthus pratensis

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: no SPEC category (concentrated in Europe, conservation status favourable)
UK: amber (25–50% population decline)

Long-term trend

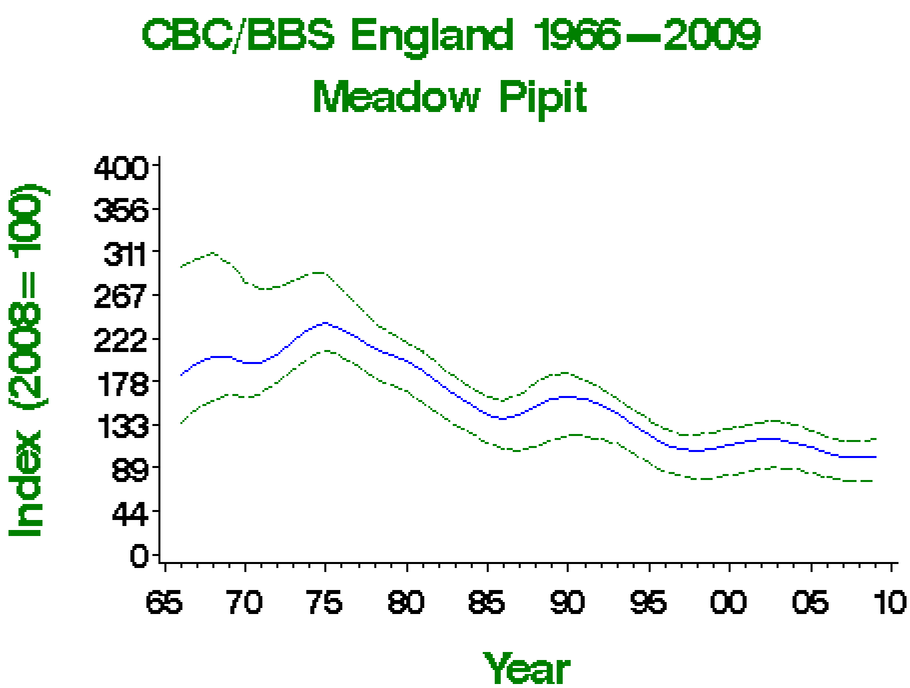
England: shallow decline

UK population size

1,680,000 territories in 2000 (1988–91 Atlas estimate updated using CBC/BBS trend: **BiE04**, **APEP06**)

Status summary

The CBC/BBS trend has been downward since the mid 1970s, accompanied by a range contraction from lowland England (**Gibbons *et al.* 1993**). Meadow Pipits are partial migrants and conditions on the Iberian wintering grounds have been linked to the decline, as have losses of marginal land from parts of the breeding range (**Gibbons *et al.* 1993**). Moorland, the key Meadow Pipit habitat, was not covered well by the CBC, leading to some doubt about the significance of the early results for this species, but BBS now provides more representative monitoring and has enabled the species to move from the green to the amber list. Nest failure rates during the 12-day nestling stage have declined markedly, which may reflect the loss of birds from suboptimal habitat, but no trend is evident in the number of fledglings per breeding attempt. A trend towards earlier laying is probably related to climate change (**Crick & Sparks 1999**). A widespread rapid decline is evident across Europe since 1980 (**PECBMS 2010**).



1967-2008: -49% (confidence interval -74% to -25%)

Population changes in detail

Table of population changes for Meadow Pipit

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS England	41	1967-2008	161	-49	-74	-25	>25	
	25	1983-2008	240	-39	-58	-21	>25	
	10	1998-2008	444	-6	-17	6		
	5	2003-2008	508	-16	-22	-9		
BBS UK	13	1995-2008	736	-20	-26	-13		
	10	1998-2008	772	-19	-25	-13		
	5	2003-2008	840	-18	-23	-14		
BBS England	13	1995-2008	405	-16	-26	-5		
	10	1998-2008	436	-6	-18	7		
	5	2003-2008	508	-15	-23	-8		
BBS Scotland	13	1995-2008	201	-28	-38	-18	>25	
	10	1998-2008	194	-27	-36	-19	>25	
	5	2003-2008	203	-19	-27	-13		
BBS Wales	13	1995-2008	85	-11	-20	1		
	10	1998-2008	94	-16	-28	-5		
	5	2003-2008	96	-25	-35	-15	>25	
BBS N.Ireland	13	1995-2008	63	22	-2	59		
	10	1998-2008	71	0	-15	11		
	5	2003-2008	76	-18	-25	-11		

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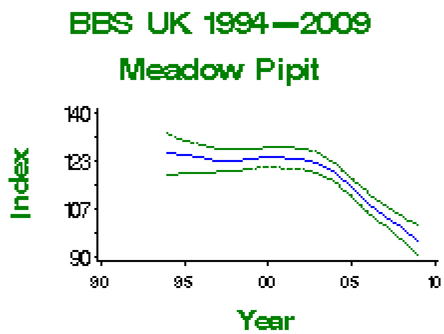
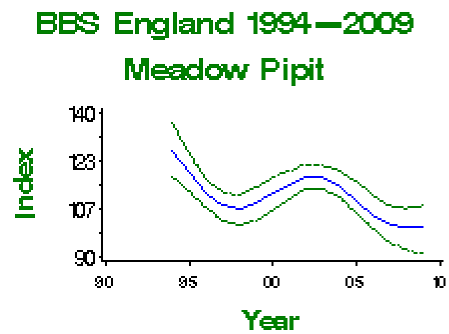
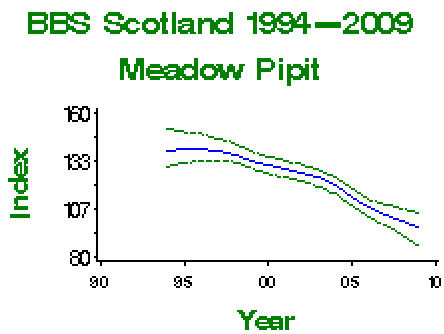
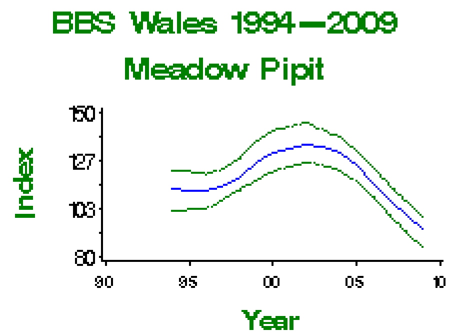
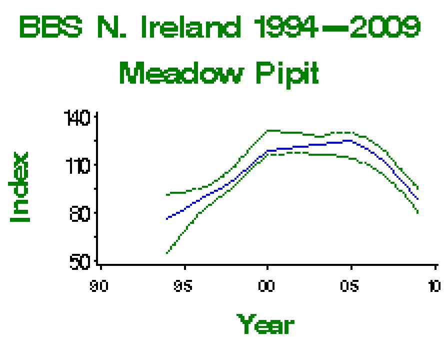


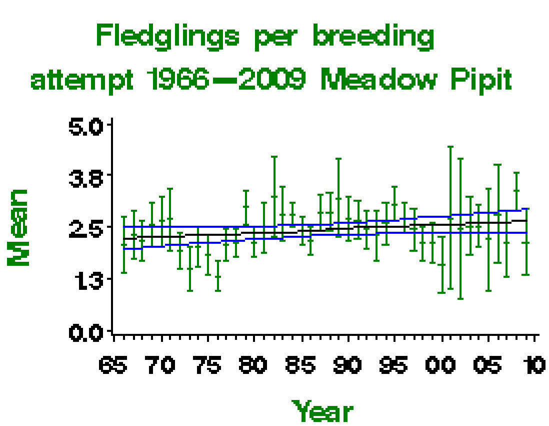


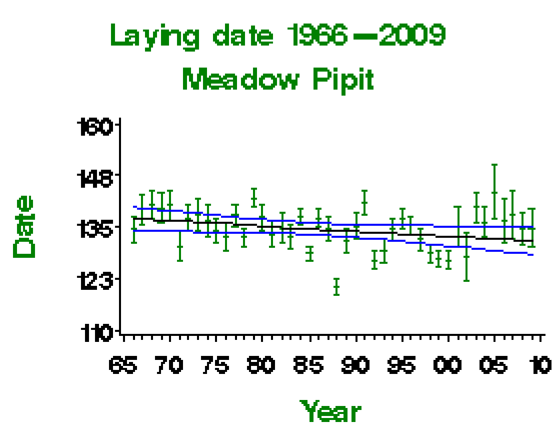






Demographic trends

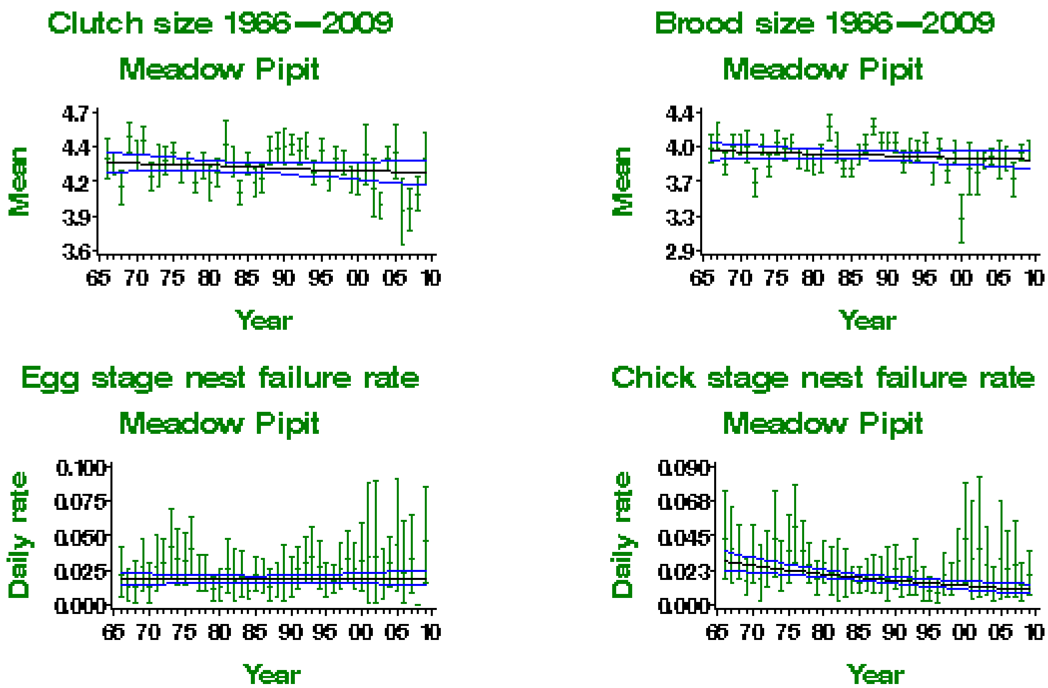




More on demographic trends

Table of demographic changes for Meadow Pipit

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment
Fledglings per breeding attempt	40	1968-2008	23	None				
Clutch size	40	1968-2008	35	None				
Brood size	40	1968-2008	68	None				
Daily failure rate (eggs)	40	1968-2008	45	None				
Daily failure rate (chicks)	40	1968-2008	60	Linear decline	2.69% nests/day	1.05% nests/day	-61%	
Laying date	40	1968-2008	37	None				



Additional information

- Maps and statistics from British and Irish atlases
- BirdFacts page on species biology
- BirdTrack results

YELLOW WAGTAIL
Motacilla flava

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe)
UK: red (species level, races *flavissima* and *flava*)
UK Biodiversity Action Plan: **priority species**

Long-term trend

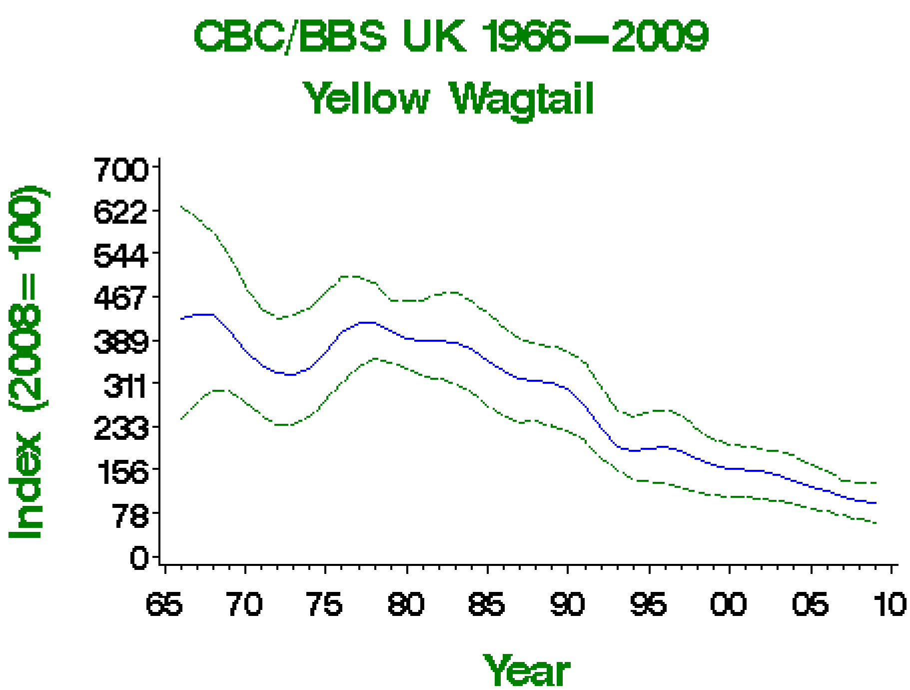
UK, England: rapid decline

UK population size

11,500–26,500 territories in 2000 (1988–91 Atlas estimate updated using CBC/BBS and WBS trends: **BiE04**, **APEP06**)

Status summary

Britain holds almost the entire population of the distinctive race *flavissima*, and so population changes in the UK are of global conservation signficance. Yellow Wagtails have been in decline since the early 1980s, according to CBC/BBS and especially WBS/WBBS and, after a shift from the green to the amber list in 2002, the species has now been moved to the red list (**Eaton *et al.* 2009**). **Gibbons *et al.* (1993)** identified a range contraction towards a core area in central England, concurrent with the early years of decline. Farmland drainage, the conversion of pasture to arable land, the change from spring to winter cereals, and the loss of insects associated with cattle have been cited as possible causes (**Gibbons *et al.* 1993**, **Nelson *et al.* 2003**). Although nest record sample sizes are small, there has been a notable reduction in brood size since the mid 1960s, and the species is listed as of NRS concern (**Leech & Barimore 2008**). The European trend, which includes other races of the species, has also been strongly downward since 1980 (**PECBMS 2010**).



1967-2008: -77% (confidence interval -90% to -55%)

Population changes in detail

Table of population changes for Yellow Wagtail

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS UK	41	1967-2008	74	-77	-90	-55	>50	
	25	1983-2008	101	-74	-85	-58	>50	
	10	1998-2008	155	-43	-52	-33	>25	
	5	2003-2008	150	-32	-42	-19	>25	
CBC/BBS England	41	1967-2008	73	-75	-88	-58	>50	
	25	1983-2008	99	-73	-83	-60	>50	
	10	1998-2008	152	-42	-51	-32	>25	
	5	2003-2008	148	-32	-41	-19	>25	
WBS/WBBS waterways	33	1975-2008	25	-96	-99	-92	>50	
	25	1983-2008	23	-95	-98	-92	>50	
	10	1998-2008	28	-74	-84	-63	>50	
	5	2003-2008	27	-47	-60	-21	>25	
BBS UK	13	1995-2008	156	-52	-59	-42	>50	
	10	1998-2008	151	-42	-53	-33	>25	
	5	2003-2008	150	-31	-40	-19	>25	
BBS England	13	1995-2008	153	-52	-60	-42	>50	
	10	1998-2008	148	-43	-52	-32	>25	
	5	2003-2008	147	-31	-41	-19	>25	

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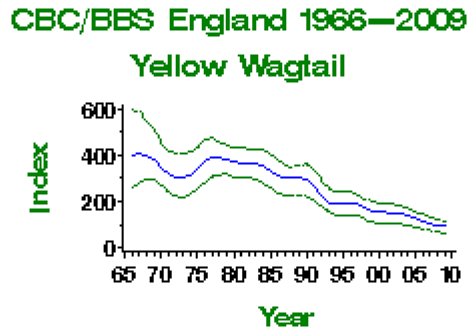
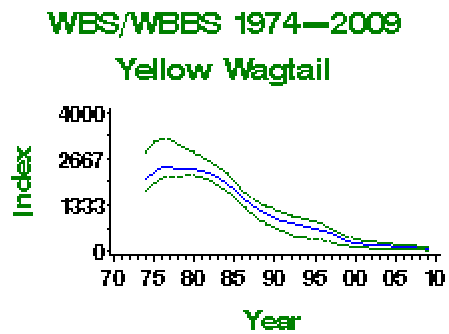
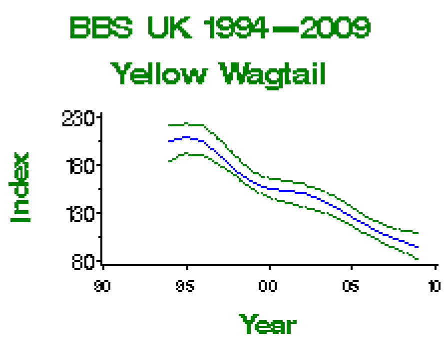
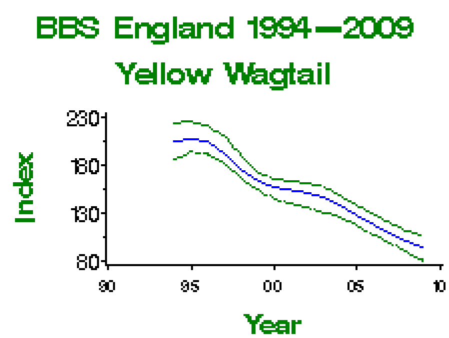








Demographic trends

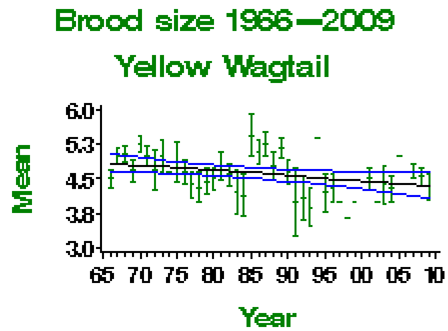
Table of demographic changes for Yellow Wagtail

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment
Brood size	40	1968-2008	12	Linear decline	4.82 chicks	4.38 chicks	-9%	Small sample

Insufficient data on fledglings per breeding attempt available for this species

Insufficient data on laying date available for this species

Insufficient data on clutch size available for this species



Insufficient data on nest failure available for this species

Insufficient data on nestling failure available for this species

Additional information

- Maps and statistics from British and Irish atlases
- BirdFacts page on species biology
- BirdTrack results

GREY WAGTAIL
Motacilla cinerea

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe)
UK: amber (25–50% population decline)

Long-term trend

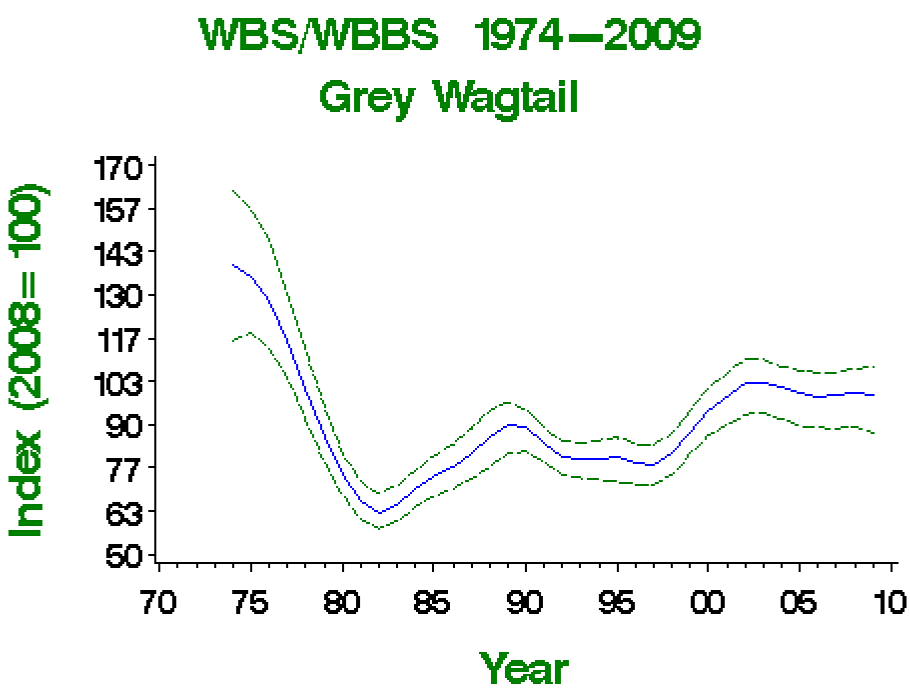
UK waterways: moderate decline

UK population size

38,400–46,200 pairs in 2000 (1988–91 Atlas estimate updated using CBC and WBS trends: **BiE04**, **APEP06**)

Status summary

Grey Wagtails occur at highest densities along fast-flowing upland streams. WBS/WBBS shows a fluctuating population size along waterways, with a fall during the late 1970s and early 1980s from an initial high point in 1974, and some increase since the late 1990s. The species was moved from the green to the amber list in 2002, because of a 41% decline recorded between 1975 and 1999, and remains in that category despite substantial population recovery. BBS figures showed an initial ten-year phase of increase, which has now stabilised. The trends for Grey Wagtail are very similar to those for **Pied Wagtail**, suggesting that similar factors may be affecting these two species. Clutch and brood size of Grey Wagtails rose as the population fell, and are now getting smaller again, raising NRS concern (**Leech & Barimore 2008**). Nest failure rates have dropped substantially, and there has been linear increase in the number of fledglings per breeding attempt. There has been widespread moderate decrease across Europe since 1980 (**PECBMS 2010**).



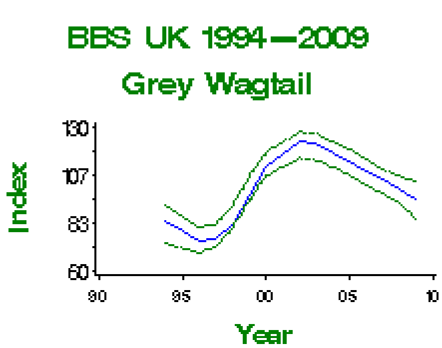
1975-2008: -26% (confidence interval -42% to -10%)

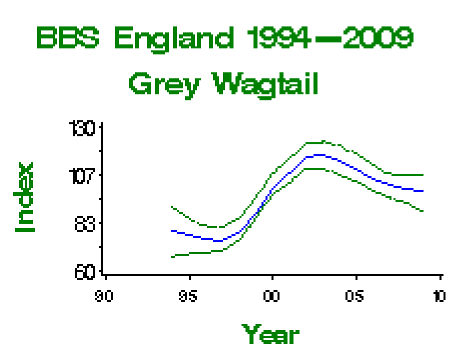
Population changes in detail

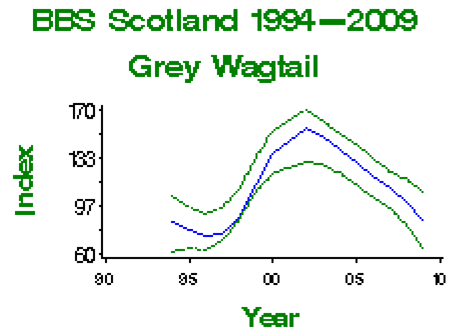
Table of population changes for Grey Wagtail

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
WBS/WBBS waterways	33	1975-2008	94	-26	-42	-10	>25	
	25	1983-2008	108	53	26	77		
	10	1998-2008	173	23	9	36		
	5	2003-2008	193	-3	-11	4		
BBS UK	13	1995-2008	210	27	9	48		
	10	1998-2008	235	20	3	29		
	5	2003-2008	264	-18	-25	-8		
BBS England	13	1995-2008	142	29	8	53		
	10	1998-2008	159	26	7	39		
	5	2003-2008	186	-14	-24	-5		
BBS Scotland	13	1995-2008	30	28	-8	82		
	10	1998-2008	33	12	-21	32		
	5	2003-2008	36	-33	-50	-10	>25	

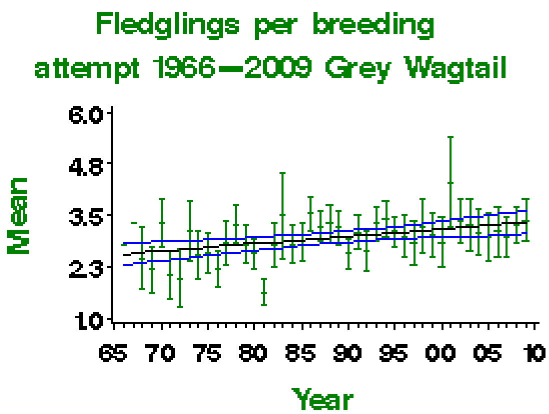
The Breeding Bird Survey is jointly funded by the BTO, JNCC & RSPB

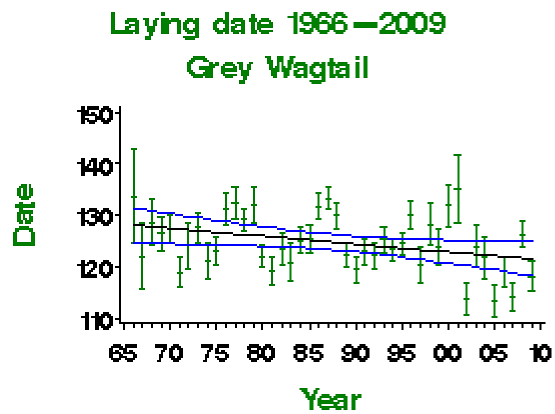






Demographic trends

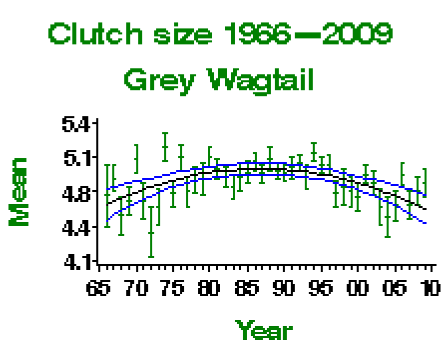


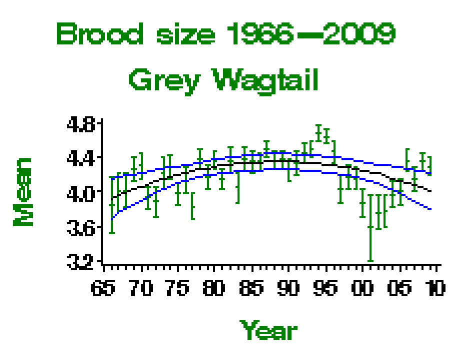


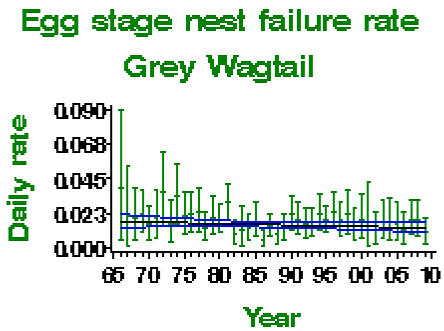
More on demographic trends

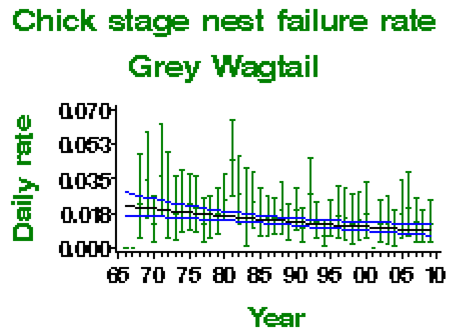
Table of demographic changes for Grey Wagtail

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment
Fledglings per breeding attempt	40	1968-2008	27	Linear increase	2.6 fledglings	3.31 fledglings	27.4%	
Clutch size	40	1968-2008	38	Curvilinear	4.7 eggs	4.63 eggs	-1.4%	
Brood size	40	1968-2008	81	Curvilinear	4 chicks	4.05 chicks	1.3%	
Daily failure rate (eggs)	40	1968-2008	59	None				
Daily failure rate (chicks)	40	1968-2008	58	Linear decline	2.09% nests/day	0.91% nests/day	-56.5%	
Laying date	40	1968-2008	61	Linear decline	May 8	May 2	-6 days	









Additional information

- **Maps and statistics from British and Irish atlases**
- **BirdFacts page on species biology**
- **BirdTrack results**

PIED WAGTAIL
Motacilla alba

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe)
UK: green (species level); amber (race *yarrellii*, >20% of European breeders)

Long-term trend

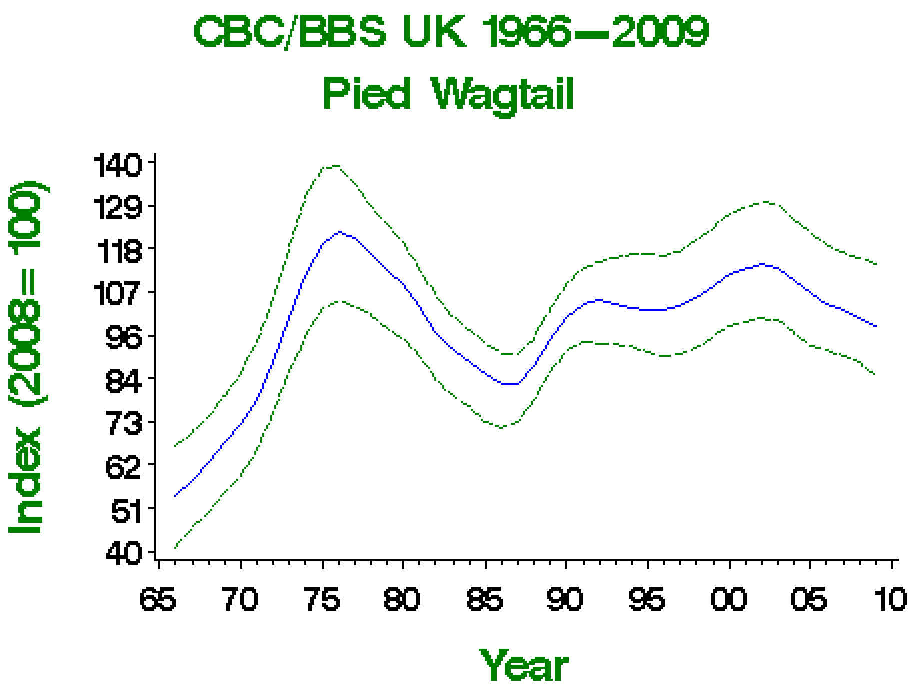
UK: uncertain

UK population size

272,000–352,000 territories in 2000 (1988–91 Atlas estimate updated using CBC/BBS and WBS trends: **BiE04**, **APEP06**)

Status summary

Britain and Ireland together hold almost the entire population of the distinctive dark-backed race *yarrellii*, and for this reason population changes in the UK are of global conservation significance. The CBC shows that a strong increase occurred up to the mid 1970s, such that populations have shown moderate increase overall since 1966. Since 1974, however, the results of monitoring are somewhat conflicting: CBC/BBS and WBS/WBBS trends fluctuate in parallel but, whereas little overall change is evident in the CBC/BBS index, WBS/WBBS has shown a moderate decline, perhaps suggesting the influence of factors specific to linear waterways. The long-term trend in abundance is similar to those shown by **Wren** and **Long-tailed Tit**, two other resident insectivores (**Siriwardena *et al*. 1998a**). Average clutch and brood sizes have declined a little, raising NRS concern (**Leech & Barimore 2008**), but this has been counteracted by a large fall in nest failure rates. The number of fledglings per breeding attempt has shown a strong linear increase.



1967-2008: 72% (confidence interval 27% to 157%)

Population changes in detail

Table of population changes for Pied Wagtail

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS UK	41	1967-2008	467	72	27	157		
	25	1983-2008	708	9	-13	43		
	10	1998-2008	1324	-5	-10	0		
	5	2003-2008	1427	-11	-16	-6		
CBC/BBS England	41	1967-2008	364	78	32	150		
	25	1983-2008	548	15	-9	62		
	10	1998-2008	1025	-3	-8	2		
	5	2003-2008	1116	-12	-17	-9		
WBS/WBBS waterways	33	1975-2008	108	-64	-72	-55	>50	
	25	1983-2008	122	-43	-53	-30	>25	
	10	1998-2008	198	-26	-37	-15	>25	
	5	2003-2008	219	-22	-31	-10		
BBS UK	13	1995-2008	1209	0	-6	7		
	10	1998-2008	1304	-6	-11	0		
	5	2003-2008	1427	-11	-16	-5		
BBS England	13	1995-2008	933	3	-3	10		
	10	1998-2008	1009	-4	-9	1		
	5	2003-2008	1116	-12	-16	-9		
BBS Scotland	13	1995-2008	128	-8	-21	3		
	10	1998-	130	-12	-26	-1		

		2008						
	5	2003-2008	138	-13	-25	-3		
BBS Wales	13	1995-2008	113	5	-11	22		
	10	1998-2008	126	3	-11	18		
	5	2003-2008	134	-6	-19	12		
BBS N.Ireland	13	1995-2008	41	34	.	.		
	10	1998-2008	48	21	.	.		
	5	2003-2008	56	16	.	.		

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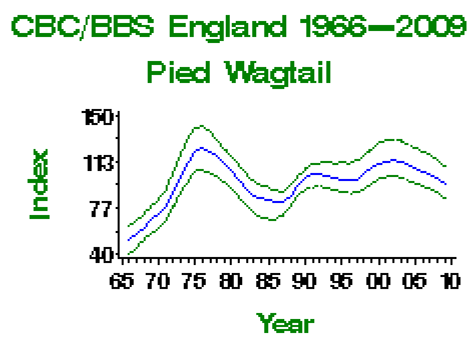
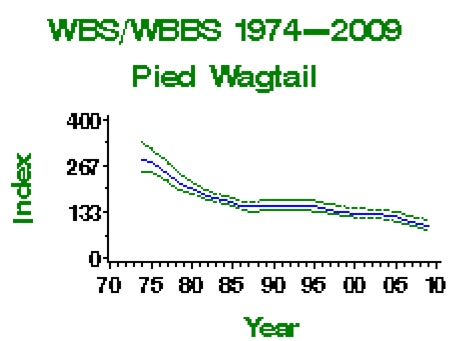
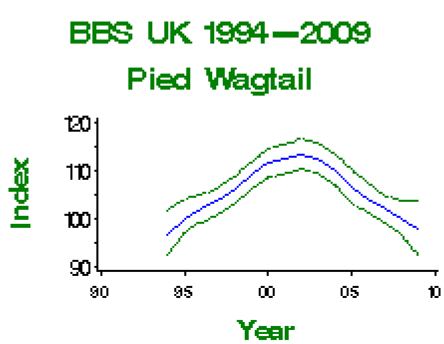
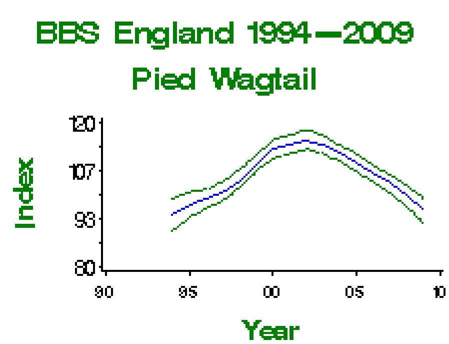
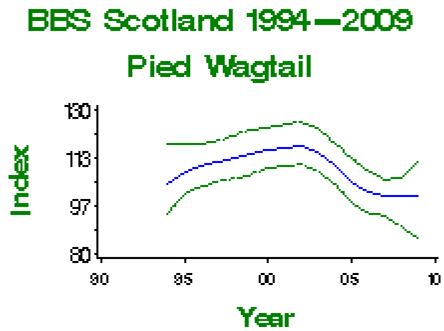
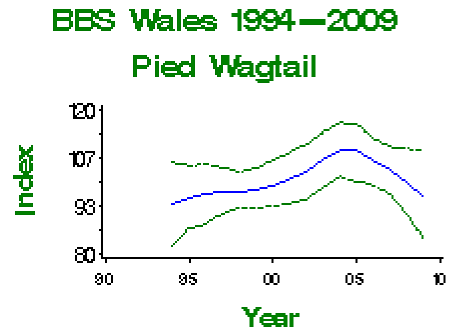


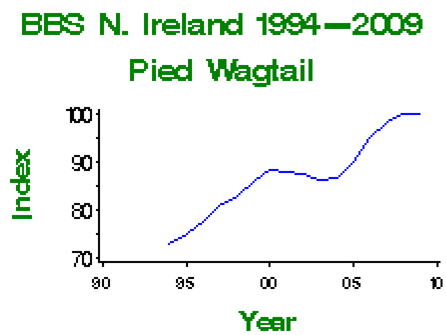




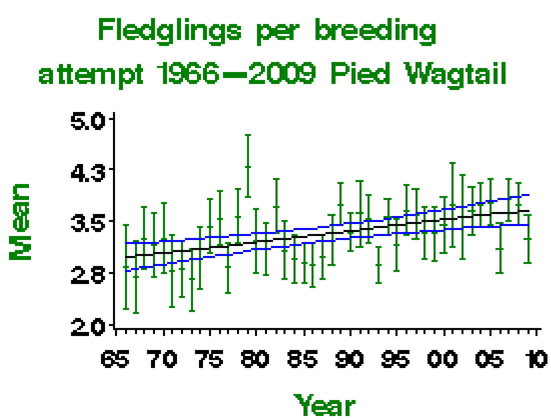


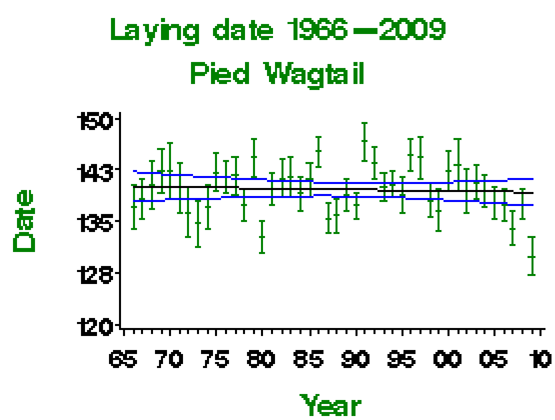






Demographic trends

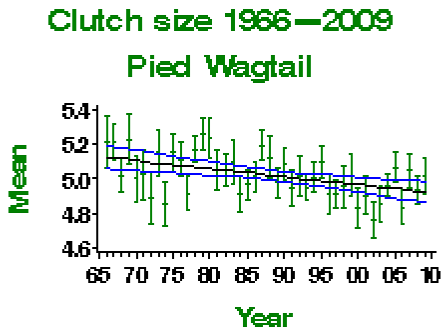


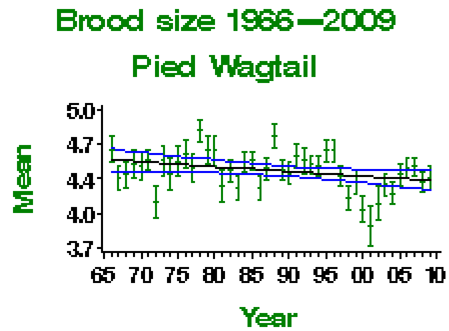


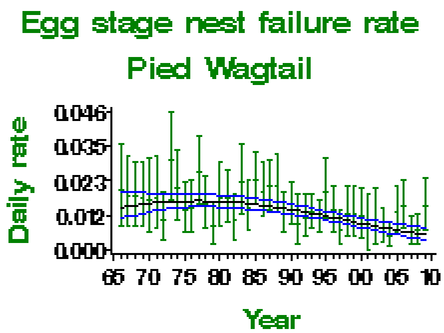
More on demographic trends

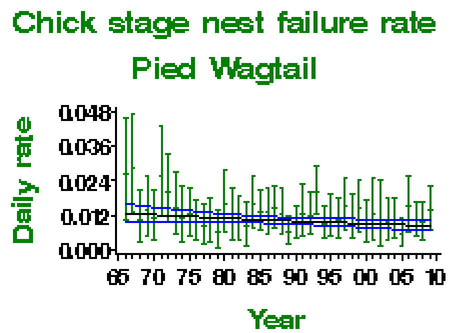
Table of demographic changes for Pied Wagtail

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment
Fledglings per breeding attempt	40	1968-2008	46	Linear increase	3.01 fledglings	3.65 fledglings	21.4%	
Clutch size	40	1968-2008	59	Linear decline	5.11 eggs	4.92 eggs	-3.7%	
Brood size	40	1968-2008	115	Linear decline	4.52 chicks	4.34 chicks	-4%	
Daily failure rate (eggs)	40	1968-2008	84	Curvilinear	1.5% nests/day	0.56% nests/day	-62.7%	
Daily failure rate (chicks)	40	1968-2008	93	Linear decline	1.25% nests/day	0.85% nests/day	-32%	
Laying date	40	1968-2008	79	None				









Additional information

- **Maps and statistics from British and Irish atlases**
- **BirdFacts page on species biology**
- **BirdTrack results**

DIPPER
Cinclus cinclus

- Population changes
- Productivity trends
- Additional information

Conservation listings

Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe)
UK: green (species level); amber (race *gularis*, >20% of European breeders; race *hibernicus*, >20% of European breeders, European status)

Long-term trend

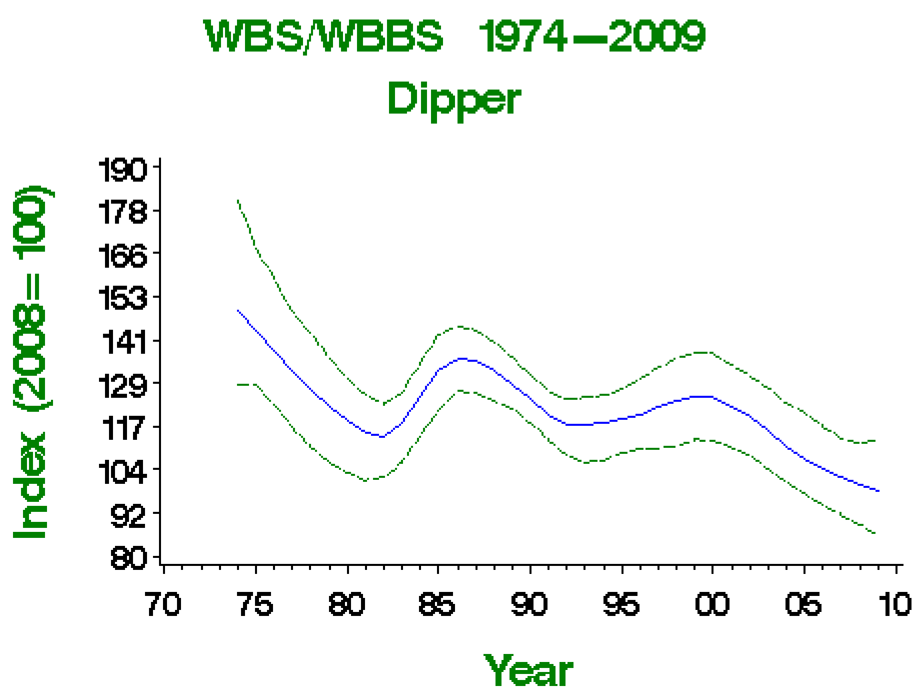
UK waterways: moderate decline

UK population size

6,800–20,000 pairs in 2000 (1988–91 Atlas estimate updated using WBS trend: **BiE04**, **APEP06**)

Status summary

The WBS/WBBS shows that Dipper populations have fluctuated over the last thirty years, but with an overall downward trend. The species is unusually sensitive to acidity and other water pollution (**Ormerod & Tyler 1989**, **1990**), with lower breeding densities and productivity on acidic than on more neutral streams (**Ormerod *et al.* 1991**, **Vickery 1991**, **1992**). Breeding performance has improved strongly over time, and laying dates have shifted earlier, perhaps because of climate change (**Crick & Sparks 1999**). Broods now average larger than in the late 1960s and 1970s, and there has been substantial reduction in failure rates of nests at the egg stage, leading to sustained increase in the number of fledglings per breeding attempt.



1975-2008: -31% (confidence interval -47% to -12%)

Population changes in detail

Table of population changes for Dipper

Source	Period	Years	Plots	Change	Lower	Upper	Alert	Comment

	(yrs)		(n)	(%)	limit	limit		
WBS/WBBS waterways	33	1975-2008	61	-31	-47	-12	>25	
	25	1983-2008	70	-15	-30	4		
	10	1998-2008	110	-19	-30	-6		
	5	2003-2008	123	-13	-21	-3		
BBS UK	13	1995-2008	53	-27	-44	5		
	10	1998-2008	56	-32	-45	-12	>25	
	5	2003-2008	61	-31	-44	-8	>25	

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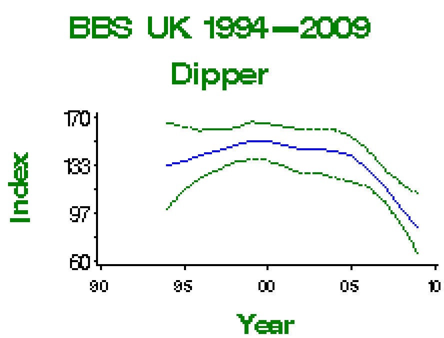
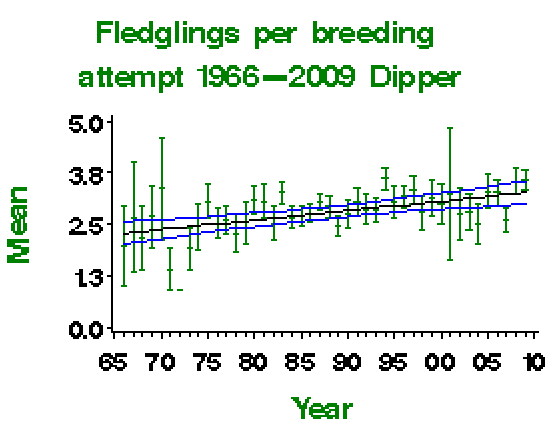
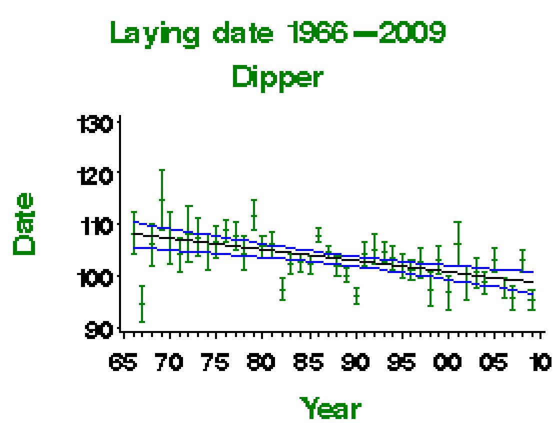


Demographic trends

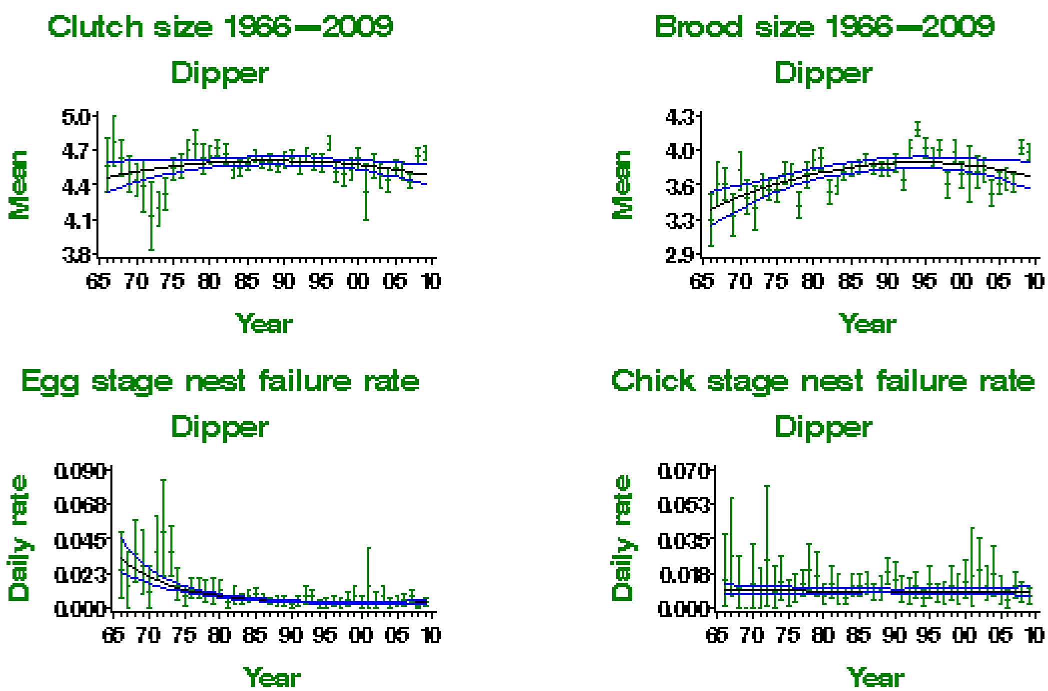




More on demographic trends

Table of demographic changes for Dipper

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment
Fledglings per breeding attempt	40	1968-2008	55	Linear increase	2.33 fledglings	3.24 fledglings	39%	
Clutch size	40	1968-2008	73	Curvilinear	4.49 eggs	4.5 eggs	0.2%	
Brood size	40	1968-2008	138	Curvilinear	3.42 chicks	3.72 chicks	8.7%	
Daily failure rate (eggs)	40	1968-2008	103	Curvilinear	2.56% nests/day	0.35% nests/day	-86.3%	
Daily failure rate (chicks)	40	1968-2008	80	None				
Laying date	40	1968-2008	61	Linear decline	Apr 18	Apr 9	-9 days	



Additional information

- Maps and statistics from British and Irish atlases
- BirdFacts page on species biology
- BirdTrack results

WREN
Troglodytes troglodytes

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe)
UK: green (species level); amber (race *indigenus*, >20% of European breeders; races *hebridensis* and *zetlandicus*, >20% of European breeders, European status); red (races *fridariensis* and *hirtensis*, rare breeders of global importance)
UK Biodiversity Action Plan: priority species (**Fair Isle** & **St Kilda** races only)

Long-term trend

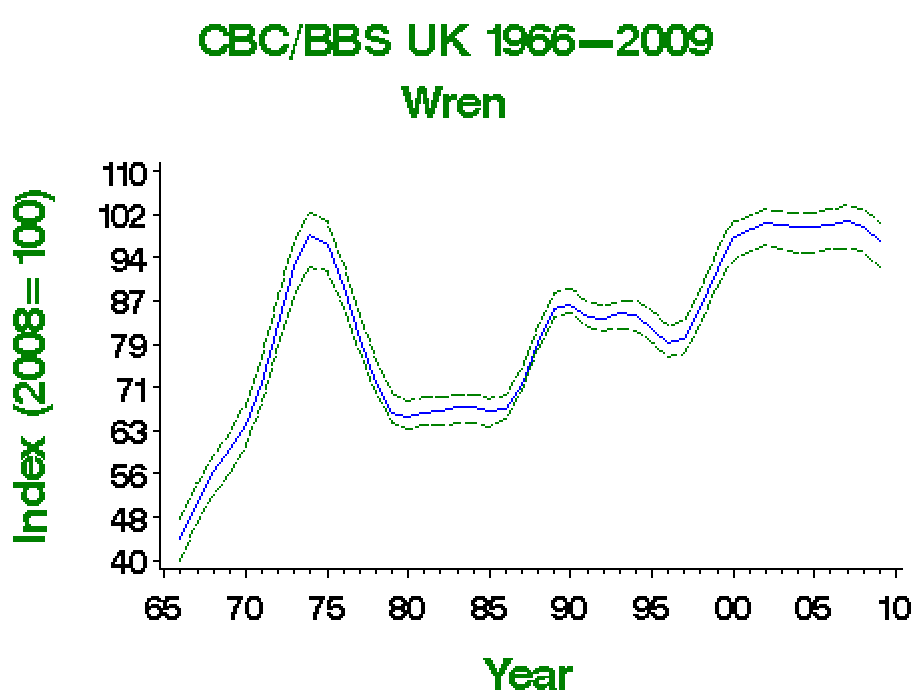
UK, England: moderate increase

UK population size

8,512,000 territories in 2000 (1988–91 Atlas estimate updated using CBC/BBS trend: **BiE04**, **APEP06**)

Status summary

The Wren's current UK population estimate is the highest for any species. Abundance can vary sharply from year to year in this species, however, although this is not evident from the smoothed trends presented here. Annual numbers are influenced by mortality rates that may be very high in severe winters and by the species' high breeding potential (**Peach *et al.* 1995b**). Wren numbers in the UK were greatly depleted by the cold winter of 1962/63 (**Marchant *et al*. 1990**). Following a rapid recovery up to the mid 1970s, abundance fell again in response to a further series of cold winters only to return to its previous high level. BBS results suggest that increase since 1994 has been much stronger in Scotland and Northern Ireland than in Wales and England. Rather fewer nests are now failing at the egg stage, but there has been no trend in the number of fledglings per breeding attempt. Numbers have shown widespread moderate increase across Europe since 1980 (**PECBMS 2010**).



1967-2008: 98% (confidence interval 77% to 120%)

Population changes in detail

Table of population changes for Wren

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS UK	41	1967-2008	930	98	77	120		
	25	1983-2008	1383	48	37	60		
	10	1998-2008	2502	17	13	20		
	5	2003-2008	2697	0	-2	2		
CBC/BBS England	41	1967-2008	746	89	65	112		
	25	1983-2008	1100	39	26	50		
	10	1998-2008	1975	15	11	17		
	5	2003-2008	2149	-3	-5	-1		
CES adults	24	1984-2008	98	43	22	66		
	10	1998-2008	113	-3	-10	5		
	5	2003-2008	109	-9	-16	-4		
CES juveniles	24	1984-2008	98	29	0	70		
	10	1998-2008	112	-1	-13	14		
	5	2003-2008	109	-8	-18	2		
BBS UK	13	1995-2008	2263	23	17	26		
	10	1998-2008	2444	17	11	18		
	5	2003-2008	2697	0	-3	2		
BBS England	13	1995-2008	1763	14	9	17		

	10	1998-2008	1899	15	11	17		
	5	2003-2008	2105	-3	-5	-1		
BBS Scotland	13	1995-2008	219	69	51	90		
	10	1998-2008	231	31	17	42		
	5	2003-2008	263	9	2	18		
BBS Wales	13	1995-2008	191	9	-3	16		
	10	1998-2008	215	9	-1	14		
	5	2003-2008	227	-9	-15	-4		
BBS N.Ireland	13	1995-2008	87	77	32	115		
	10	1998-2008	99	17	5	29		
	5	2003-2008	110	12	6	20		

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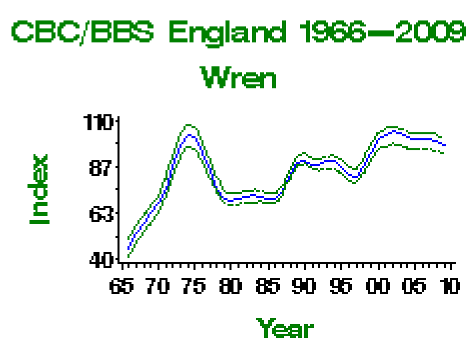
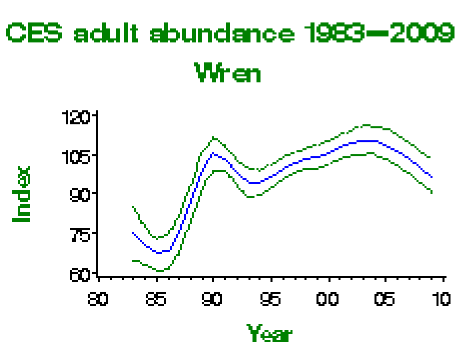
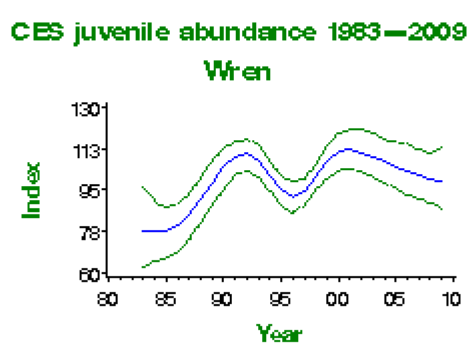
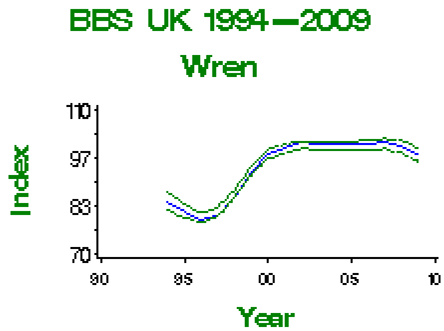
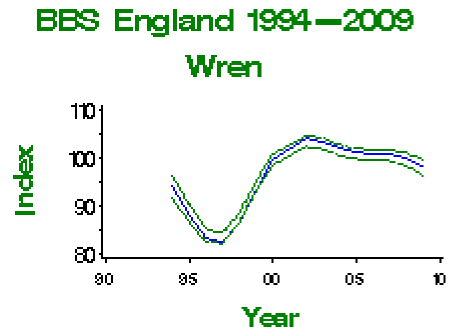
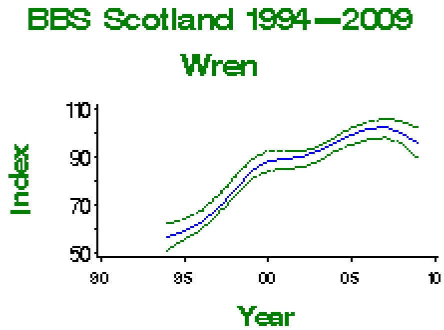


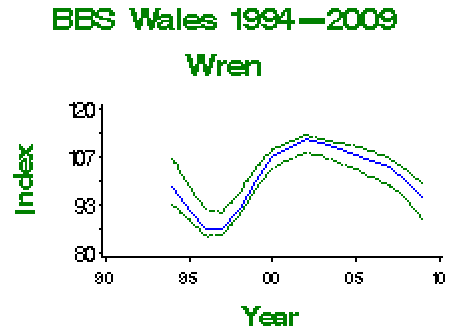


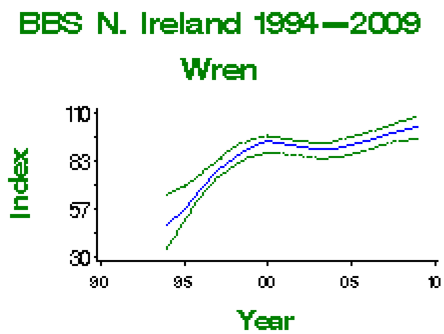




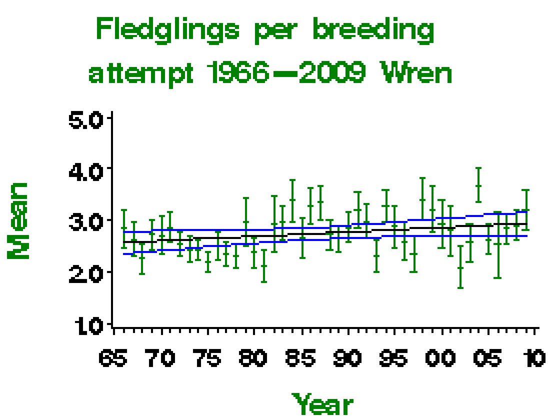


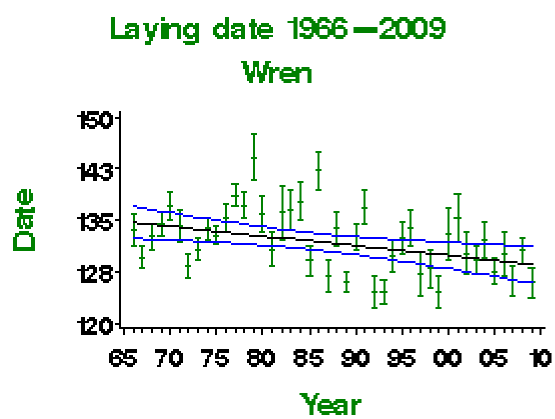






Demographic trends



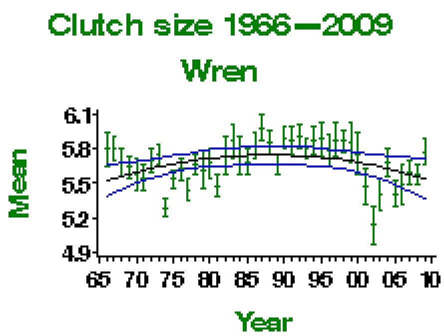


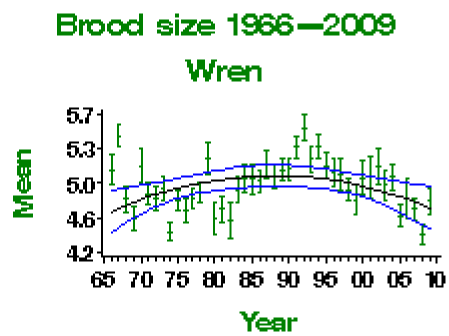
More on demographic trends

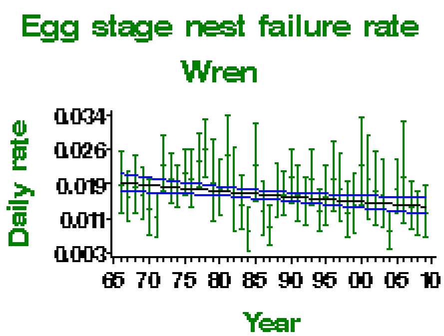
Table of demographic changes for Wren

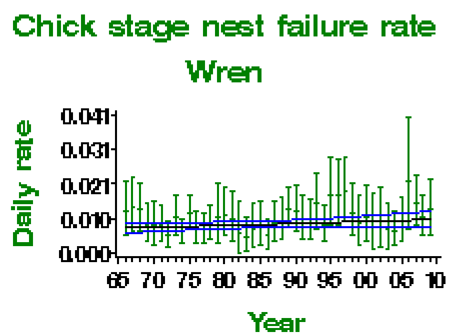
Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment
Fledglings per breeding	40	1968-	61	None				

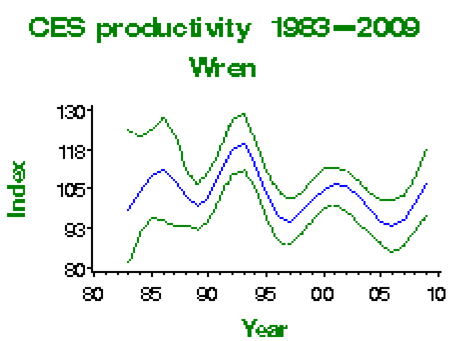
attempt		2008						
Clutch size	40	1968-2008	95	Curvilinear	5.57 eggs	5.57 eggs	0%	
Brood size	40	1968-2008	97	Curvilinear	4.71 chicks	4.73 chicks	0.3%	
Daily failure rate (eggs)	40	1968-2008	141	Linear decline	1.85% nests/day	1.36% nests/day	-26.5%	
Daily failure rate (chicks)	40	1968-2008	99	None				
Laying date	40	1968-2008	87	Linear decline	May 14	May 9	-5 days	
Juvenile to Adult ratio (CES)	24	1984-2008	102	Smoothed trend	104 Index value	100 Index value	-4%	
Juvenile to Adult ratio (CES)	10	1998-2008	116	Smoothed trend	97 Index value	100 Index value	3%	
Juvenile to Adult ratio (CES)	5	2003-2008	112	Smoothed trend	103 Index value	100 Index value	-2%	

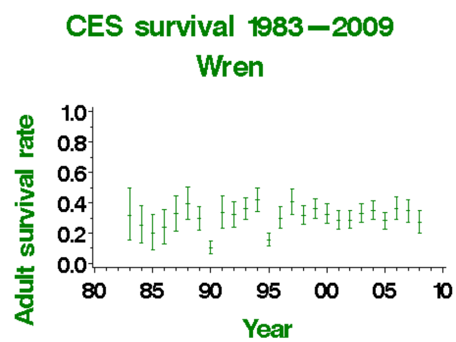












Additional information

- Maps and statistics from British and Irish atlases
- BirdFacts page on species biology
- BirdTrack results
- Garden BirdWatch results

DUNNOCK
Prunella modularis

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: no SPEC category (concentrated in Europe, conservation status favourable)
UK: amber (species level, race *occidentalis*, 25–50% population decline; race *hebridium*, >20% of European breeders)
UK Biodiversity Action Plan: **priority species**

Long-term trend

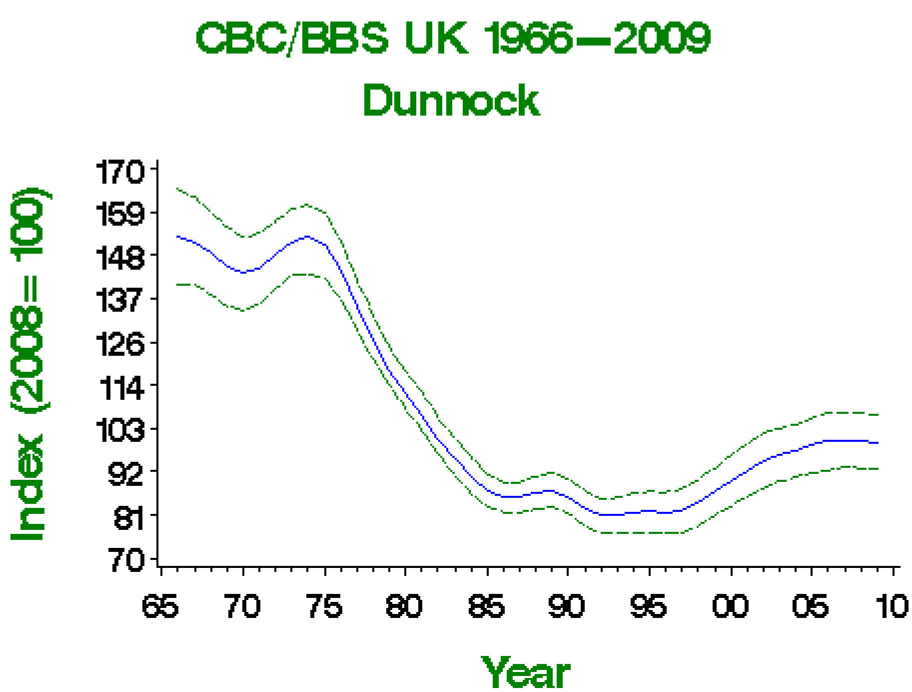
UK, England: moderate decline

UK population size

2,163,000 territories in 2000 (1988–91 Atlas estimate updated using CBC/BBS trend: **BiE04**, **APEP06**)

Status summary

Dunnock abundance fell substantially between the mid 1970s and mid 1980s, after a period of population stability. Some recovery has occurred throughout the UK since the late 1990s, but the species is still amber listed. The cause of the decline remains unknown. In many lowland woods, canopy closure in the absence of forest management and increasing browsing pressure from deer are likely to have reduced the suitability of the habitat for this species (**Fuller *et al.* 2005**). There has been little variation in survival rates over time (**Siriwardena *et al.* 1998a**). Clutch and brood sizes, and the number of fledglings per breeding attempt all increased as the population fell. Egg-stage nest faliure rates are currently increasing, and are of NRS concern (**Leech & Barimore 2008**). Numbers have shown widespread moderate decrease across Europe since 1980 (**PECBMS 2010**).



1967-2008: -34% (confidence interval -43% to -21%)

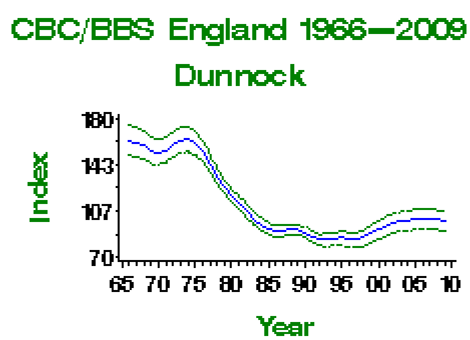
Population changes in detail

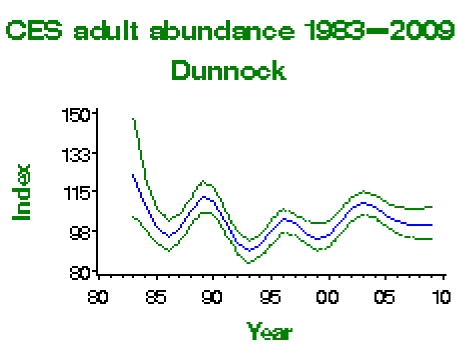
Table of population changes for Dunnock

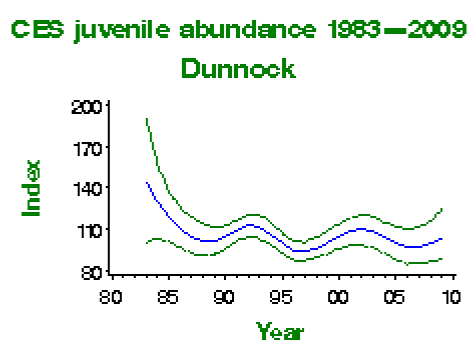
Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS UK	41	1967-2008	796	-34	-43	-21	>25	
	25	1983-2008	1167	5	-6	17		
	10	1998-2008	2105	19	15	24		
	5	2003-2008	2279	3	1	7		
CBC/BBS England	41	1967-2008	662	-38	-47	-28	>25	
	25	1983-2008	965	-1	-12	13		
	10	1998-2008	1723	17	13	22		
	5	2003-2008	1872	2	-1	5		
CES adults	24	1984-2008	97	-8	-23	8		
	10	1998-2008	110	3	-6	14		
	5	2003-2008	107	-9	-16	-1		
CES juveniles	24	1984-2008	94	-23	-47	12		
	10	1998-2008	108	4	-12	24		
	5	2003-2008	104	-8	-17	6		
BBS UK	13	1995-2008	1900	21	16	29		
	10	1998-2008	2055	18	14	24		
	5	2003-2008	2279	4	1	7		
BBS England	13	1995-2008	1551	15	10	21		
	10	1998-2008	1669	17	13	21		
	5	2003-2008	1855	2	-1	5		

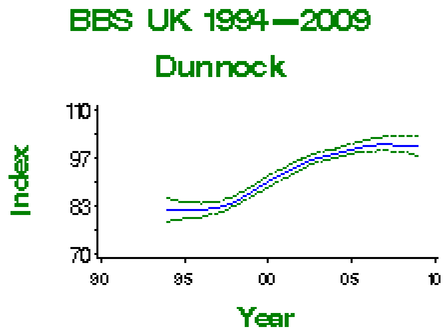
BBS Scotland	13	1995-2008	131	54	28	83		
	10	1998-2008	142	31	10	48		
	5	2003-2008	163	12	-5	27		
BBS Wales	13	1995-2008	146	33	13	55		
	10	1998-2008	165	21	5	37		
	5	2003-2008	177	2	-7	9		
BBS N.Ireland	13	1995-2008	67	93	31	134		
	10	1998-2008	77	10	-4	33		
	5	2003-2008	88	-1	-11	10		

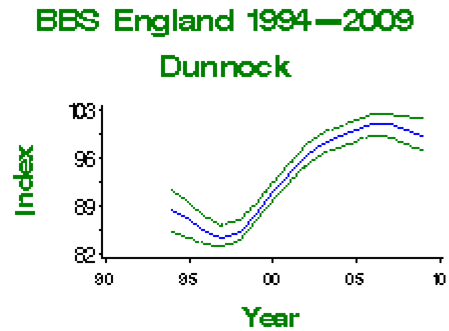
The Breeding Bird Survey is jointly funded by the BTO, JNCC & RSPB

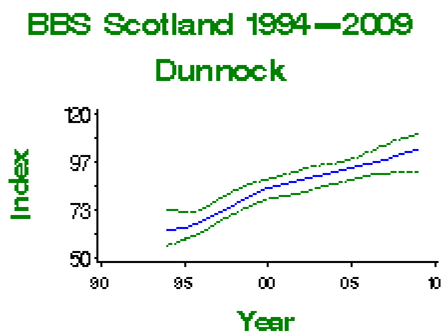


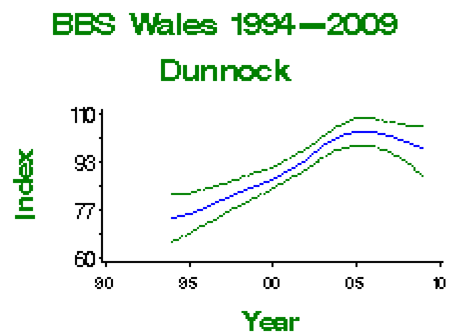


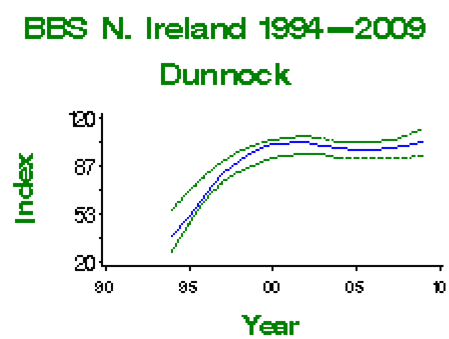




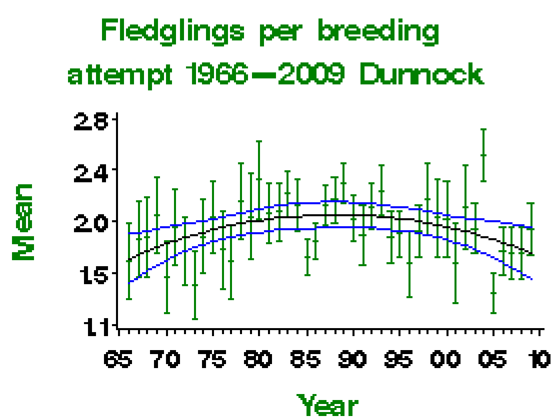


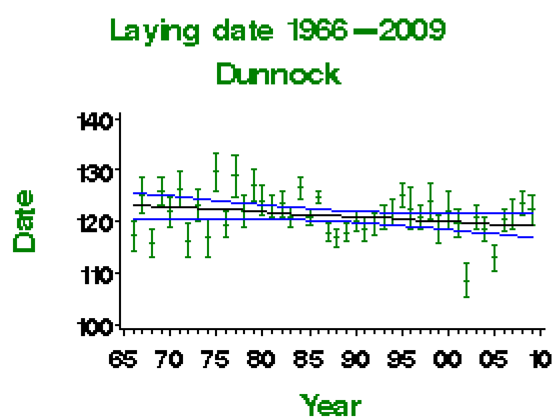






Demographic trends



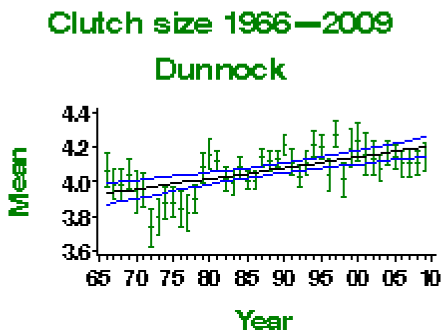


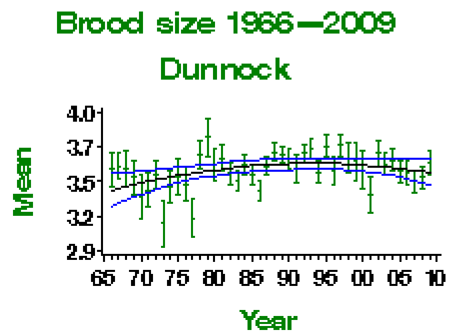
More on demographic trends

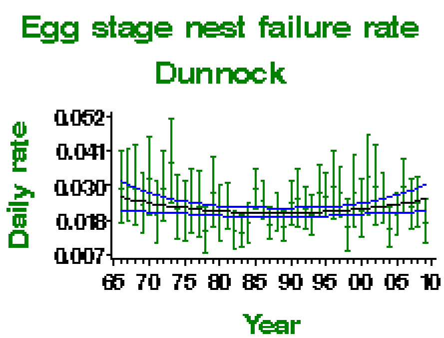
Table of demographic changes for Dunnock

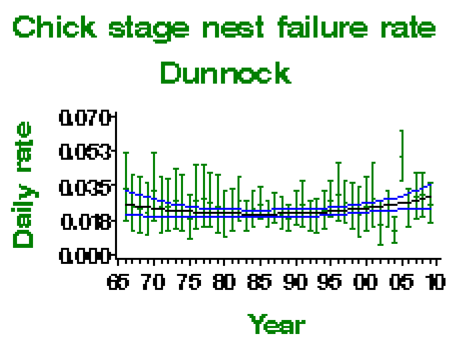
Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment

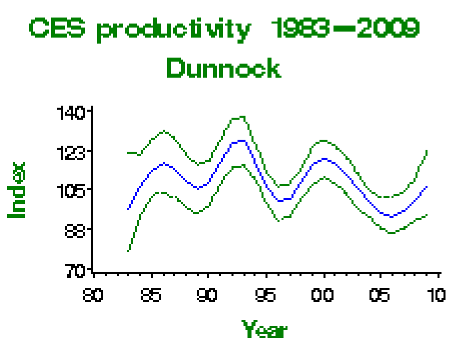
Fledglings per breeding attempt	40	1968-2008	58	Curvilinear	1.71 fledglings	1.72 fledglings	0.7%	
Clutch size	40	1968-2008	100	Linear increase	3.95 eggs	4.19 eggs	6.2%	
Brood size	40	1968-2008	108	Curvilinear	3.42 chicks	3.54 chicks	3.6%	
Daily failure rate (eggs)	40	1968-2008	144	Curvilinear	2.48% nests/day	2.46% nests/day	-0.8%	
Daily failure rate (chicks)	40	1968-2008	119	Curvilinear	2.45% nests/day	2.82% nests/day	15.1%	
Laying date	40	1968-2008	79	None				
Juvenile to Adult ratio (CES)	24	1984-2008	101	Smoothed trend	106 Index value	100 Index value	-6%	
Juvenile to Adult ratio (CES)	10	1998-2008	114	Smoothed trend	108 Index value	100 Index value	-7%	
Juvenile to Adult ratio (CES)	5	2003-2008	109	Smoothed trend	105 Index value	100 Index value	-5%	

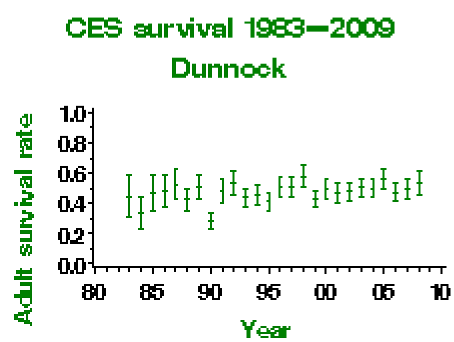












Additional information

- Maps and statistics from British and Irish atlases
- BirdFacts page on species biology
- BirdTrack results
- Garden BirdWatch results

- **Atlas 2007–11 latest results**

ROBIN
Erithacus rubecula

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: no SPEC category (concentrated in Europe, conservation status favourable)
UK: green

Long-term trend

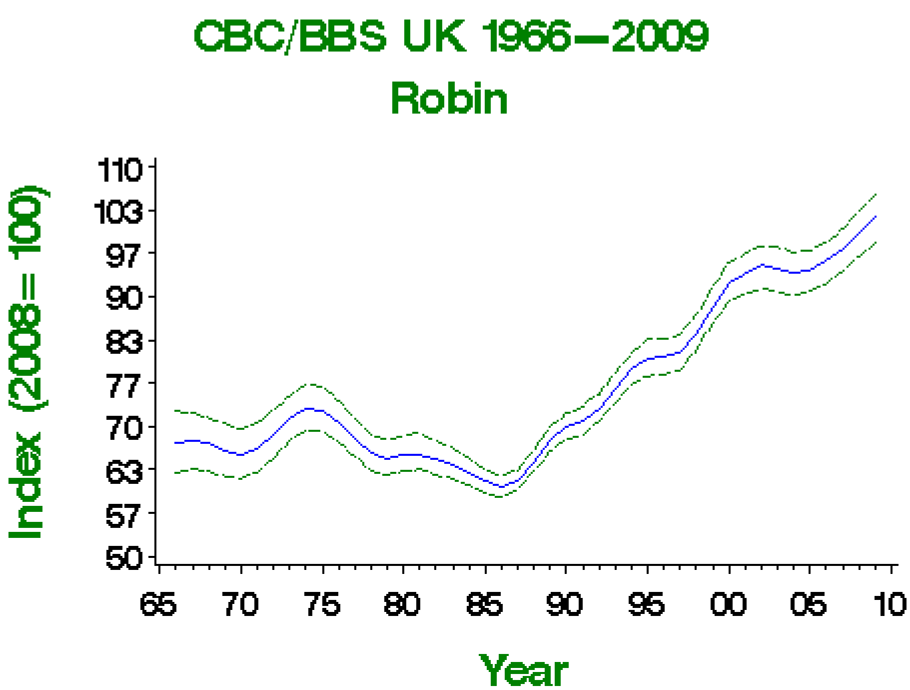
UK: shallow increase
England: moderate increase

UK population size

5,895,000 territories in 2000 (1988–91 Atlas estimate updated using CBC/BBS trend: **BiE04**, **APEP06**)

Status summary

Robins have increased markedly since the mid 1980s, according to both CBC/BBS and CES results, having been set back earlier by a succession of cold winters. Steep improvements have occurred concurrently in the numbers of fledglings per breeding attempt, as measured by nest record data, due to reductions in nest failure rates at both egg and chick stages, although CES productivity measures have declined. Survival rates, as measured by CES, may perhaps show an increasing trend. The CES and BBS data show that marked and significant annual fluctuations occur in numbers, perhaps in response to winter weather, although these are not evident in the smoothed trends that are presented. Laying dates have advanced by almost a week since the 1960s. A shallow increase has been evident widely across Europe since 1980 (**PECBMS 2010**).



1967-2008: 47% (confidence interval 32% to 63%)

Population changes in detail

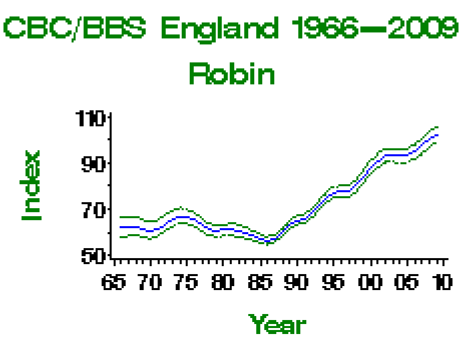
Table of population changes for Robin

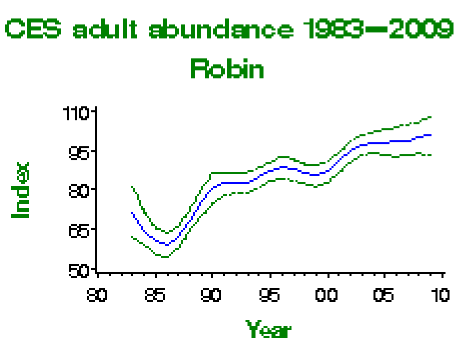
Source	Period	Years	Plots	Change	Lower	Upper	Alert	Comment

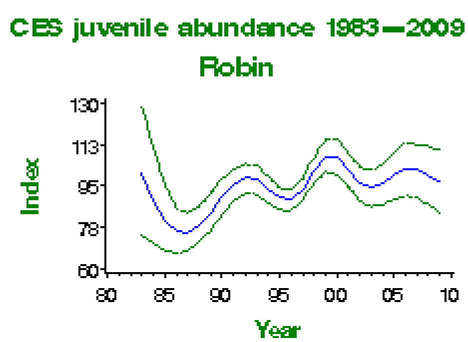
	(yrs)		(n)	(%)	limit	limit		
CBC/BBS UK	41	1967-2008	903	47	32	63		
	25	1983-2008	1339	56	45	67		
	10	1998-2008	2417	19	15	21		
	5	2003-2008	2609	6	4	8		
CBC/BBS England	41	1967-2008	729	60	43	77		
	25	1983-2008	1074	67	56	79		
	10	1998-2008	1924	25	21	27		
	5	2003-2008	2091	7	5	9		
CES adults	24	1984-2008	93	55	33	77		
	10	1998-2008	108	16	6	27		
	5	2003-2008	105	3	-4	12		
CES juveniles	24	1984-2008	98	13	-23	64		
	10	1998-2008	112	-1	-14	12		
	5	2003-2008	108	6	-6	18		
BBS UK	13	1995-2008	2188	23	20	26		
	10	1998-2008	2361	19	15	21		
	5	2003-2008	2609	6	4	8		
BBS England	13	1995-2008	1729	27	24	31		
	10	1998-2008	1860	24	21	27		
	5	2003-2008	2066	7	5	9		

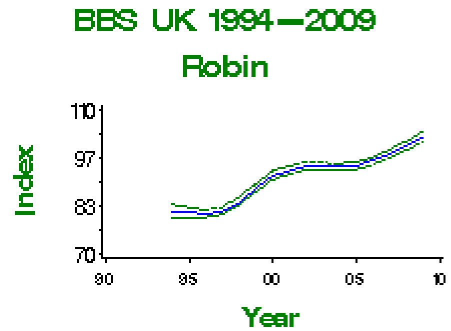
BBS Scotland	13	1995-2008	187	25	12	37		
	10	1998-2008	197	17	2	28		
	5	2003-2008	225	7	-2	16		
BBS Wales	13	1995-2008	188	13	3	21		
	10	1998-2008	211	15	8	22		
	5	2003-2008	224	-3	-7	2		
BBS N.Ireland	13	1995-2008	83	22	3	39		
	10	1998-2008	94	0	-9	9		
	5	2003-2008	103	10	3	19		

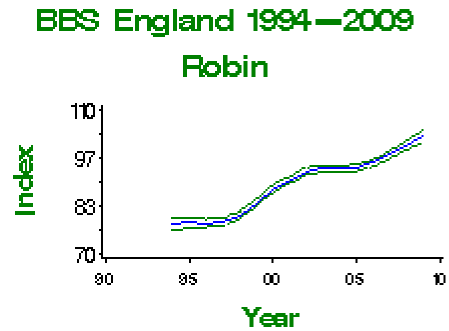
The Breeding Bird Survey is jointly funded by the BTO, JNCC & RSPB

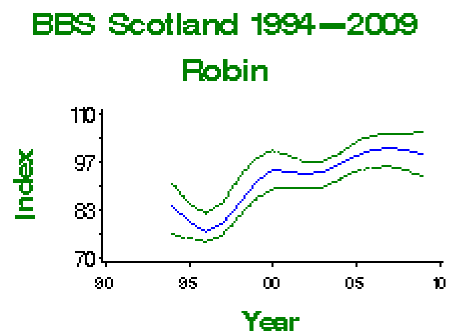


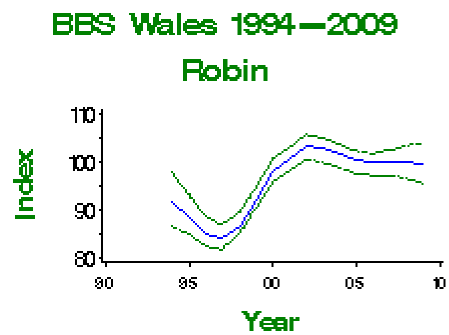


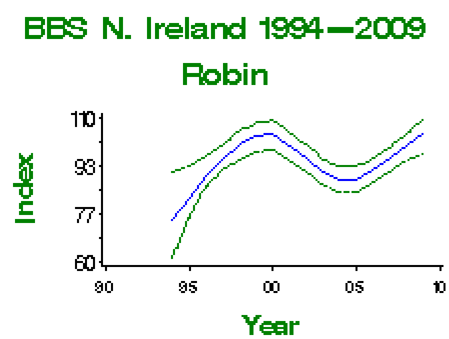




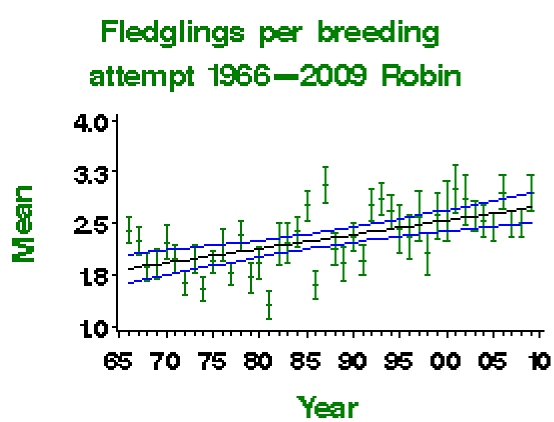


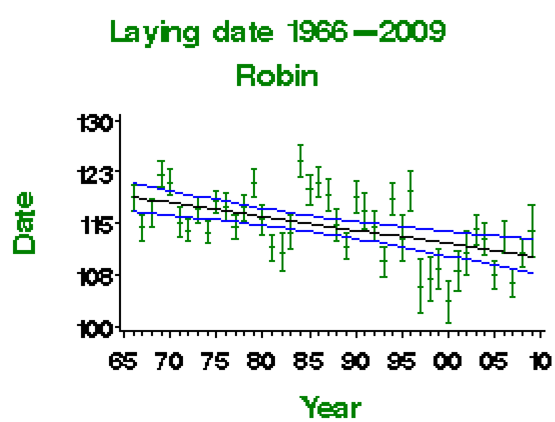






Demographic trends



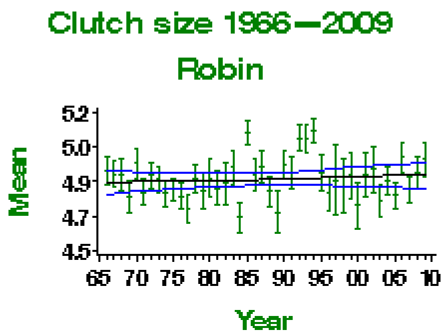


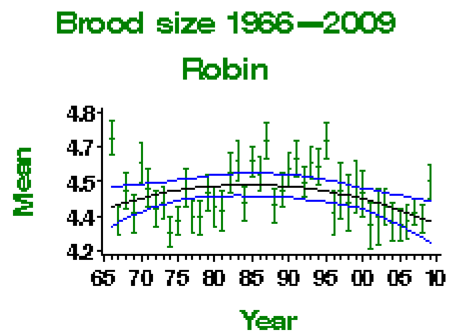
More on demographic trends

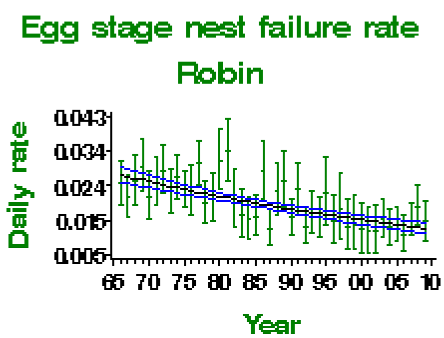
Table of demographic changes for Robin

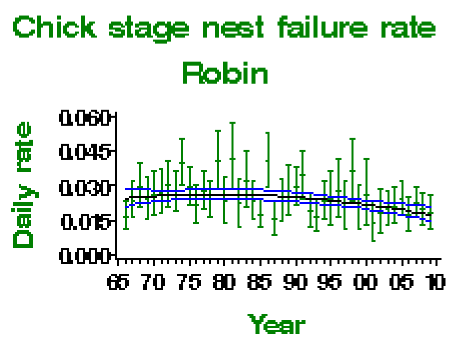
Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment
Fledglings per breeding	40	1968-	77	Linear	1.89	2.71	43.5%	

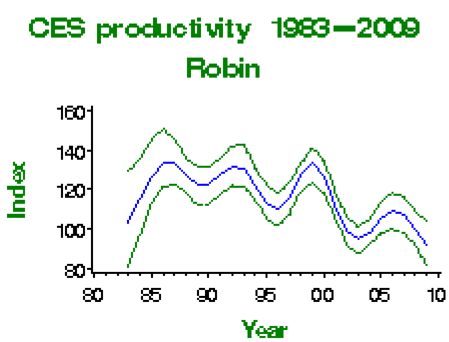
attempt		2008		increase	fledglings	fledglings		
Clutch size	40	1968-2008	123	None				
Brood size	40	1968-2008	171	Curvilinear	4.41 chicks	4.34 chicks	-1.6%	
Daily failure rate (eggs)	40	1968-2008	190	Linear decline	2.62% nests/day	1.27% nests/day	-51.5%	
Daily failure rate (chicks)	40	1968-2008	165	Curvilinear	2.51% nests/day	1.83% nests/day	-27.1%	
Laying date	40	1968-2008	119	Linear decline	Apr 28	Apr 20	-8 days	
Juvenile to Adult ratio (CES)	24	1984-2008	101	Smoothed trend	115 Index value	100 Index value	-13%	
Juvenile to Adult ratio (CES)	10	1998-2008	116	Smoothed trend	127 Index value	100 Index value	-21%	
Juvenile to Adult ratio (CES)	5	2003-2008	111	Smoothed trend	95 Index value	100 Index value	5%	

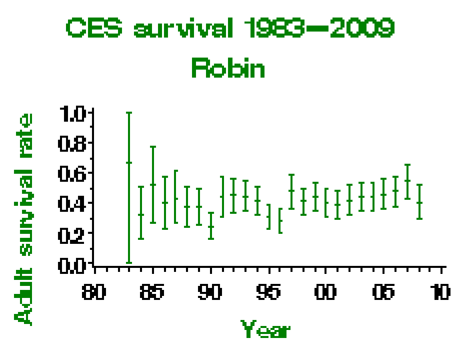












Additional information

- Maps and statistics from British and Irish atlases
- BirdFacts page on species biology
- BirdTrack results
- Garden BirdWatch results

NIGHTINGALE
Luscinia megarhynchos

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: no SPEC category (concentrated in Europe, conservation status favourable)
UK: amber (25–50% distribution decline)

Long-term trend

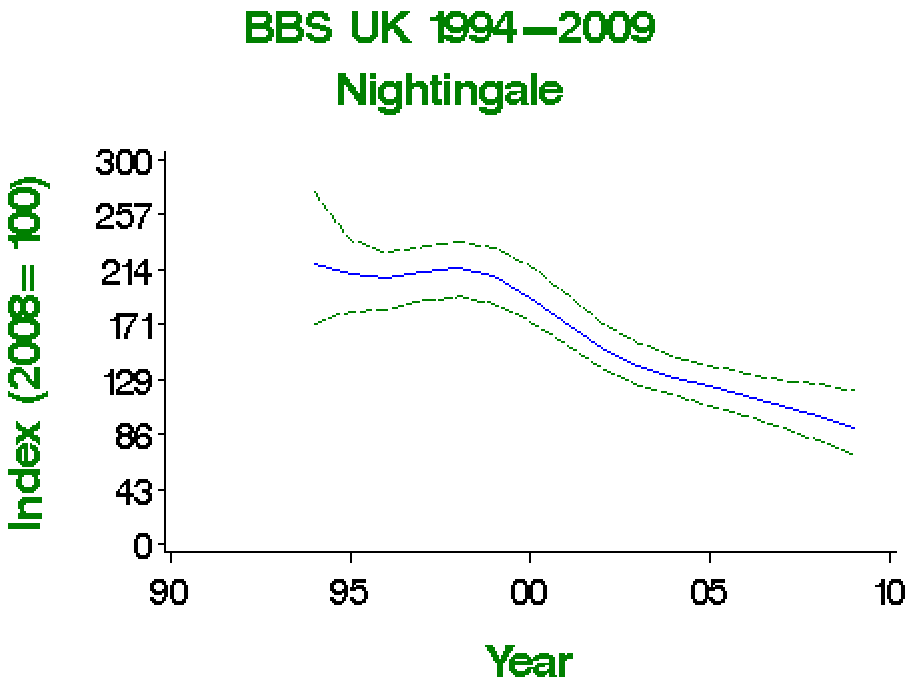
England: decline

UK population size

6,700 (5,600–9,350) males in 1999 (**Wilson *et al.* 2002**: **BiE04**, **APEP06**)

Status summary

In 1999, the BTO organised a national survey of Nightingales, which showed a marked range contraction since the previous survey in 1980, but only an 8% overall population decline (**Wilson *et al.* 2002**; for more details **click here**). Nightingales are scarce birds, and CBC and BBS data are correspondingly meagre. Nevertheless, analysis of the available CBC data shows continuous decline (G.M. Siriwardena, unpubl.) and CES suggests a probable decline. **Fuller *et al.* (2005)** suggest the likely causes of Nightingale decline relate to pressures on migration and in winter, perhaps compounded by habitat loss in Britain. The increasing intensity of browsing by deer is known to be reducing habitat quality for this species (**Gill & Fuller 2007**, **Holt *et al*. 2010**). Though samples are too small to continue presenting a trend, CES suggests a sharp decline in productivity during the 1980s, perhaps because Nightingale nesting success may be adversely affected by cold and wet springs. Nightingale has been in rapid decline across Europe since 1980 (**PECBMS 2010**); this overall trend masks a marked contrast between severe decreases in southern and western Europe and strong increases in the east of the range (**PECBMS 2007**).



1995-2008: -53% (confidence interval -65% to -32%)

Population changes in detail

Table of population changes for Nightingale

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
BBS UK	13	1995-2008	31	-53	-65	-32	>50	
	10	1998-2008	33	-54	-66	-35	>50	
	5	2003-2008	32	-28	-44	-5	>25	
BBS England	13	1995-2008	31	-49	-65	-25	>25	
	10	1998-2008	33	-53	-66	-34	>50	
	5	2003-2008	31	-26	-44	-1	>25	

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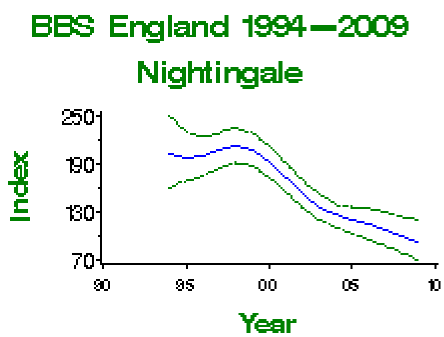


Demographic trends

Demographic information is not currently available for this species

Additional information

- Maps and statistics from British and Irish atlases
- BirdFacts page on species biology
- BirdTrack results

REDSTART
Phoenicurus phoenicurus

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: SPEC category 2 (depleted)
UK: amber (European status)

Long-term trend

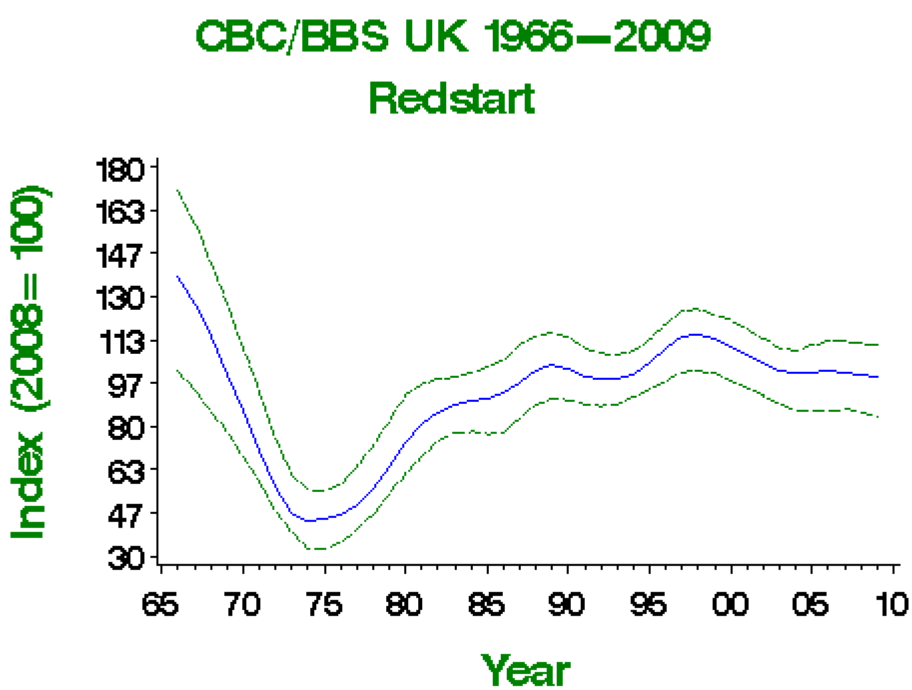
UK, England: probable shallow decline

UK population size

At least 101,000 pairs in 2000 (1988–91 Atlas estimate updated using CBC/BBS trend: **BiE04**, **APEP06**)

Status summary

The decline in the late 1960s and early 1970s was thought to be due to severe drought conditions in the Sahel wintering area in Africa (**Marchant *et al.* 1990**). There was a loss of range of 20% in Britain between 1968–72 and 1988–91, in terms of the numbers of occupied 10-km squares (**Gibbons *et al.* 1993**). A recovery in population size began in the mid 1970s and appears to have continued, at least in England, into the late 1990s. This increase has been associated with steeply improving numbers of fledglings per breeding attempt and progressively earlier laying dates. The trend towards earlier laying can be partly explained by recent climate change (**Crick & Sparks 1999**).



1967-2008: -21% (confidence interval -47% to 24%)

Population changes in detail

Table of population changes for Redstart

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS UK	41	1967-2008	68	-21	-47	24		

	25	1983-2008	98	13	-11	39		
	10	1998-2008	159	-13	-24	-2		
	5	2003-2008	156	-1	-11	9		
CBC/BBS England	41	1967-2008	42	-16	-43	30		Small CBC sample
	25	1983-2008	59	21	-4	47		Small CBC sample
	10	1998-2008	93	-10	-20	4		
	5	2003-2008	94	1	-11	16		
BBS UK	13	1995-2008	147	-2	-15	9		
	10	1998-2008	153	-14	-24	-5		
	5	2003-2008	156	-2	-11	8		
BBS England	13	1995-2008	84	0	-18	13		
	10	1998-2008	88	-12	-23	3		
	5	2003-2008	94	1	-10	14		
BBS Wales	13	1995-2008	54	-4	-23	18		
	10	1998-2008	58	-8	-27	9		
	5	2003-2008	57	3	-15	19		

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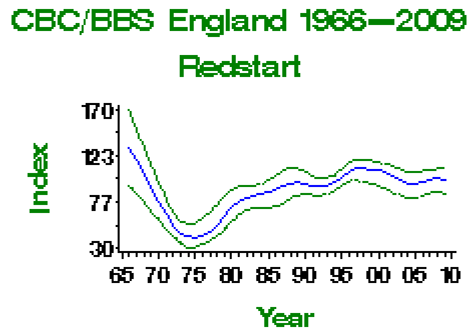
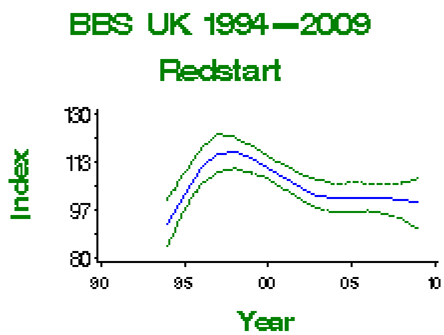
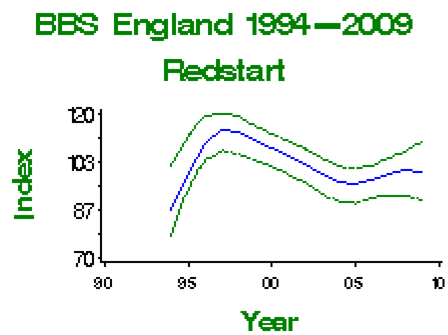
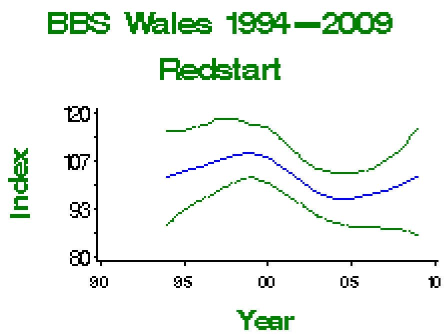
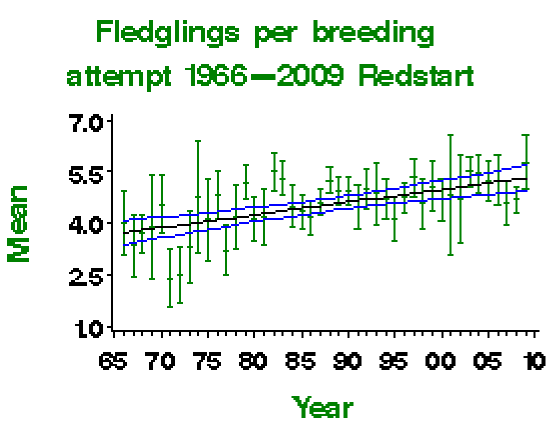


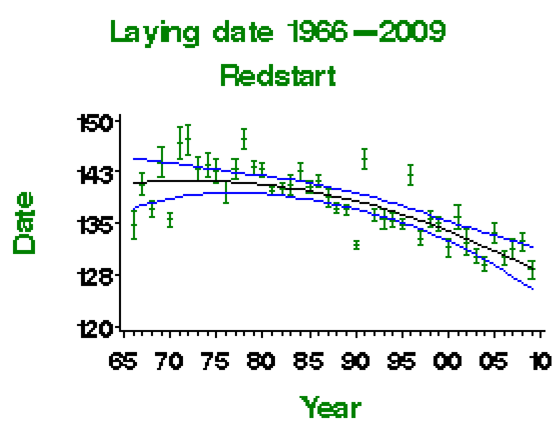






Demographic trends



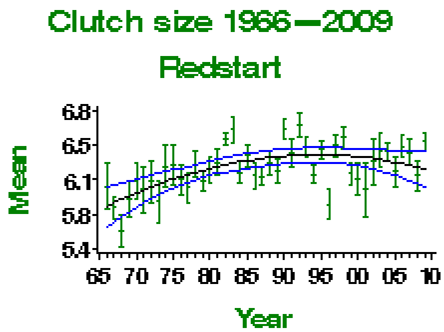


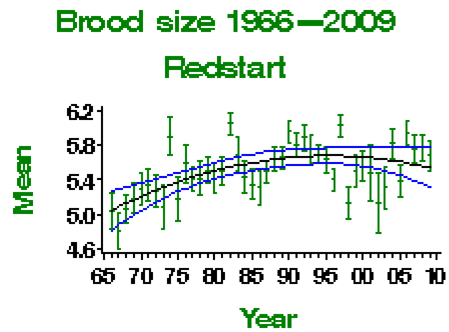
More on demographic trends

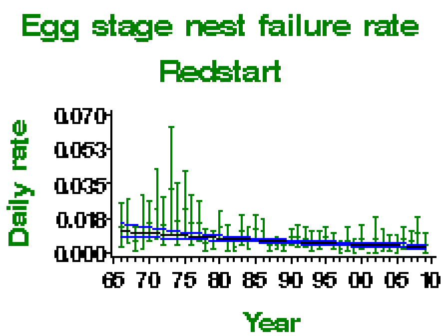
Table of demographic changes for Redstart

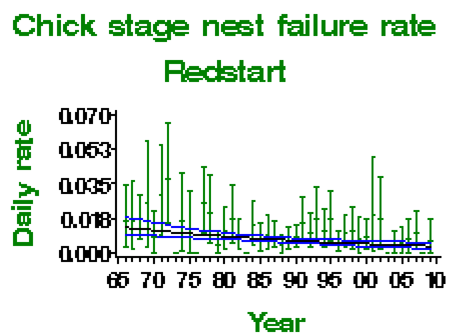
Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment
Fledglings per breeding	40	1968-	34	Linear	3.81	5.29	38.6%	

attempt		2008		increase	fledglings	fledglings		
Clutch size	40	1968-2008	48	Curvilinear	5.9 eggs	6.24 eggs	5.6%	
Brood size	40	1968-2008	85	Curvilinear	5.13 chicks	5.57 chicks	8.5%	
Daily failure rate (eggs)	40	1968-2008	73	Linear decline	1.07% nests/day	0.34% nests/day	-68.2%	
Daily failure rate (chicks)	40	1968-2008	52	Linear decline	1.23% nests/day	0.37% nests/day	-69.9%	
Laying date	40	1968-2008	61	Curvilinear	May 21	May 9	-12 days	









Additional information

- Maps and statistics from British and Irish atlases
- BirdFacts page on species biology
- BirdTrack results

WHINCHAT
Saxicola rubetra

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: no SPEC category (concentrated in Europe, conservation status favourable)
UK: amber (25–50% decline)

Long-term trend

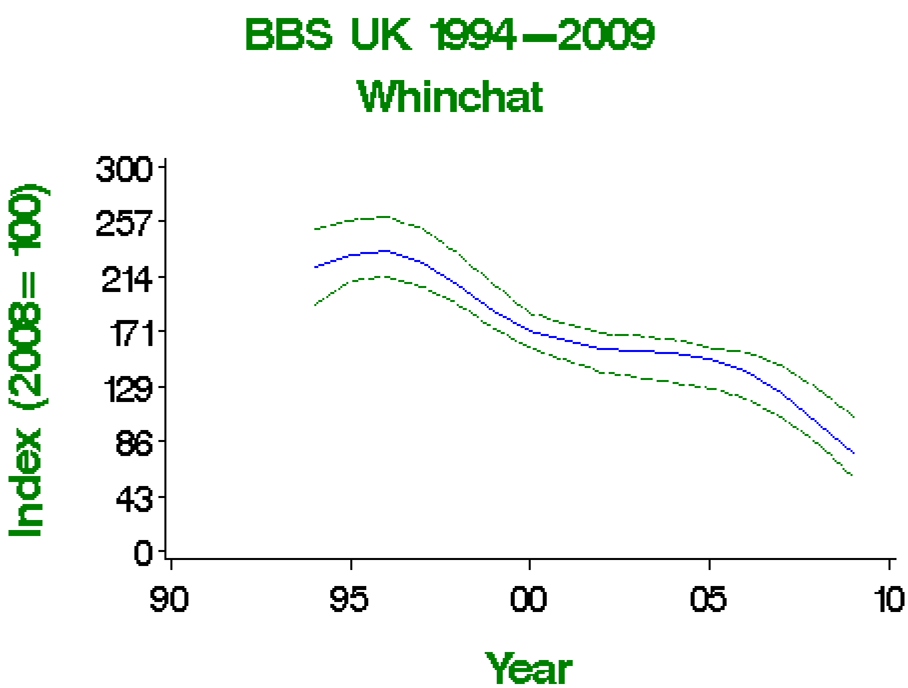
UK: decline

UK population size

14,000–28,000 pairs in 1990 (1988–91 Atlas: **APEP06**); 11,000–22,100 pairs in 2000 (updated using BBS trend: **BiE04**)

Status summary

Whinchats were not monitored until the BBS began in 1994. By then, however, **Gibbons *et al.* (1993)** had already identified a major range contraction, mainly from lowland England, that was probably at least partly due to the loss of marginal farmland habitats (**Marchant et al. 1990**). Further extinctions have occurred since then among the remaining pockets of lowland breeders. BBS data indicate that further strong population decline took place during the 1990s, raising BTO alerts for the UK as a whole as well as for England. Nest record samples are small, but indicate substantial recent rises in nest losses at the egg and chick stages, which are of NRS concern (**Leech & Barimore 2008**). Whinchats have declined rapidly across Europe since 1980 (**PECBMS 2010**). On the strength of its UK decline, Whinchat has recently been moved from the green to the amber list of conservation concern (**Eaton *et al.* 2009**).



1995-2008: -57% (confidence interval -68% to -39%)

Population changes in detail

Table of population changes for Whinchat

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
BBS UK	13	1995-2008	73	-57	-68	-39	>50	
	10	1998-2008	69	-52	-65	-34	>50	
	5	2003-2008	64	-36	-46	-8	>25	
BBS England	13	1995-2008	32	-47	-69	-23	>25	
	10	1998-2008	32	-43	-66	-21	>25	
	5	2003-2008	32	-29	-41	-10	>25	

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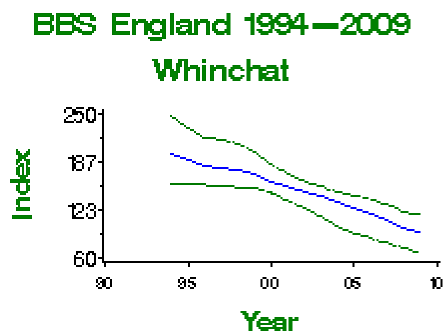
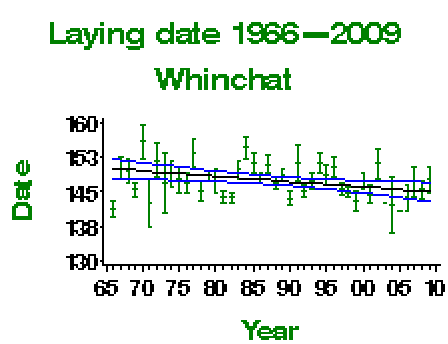


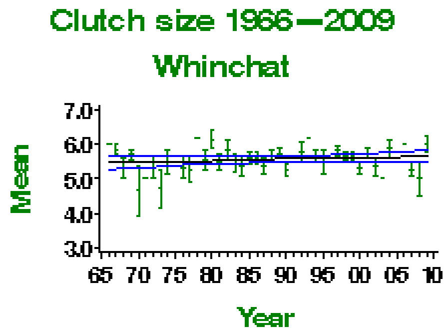
Demographic trends

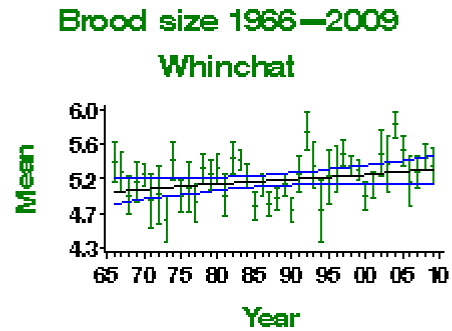
Table of demographic changes for Whinchat

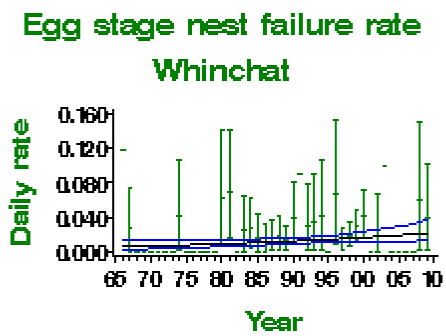
Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment
Clutch size	40	1968-2008	12	None				Small sample
Brood size	40	1968-2008	37	None				
Daily failure rate (eggs)	40	1968-2008	15	Linear increase	0.69% nests/day	2.13% nests/day	208.7%	Small sample
Daily failure rate (chicks)	40	1968-2008	25	None				Small sample
Laying date	40	1968-2008	27	Linear decline	May 30	May 25	-5 days	Small sample

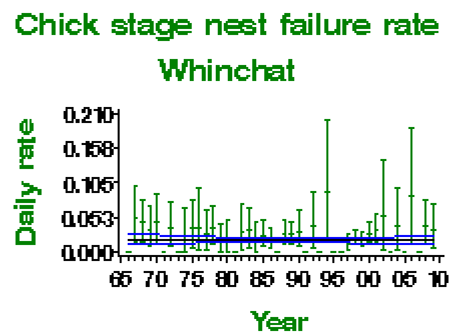
Insufficient data on fledglings per breeding attempt available for this species











Additional information

- Maps and statistics from British and Irish atlases
- BirdFacts page on species biology
- BirdTrack results

STONECHAT
Saxicola torquatus

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe)
UK: green

Long-term trend

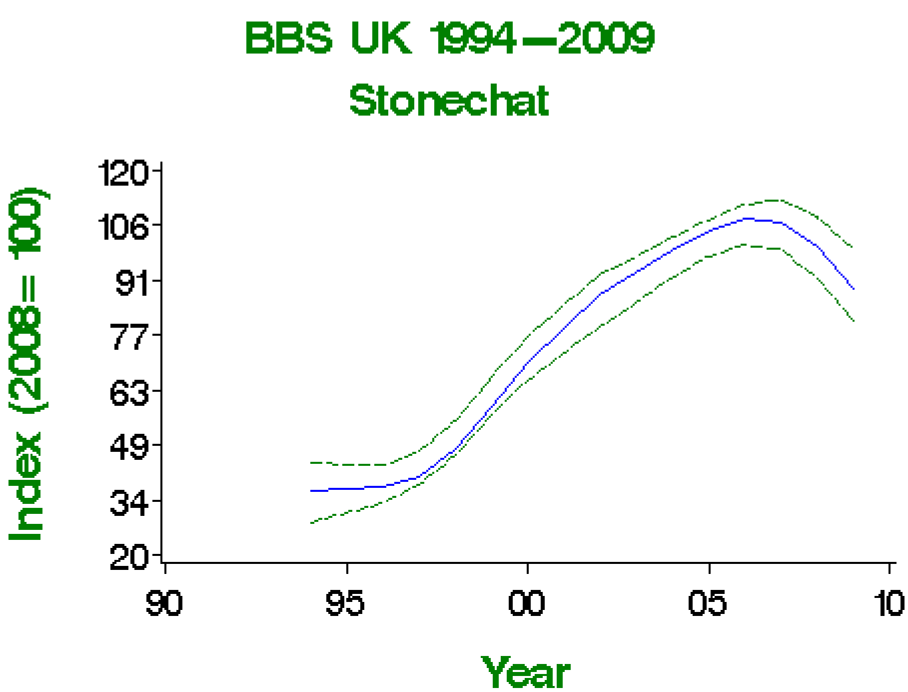
UK: probably fluctuating, with no long-term trend

UK population size

9,000–23,000 pairs in 1990 (1988–91 Atlas: **APEP06**); 19,300–49,400 pairs in 2000 (updated using BBS trend: **BiE04**)

Status summary

Trends were poorly quantified before the start of the BBS, but a long-term decline is suspected: severe winter weather, and loss and fragmentation of suitable breeding habitat in many inland regions, are believed to have reduced the population from the 1940s onward (**Marchant *et al.* 1990**). Breeding atlas data showed a substantial contraction in the Stonechat's range between the early 1970s and late 1980s (**Gibbons *et al.* 1993**). Nest failure rates have fallen markedly over the long term, and the numbers of fledglings per breeding attempt have risen steeply. Against this background, the current, strongly increasing BBS trend represents substantial and possibly even complete recovery. Following similar increases widely across Europe, the species is now provisionally categorised as 'secure' (**BirdLife International 2004**) and consequently the species has recently been moved from the amber to the green list in the UK (**Eaton *et al.* 2009**). A strong increase has been recorded in the Republic of Ireland since 1998 (**Crowe *et al.* 2010**).



1995-2008: 168% (confidence interval 114% to 245%)

Population changes in detail

Table of population changes for Stonechat

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
BBS UK	13	1995-2008	146	168	114	245		
	10	1998-2008	174	110	67	136		
	5	2003-2008	216	7	-4	26		
BBS England	13	1995-2008	68	105	46	201		
	10	1998-2008	82	76	25	122		
	5	2003-2008	110	-17	-31	3		
BBS Scotland	13	1995-2008	37	208	99	343		
	10	1998-2008	43	176	80	260		
	5	2003-2008	54	31	-2	66		
BBS Wales	13	1995-2008	36	168	85	308		
	10	1998-2008	43	63	17	118		
	5	2003-2008	51	-6	-24	13		

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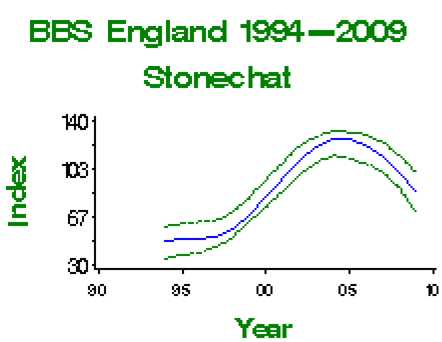
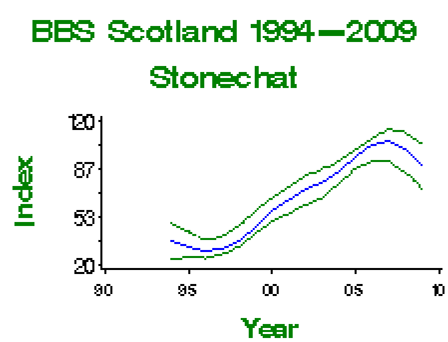
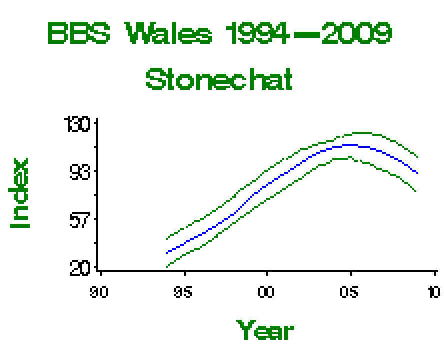
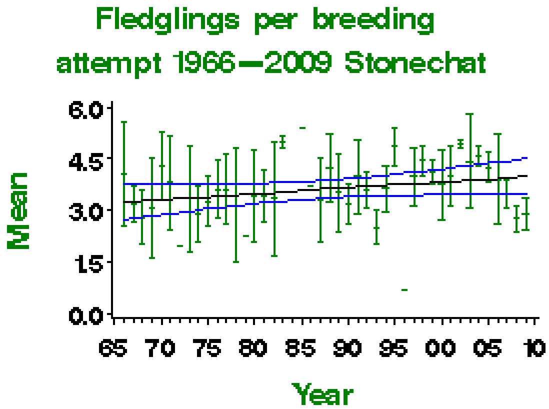
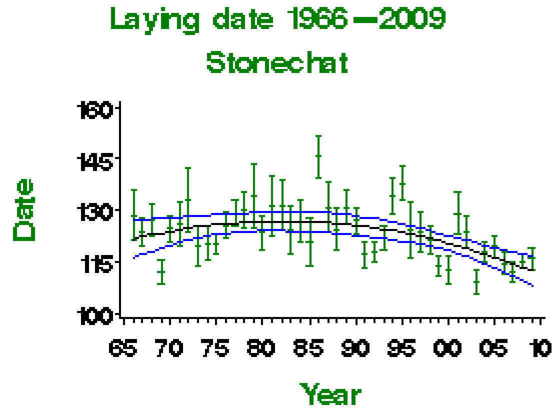






Demographic trends

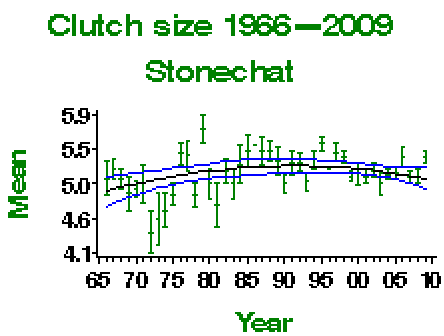


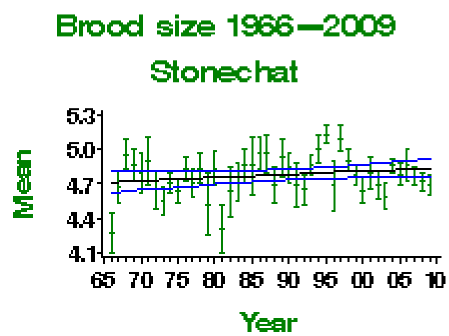


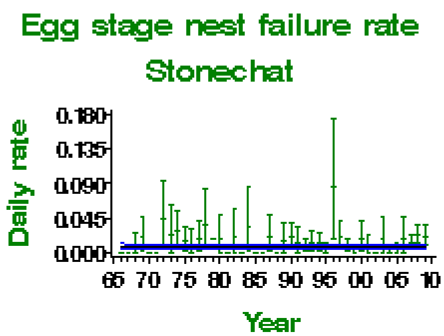
More on demographic trends

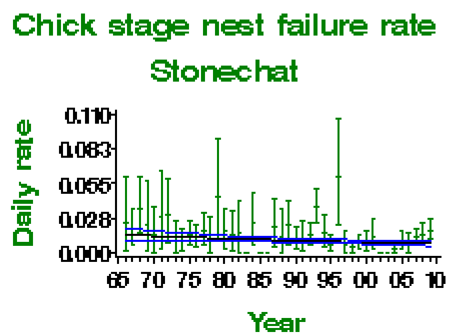
Table of demographic changes for Stonechat

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment
Fledglings per breeding attempt	40	1968-2008	22	None				
Clutch size	40	1968-2008	32	Curvilinear	4.96 eggs	5.1 eggs	2.9%	
Brood size	40	1968-2008	63	None				
Daily failure rate (eggs)	40	1968-2008	37	None				
Daily failure rate (chicks)	40	1968-2008	58	Linear decline	1.4% nests/day	0.76% nests/day	-45.7%	
Laying date	40	1968-2008	37	Curvilinear	May 3	Apr 23	-10 days	









Additional information

- **Maps and statistics from British and Irish atlases**
- **BirdFacts page on species biology**
- **BirdTrack results**

WHEATEAR
Oenanthe oenanthe

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: SPEC category 3 (declining)
UK: amber (species level and nominate race *oenanthe*, European status)

Long-term trend

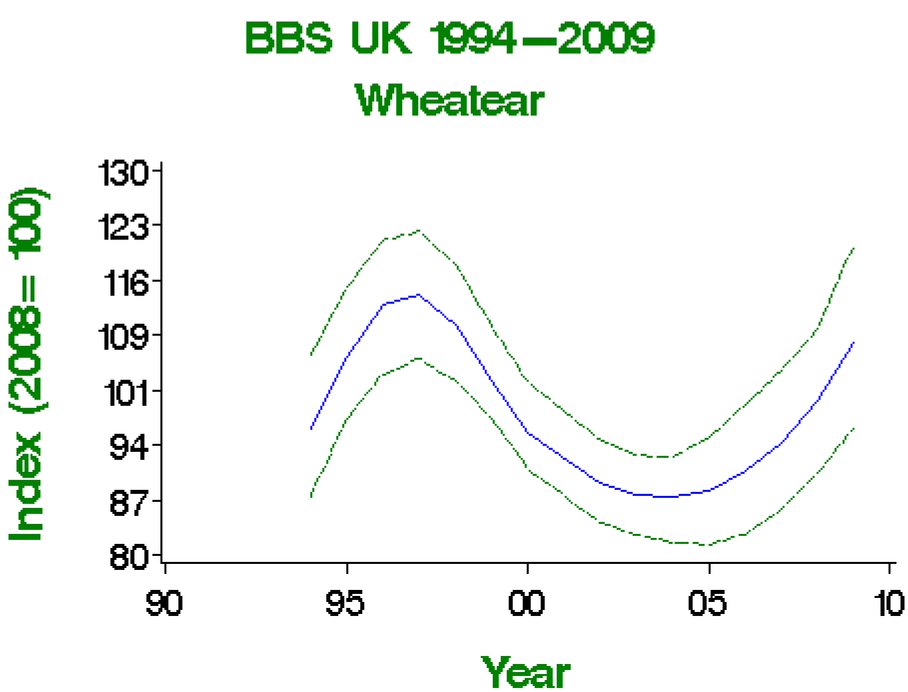
UK: possible decline

UK population size

56,000 pairs in 1990 (1988–91 Atlas: **APEP06**); 52,500 pairs in 2000 (updated using BBS trend: **BiE04**); 100,000–200,000 pairs in Britain (**Sellers 2006**)

Status summary

Although it is a common breeding species in many upland areas, the Wheatear was not monitored at the UK scale until the BBS began in 1994. **Gibbons *et al.* (1993)** had by then identified range contractions from lowland Britain since 1968–72, perhaps due to losses of suitable grassland and declines in rabbit abundance. BBS shows wide fluctuations, with further decrease in England and Wales, but as yet no clear trend in abundance since 1994 in Scotland. BBS data indicate that the estimates of UK population made for the 1988–91 Atlas may have been far too low, possibly by an order of magnitude (**Gillings *et al.* 2007**). Failure rates at the egg stage (18 days, comprising 14 days incubation and 4 days laying) have fallen substantially. Wheatear has declined rapidly across Europe since 2008 (**PECBMS 2010**). Following widespread declines during the 1990s, the European status of this species is no longer considered 'secure' (**BirdLife International 2004**). Accordingly, the species has recently been moved from the green to the amber list in the UK (**Eaton *et al.* 2009**).



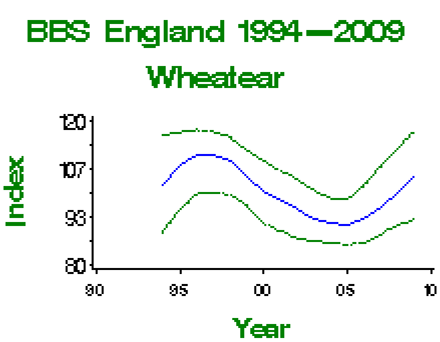
1995-2008: -5% (confidence interval -21% to 14%)

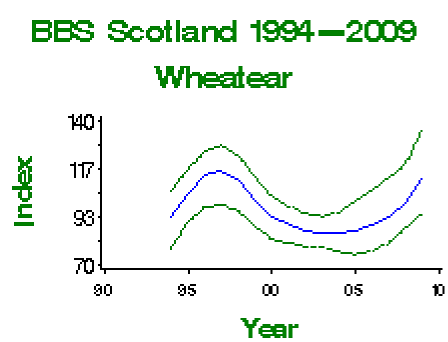
Population changes in detail

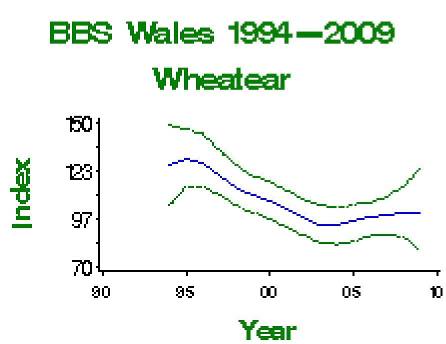
Table of population changes for Wheatear

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
BBS UK	13	1995-2008	284	-5	-21	14		
	10	1998-2008	296	-9	-24	7		
	5	2003-2008	325	14	1	28		
BBS England	13	1995-2008	158	-7	-21	17		
	10	1998-2008	169	-8	-23	15		
	5	2003-2008	203	8	-10	28		
BBS Scotland	13	1995-2008	77	-4	-28	33		
	10	1998-2008	74	-10	-33	28		
	5	2003-2008	78	17	-2	45		
BBS Wales	13	1995-2008	51	-23	-40	-1		
	10	1998-2008	57	-12	-31	10		
	5	2003-2008	59	7	-13	33		

BTO JNCC RSPB The Breeding Bird Survey is jointly funded by the BTO, JNCC & RSPB







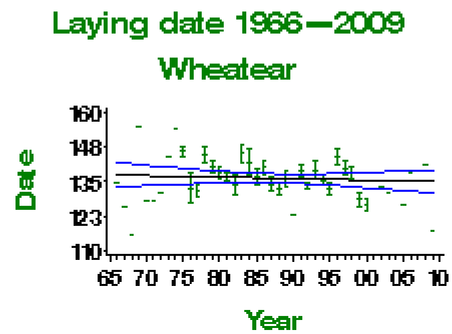
Demographic trends

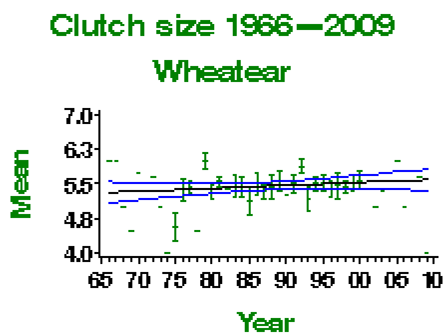
Table of demographic changes for Wheatear

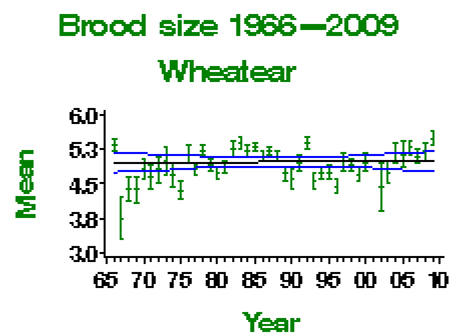
Variable	Period	Years	Mean	Trend	Modelled	Modelled	Change	Comment

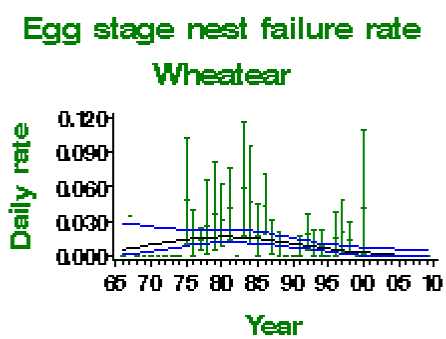
	(yrs)		annual sample		in first year	in 2008		
Clutch size	40	1968-2008	12	None				Small sample
Brood size	40	1968-2008	57	None				
Daily failure rate (eggs)	40	1968-2008	17	Curvilinear	0.81% nests/day	0.05% nests/day	-93.8%	Small sample
Daily failure rate (chicks)	40	1968-2008	39	None				
Laying date	40	1968-2008	13	None				Small sample

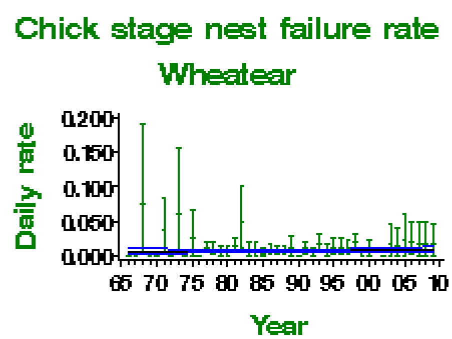
Insufficient data on fledglings per breeding attempt available for this species











Additional information

- Maps and statistics from British and Irish atlases
- BirdFacts page on species biology
- BirdTrack results

RING OUZEL
Turdus torquatus

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: no SPEC category (concentrated in Europe, conservation status favourable)
UK: red (>50% population decline)
UK Biodiversity Action Plan: **priority species**

Long-term trend

UK: decline

UK population size

6,157–7,549 pairs in 1999 (**Wotton *et al.* 2002a**: **BiE04**, **APEP06**)

Status summary

The first breeding atlases showed a decline of 27% in the number of 10-km squares occupied between 1968–72 and 1988–91 (**Gibbons *et al*. 1993**), and the extent of population decline has since been established by a special survey: a 58% population decline was estimated for the period between 1988–91 and 1999, warranting red listing for this species (**Gregory *et al.* 2002**). British & Irish bird observatory data show a decline in spring passage Ring Ouzels at western locations during 1970–98 that matches the estimated UK breeding decline, but no decline at eastern observatories where most birds are of Fennoscandian origin (**Burfield & Brooke 2005**). These authors infer that, since these populations winter together, the reasons for decline among UK breeders must lie on the breeding grounds or on passage: they also point out that UK birds are more exposed to hunting pressures, particularly in southwest France. It has proved difficult to establish any reasons for decline that are linked to the breeding grounds (**Buchanan *et al*. 2003**). In southeast Scotland, however, the breeding sites that are still occupied tend to be those at higher altitude and that have retained an extensive cover of heather (**Sim *et al.* 2007b**). In the same study, it was shown that declines were greatest in years following warm summers on the breeding grounds and also greater two years after high spring rainfall in Morocco: these results suggest that the population decline could be linked to reduced food supplies, and consequently higher rates of natural mortality, in autumn and winter (**Beale *et al*. 2006**).

Population changes in detail

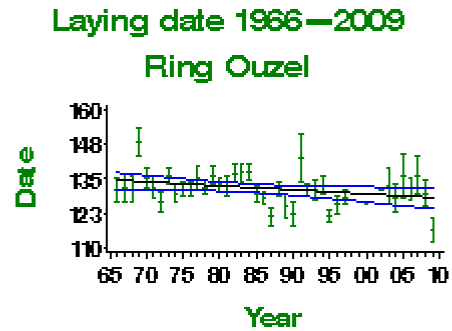
Annual breeding population changes for this species are not currently monitored by BTO

Demographic trends

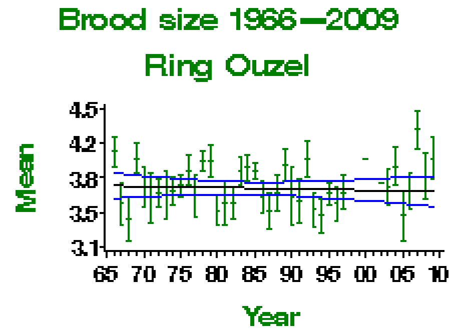
Table of demographic changes for Ring Ouzel

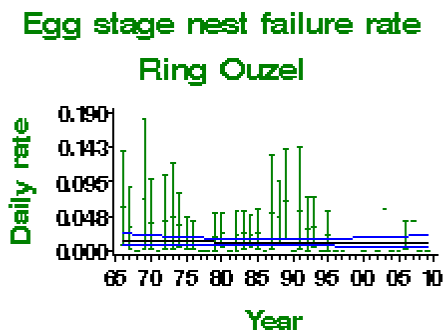
Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment
Brood size	40	1968-2008	21	None				Small sample
Daily failure rate (eggs)	40	1968-2008	11	None				Small sample
Daily failure rate (chicks)	40	1968-2008	14	None				Small sample
Laying date	40	1968-2008	23	None				Small sample

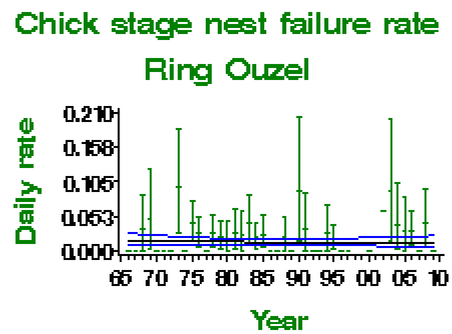
Insufficient data on fledglings per breeding attempt available for this species



Insufficient data on clutch size available for this species







Additional information

- **Maps and statistics from British and Irish atlases**
- **BirdFacts page on species biology**
- **BirdTrack results**

BLACKBIRD
Turdus merula

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: no SPEC category (concentrated in Europe, conservation status favourable)
UK: green

Long-term trend

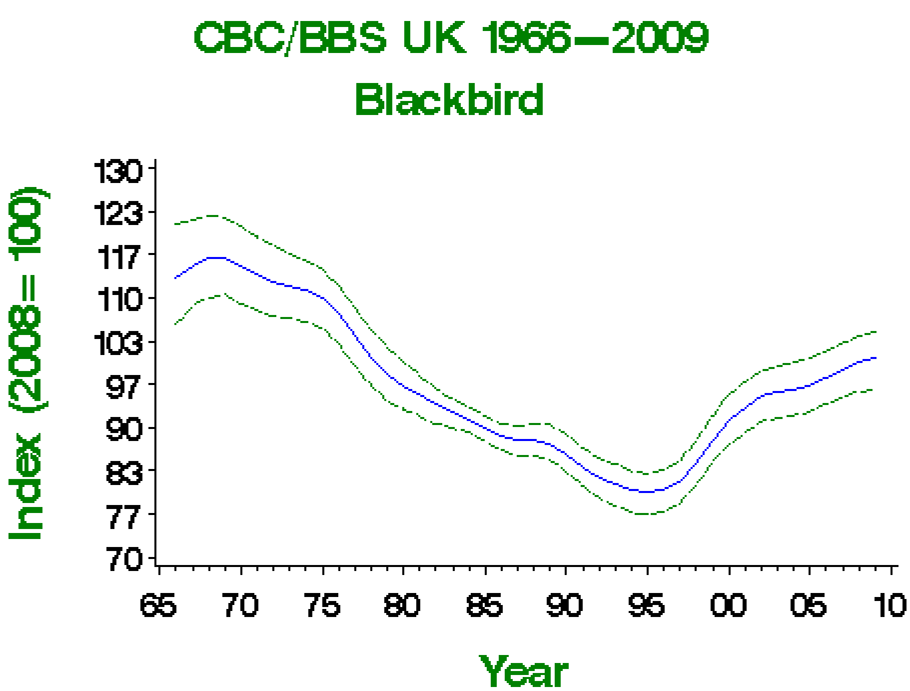
UK, England: shallow decline

UK population size

4,935,000 territories in 2000 (1988–91 Atlas estimate updated using CBC/BBS trend: **BiE04**, **APEP06**)

Status summary

Both CBC/BBS and CES data show long-term declines in Blackbird abundance up to about the mid 1990s, followed by a partial recovery. The moderate-decline criteria for amber listing and for BTO alerts are no longer met, and the species has been listed in the green category since 2002. CBC results show that the decline began in the mid 1970s. It is likely that reduced survival drove the decline (**Siriwardena *et al.* 1998a**), although there has been no change in survival as recorded by CES since 1983. Fleglings per breeding attempt also show no change. Agricultural intensification is likely to have contributed to the population decline (**Fuller *et al.* 1995**), but, since numbers fell in woodland as well as farmland, additional factors probably operated.



1967-2008: -13% (confidence interval -22% to -3%)

Population changes in detail

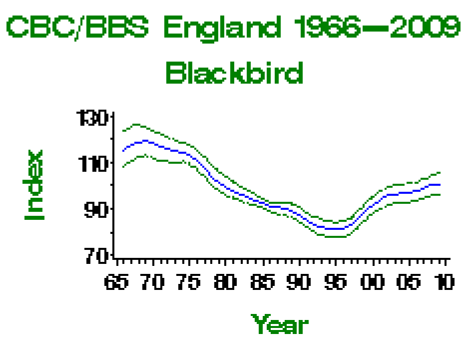
Table of population changes for Blackbird

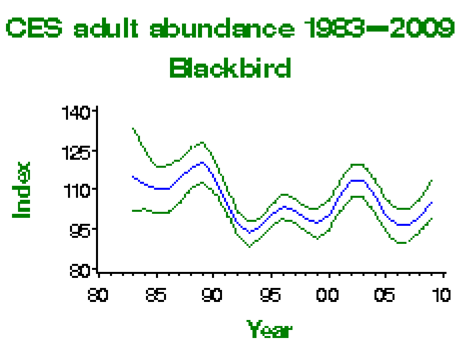
Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment

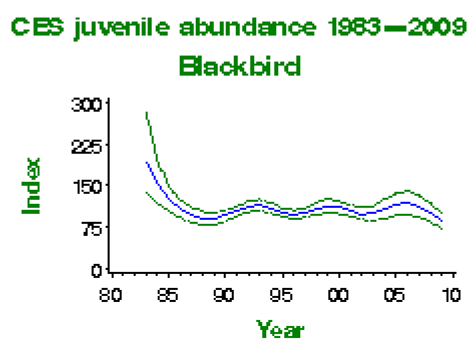
CBC/BBS UK	41	1967-2008	940	-13	-22	-3		
	25	1983-2008	1395	8	1	16		
	10	1998-2008	2515	18	16	21		
	5	2003-2008	2712	5	3	7		
CBC/BBS England	41	1967-2008	766	-15	-23	-6		
	25	1983-2008	1130	5	-2	13		
	10	1998-2008	2018	17	14	20		
	5	2003-2008	2189	4	2	6		
CES adults	24	1984-2008	98	-11	-24	5		
	10	1998-2008	112	1	-7	10		
	5	2003-2008	108	-12	-18	-4		
CES juveniles	24	1984-2008	89	-35	-57	1		
	10	1998-2008	102	-8	-24	10		
	5	2003-2008	100	1	-14	15		
BBS UK	13	1995-2008	2282	26	22	30		
	10	1998-2008	2458	18	15	21		
	5	2003-2008	2712	5	3	7		
BBS England	13	1995-2008	1820	23	19	28		
	10	1998-2008	1951	16	13	19		
	5	2003-2008	2159	4	2	5		
BBS Scotland	13	1995-2008	185	32	14	53		

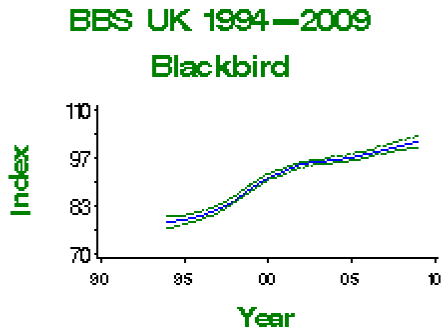
	10	1998-2008	197	26	10	43		
	5	2003-2008	226	8	0	17		
BBS Wales	13	1995-2008	191	44	31	56		
	10	1998-2008	214	33	24	42		
	5	2003-2008	230	13	7	17		
BBS N.Ireland	13	1995-2008	82	43	12	64		
	10	1998-2008	93	-3	-13	3		
	5	2003-2008	101	-6	-13	1		

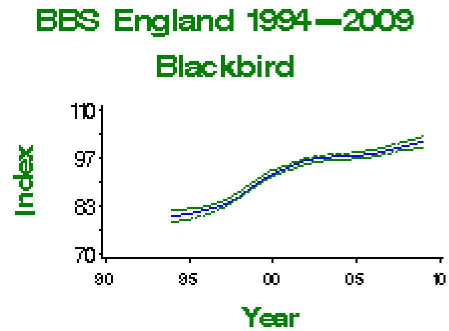
The Breeding Bird Survey is jointly funded by the BTO, JNCC & RSPB

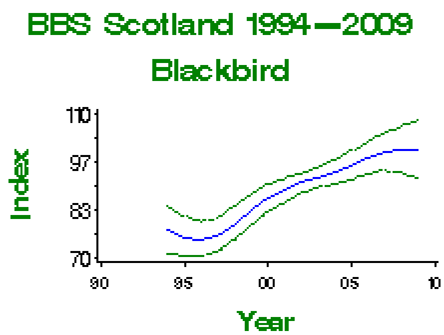


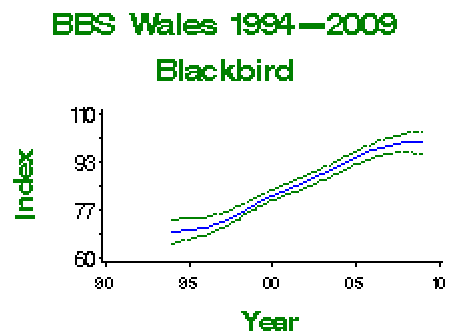


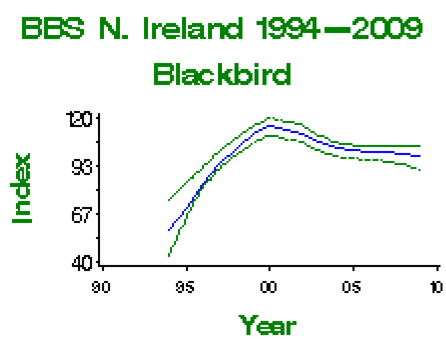




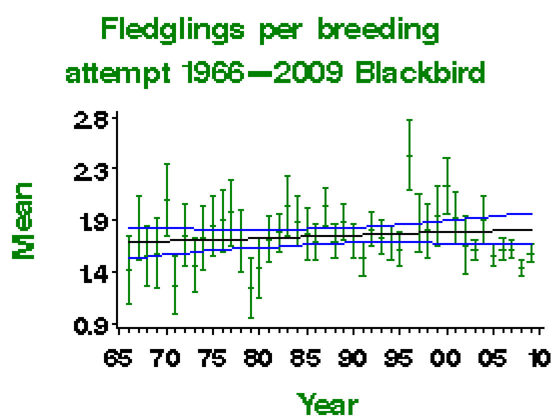


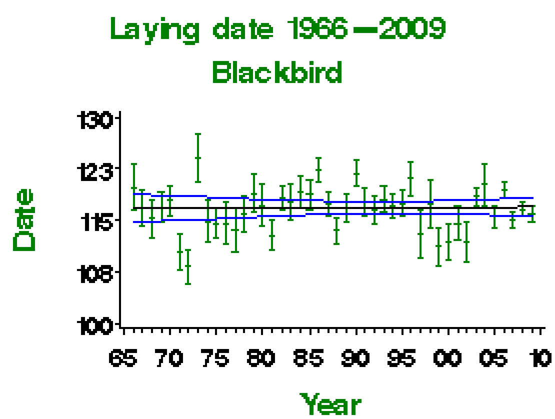






Demographic trends



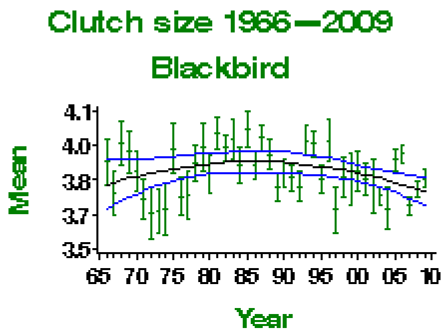


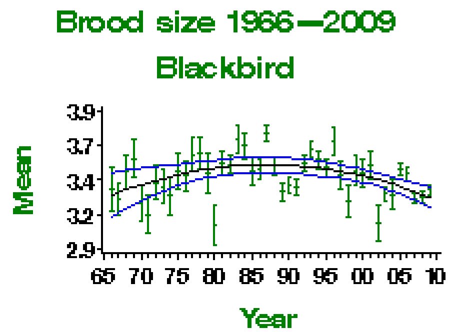
More on demographic trends

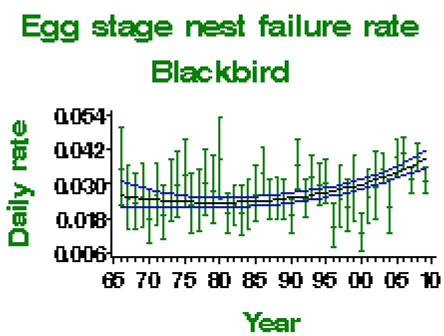
Table of demographic changes for Blackbird

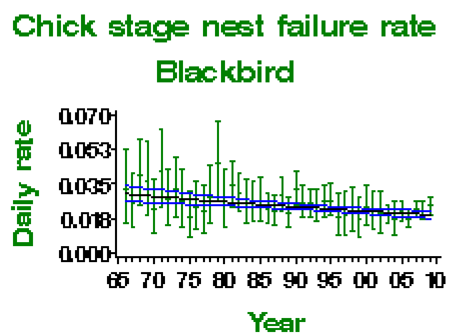
Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment

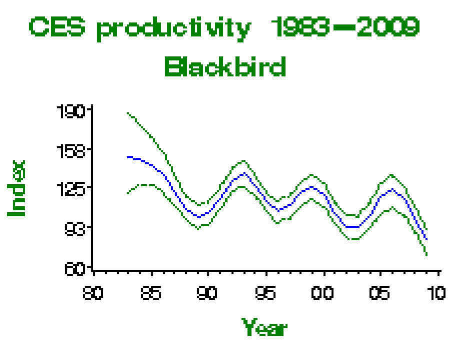
Fledglings per breeding attempt	40	1968-2008	81	None				
Clutch size	40	1968-2008	132	Curvilinear	3.8 eggs	3.76 eggs	-1%	
Brood size	40	1968-2008	172	Curvilinear	3.33 chicks	3.3 chicks	-0.9%	
Daily failure rate (eggs)	40	1968-2008	205	Curvilinear	2.54% nests/day	3.72% nests/day	46.5%	
Daily failure rate (chicks)	40	1968-2008	175	Linear decline	2.94% nests/day	1.98% nests/day	-32.7%	
Laying date	40	1968-2008	160	None				
Juvenile to Adult ratio (CES)	24	1984-2008	101	Smoothed trend	149 Index value	100 Index value	-33% >25	
Juvenile to Adult ratio (CES)	10	1998-2008	114	Smoothed trend	120 Index value	100 Index value	-17%	
Juvenile to Adult ratio (CES)	5	2003-2008	110	Smoothed trend	93 Index value	100 Index value	8%	

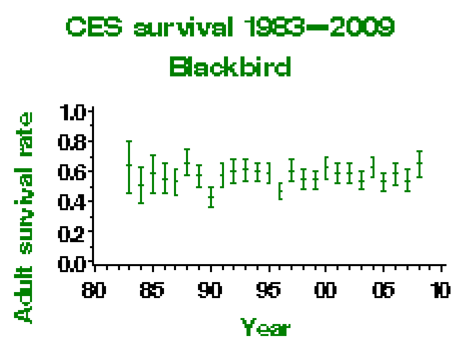












Additional information

- Maps and statistics from British and Irish atlases
- BirdFacts page on species biology
- BirdTrack results

- **Garden BirdWatch results**

SONG THRUSH
Turdus philomelos

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: no SPEC category (concentrated in Europe, conservation status favourable)
UK: red (species level, races *clarkei* and *hebridensis*)
UK Biodiversity Action Plan: **click here**, priority species (***clarkei*** and ***hebridensis***)

Long-term trend

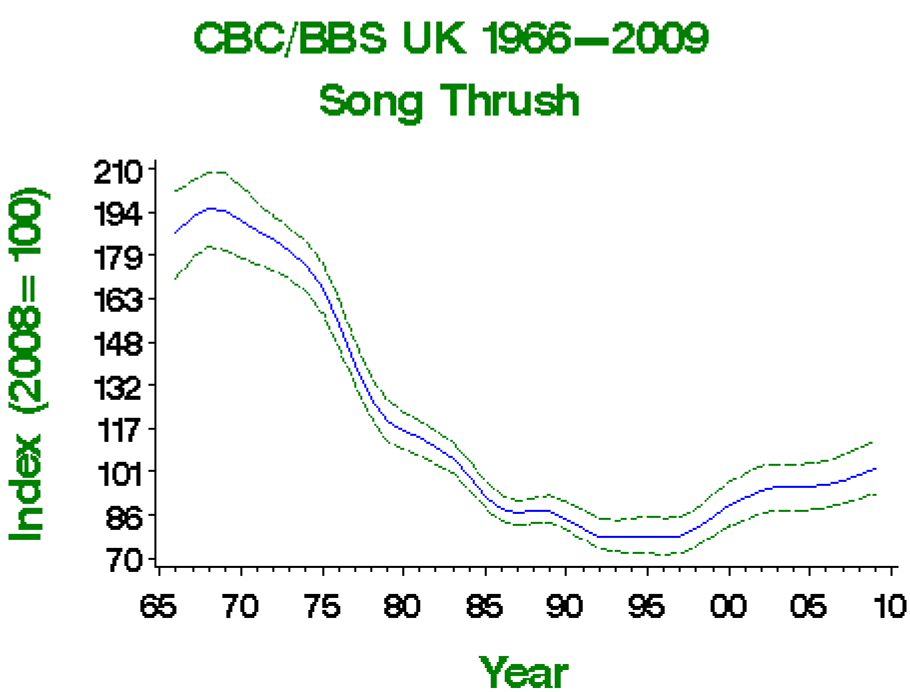
UK, England: moderate decline

UK population size

1,144,000 territories in 2000 (1988–91 Atlas estimate updated using CBC/BBS trend: **BiE04**, **APEP06**)

Status summary

CBC/BBS shows a rapid decline in Song Thrush abundance that began in the mid 1970s. The second half of this decline can also be seen in the CES index. CES productivity showed an initial decrease, followed by some partial recovery, and NRS data indicate that productivity may have improved since 1981. Changes in survival in the first winter, and perhaps also the post-fledging period, are sufficient to have caused the population decline (**Thomson *et al.* 1997**, **Siriwardena *et al.* 1998a**, **Robinson *et al.* 2004**). The environmental causes of these changes are not known, but changes in farming practices, land drainage, pesticides and predators are all possible contributors (**Fuller *et al.* 1995**, **Robinson *et al.* 2004**). In woodland, drainage of damp ground and the depletion of woodland shrub layers through canopy closure and deer browsing may also be implicated (**Fuller *et al.* 2005**). Recent CBC/BBS data show a general increase, but population levels remain relatively low. Recovery of rural Song Thrush populations requires challenging new policy initiatives that should aim to restore nesting cover in scrub and woodland understorey, grazed grassland in arable-dominated areas, and damper soils in summer (**Peach *et al.* 2004**).



1967-2008: -48% (confidence interval -56% to -38%)

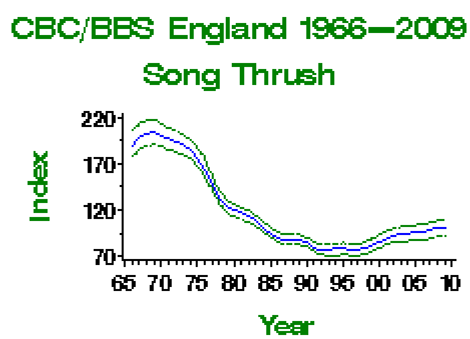
Population changes in detail

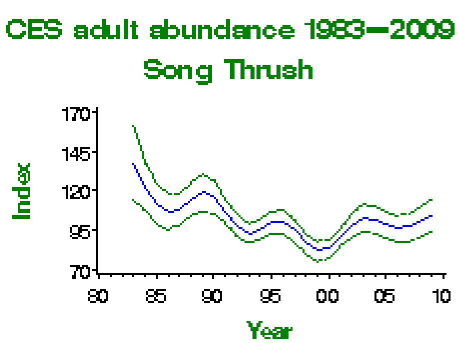
Table of population changes for Song Thrush

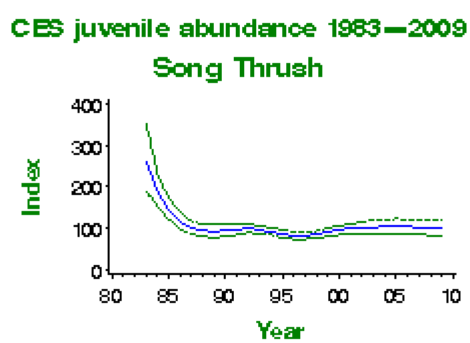
Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS UK	41	1967-2008	771	-48	-56	-38	>25	
	25	1983-2008	1125	-5	-17	10		
	10	1998-2008	2039	24	18	29		
	5	2003-2008	2231	5	1	9		
CBC/BBS England	41	1967-2008	617	-49	-59	-41	>25	
	25	1983-2008	891	-8	-19	5		
	10	1998-2008	1600	27	22	32		
	5	2003-2008	1769	6	4	9		
CES adults	24	1984-2008	82	-18	-35	3		
	10	1998-2008	93	15	2	32		
	5	2003-2008	94	-2	-13	8		
CES juveniles	24	1984-2008	69	-48	-65	-20	>25	
	10	1998-2008	79	17	-6	44		
	5	2003-2008	79	-2	-19	16		
BBS UK	13	1995-2008	1827	27	21	35		
	10	1998-2008	1989	24	18	30		
	5	2003-2008	2231	5	2	9		
BBS England	13	1995-2008	1424	25	18	31		
	10	1998-	1546	26	20	30		

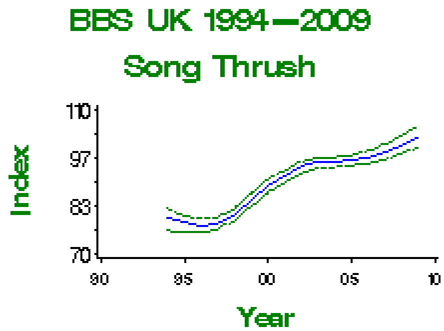
		2008						
	5	2003-2008	1749	6	3	9		
BBS Scotland	13	1995-2008	168	32	16	54		
	10	1998-2008	180	20	4	34		
	5	2003-2008	205	1	-11	14		
BBS Wales	13	1995-2008	163	39	23	55		
	10	1998-2008	184	25	11	38		
	5	2003-2008	199	4	-4	14		
BBS N.Ireland	13	1995-2008	72	74	35	114		
	10	1998-2008	83	33	16	48		
	5	2003-2008	92	12	2	25		

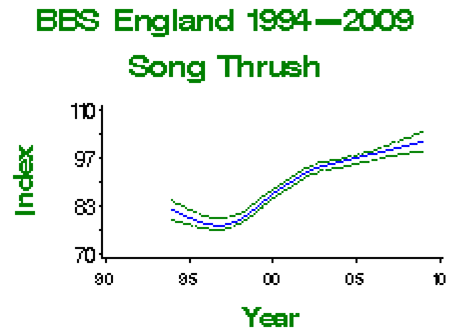
The Breeding Bird Survey is jointly funded by the BTO, JNCC & RSPB

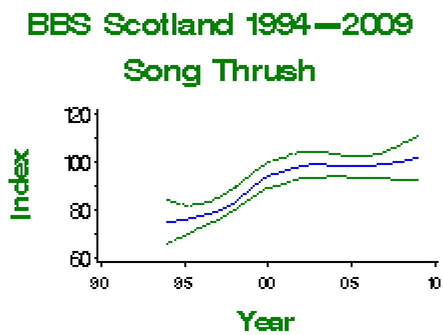


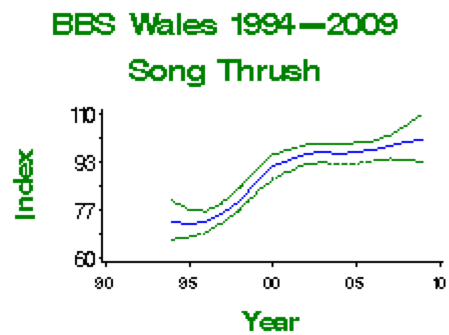


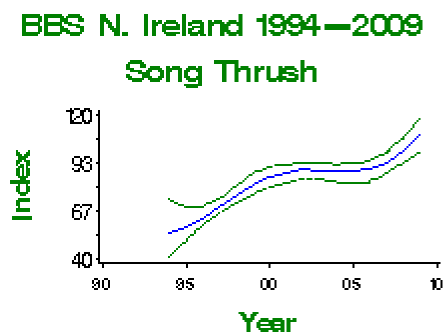




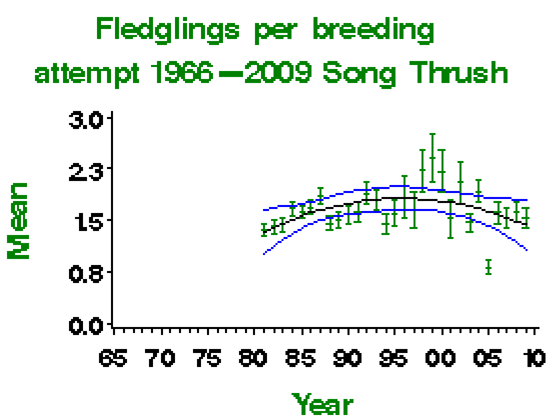


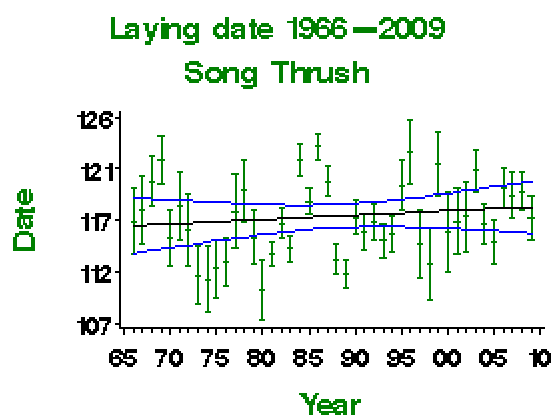






Demographic trends



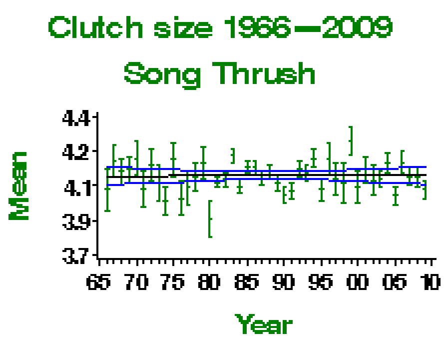


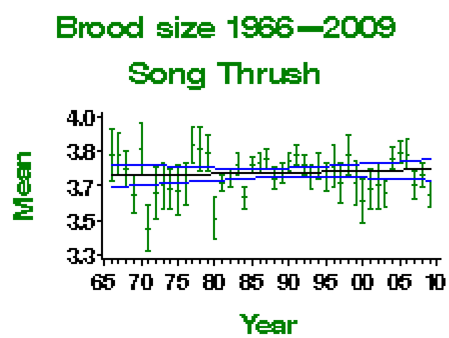
More on demographic trends

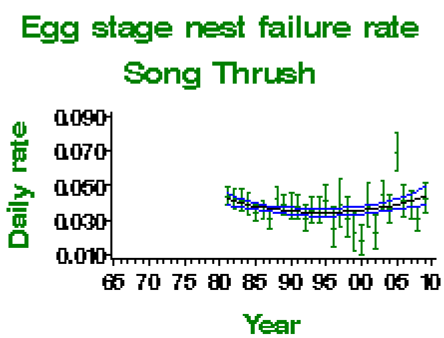
Table of demographic changes for Song Thrush

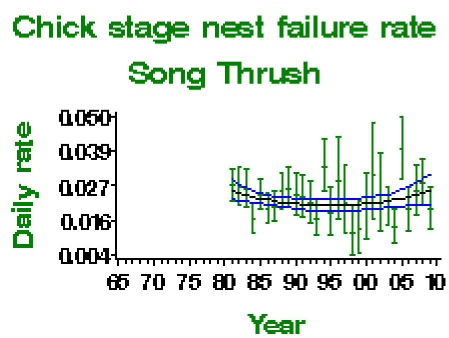
Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment
Fledglings per breeding	27	1981-	132	Curvilinear	1.34	1.49	11.2%	

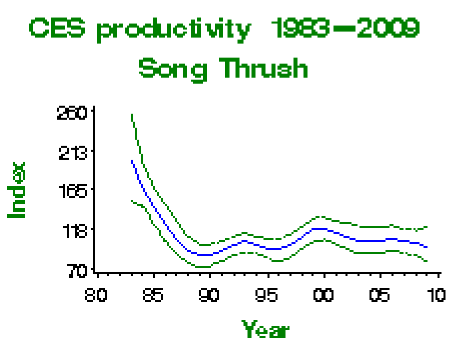
attempt		2008			fledglings	fledglings		
Clutch size	40	1968-2008	167	None				
Brood size	40	1968-2008	184	None				
Daily failure rate (eggs)	27	1981-2008	318	Curvilinear	4.2% nests/day	4.23% nests/day	0.7%	
Daily failure rate (chicks)	27	1981-2008	240	Curvilinear	2.55% nests/day	2.47% nests/day	-3.1%	
Laying date	40	1968-2008	193	None				
Juvenile to Adult ratio (CES)	24	1984-2008	90	Smoothed trend	170 Index value	100 Index value	-41% >25	
Juvenile to Adult ratio (CES)	10	1998-2008	103	Smoothed trend	108 Index value	100 Index value	-7%	
Juvenile to Adult ratio (CES)	5	2003-2008	103	Smoothed trend	104 Index value	100 Index value	-4%	

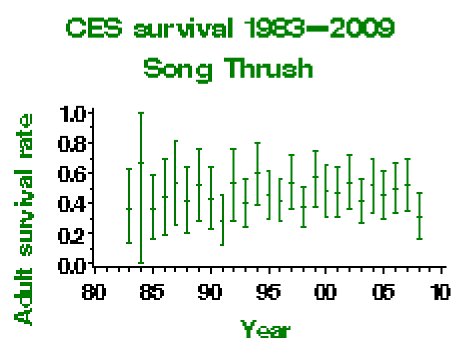












Additional information

- Maps and statistics from British and Irish atlases
- BirdFacts page on species biology
- BirdTrack results
- Garden BirdWatch results

MISTLE THRUSH
Turdus viscivorus

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: no SPEC category (concentrated in Europe, conservation status favourable)
UK: amber (25–50% population decline)

Long-term trend

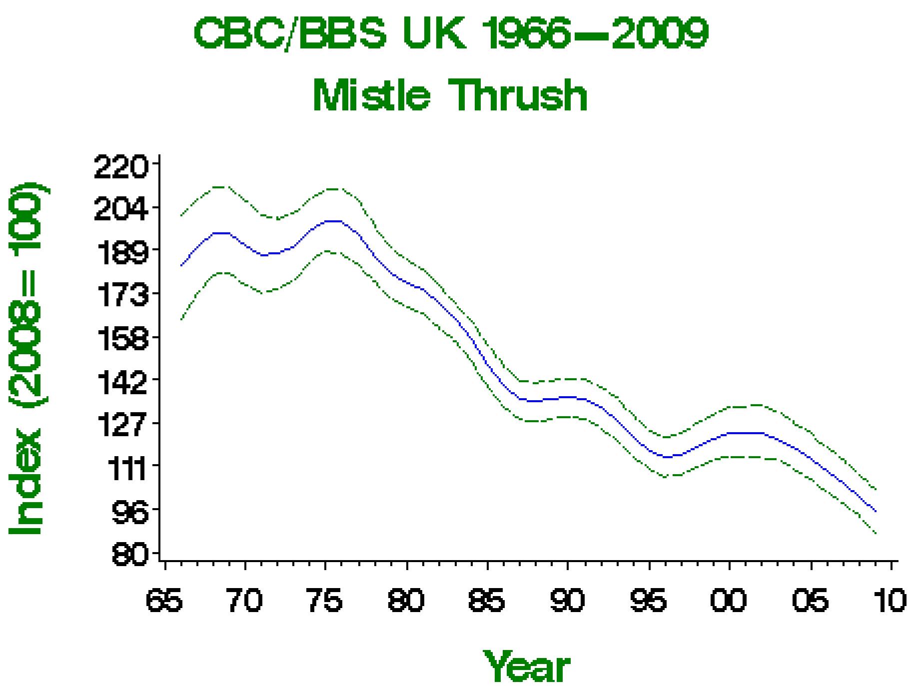
UK: moderate decline
England: rapid decline

UK population size

222,500 territories in 2000 (1988–91 Atlas estimate updated using CBC/BBS trend: **BiE04**, **APEP06**)

Status summary

Like those of **Song Thrush** and **Blackbird**, Mistle Thrush populations have declined significantly since the mid 1970s, especially on farmland. The species was recently moved from the green to the amber list because of population decline, and recent BBS data suggest that this decline is continuing. The Scottish BBS trend, in contrast to those elsewhere in the UK, is of strong increase since the late 1990s. There has been linear increase in the number of fledglings per breeding attempt, and a minor increase in clutch size; population decline is thus likely to have been driven by reduced annual survival (**Siriwardena *et al.* 1998**). Numbers have fallen widely in Europe since 1980 (**PECBMS 2010**).



1967-2008: -47% (confidence interval -55% to -37%)

Population changes in detail

Table of population changes for Mistle Thrush

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment

CBC/BBS UK	41	1967-2008	494	-47	-55	-37	>25	
	25	1983-2008	713	-39	-44	-32	>25	
	10	1998-2008	1251	-15	-20	-10		
	5	2003-2008	1296	-17	-22	-13		
CBC/BBS England	41	1967-2008	407	-54	-62	-43	>50	
	25	1983-2008	582	-48	-55	-42	>25	
	10	1998-2008	1004	-26	-30	-21	>25	
	5	2003-2008	1043	-22	-26	-18		
BBS UK	13	1995-2008	1138	-13	-19	-4		
	10	1998-2008	1219	-16	-21	-9		
	5	2003-2008	1296	-17	-21	-11		
BBS England	13	1995-2008	908	-25	-30	-20	>25	
	10	1998-2008	965	-25	-29	-20	>25	
	5	2003-2008	1024	-20	-24	-15		
BBS Scotland	13	1995-2008	75	38	0	91		
	10	1998-2008	81	8	-17	38		
	5	2003-2008	93	-11	-29	5		
BBS Wales	13	1995-2008	99	1	-20	27		
	10	1998-2008	111	-2	-16	16		
	5	2003-2008	114	-5	-15	10		
BBS N.Ireland	13	1995-	58	10	-52	94		

		2008						
	10	1998-2008	66	1	-22	23		
	5	2003-2008	73	-20	-34	-8		

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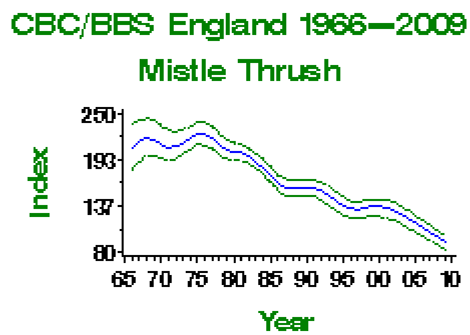
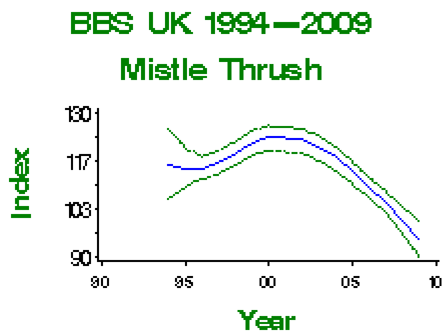
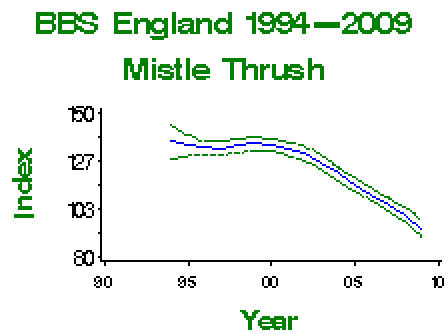
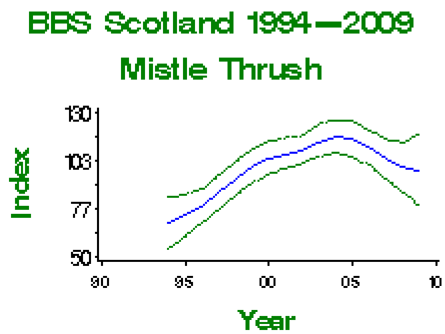
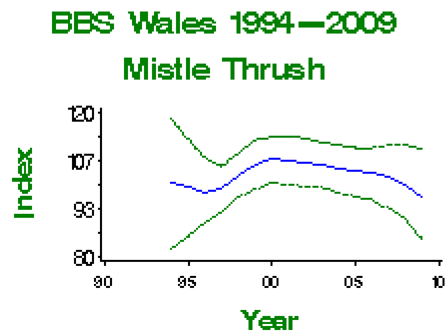
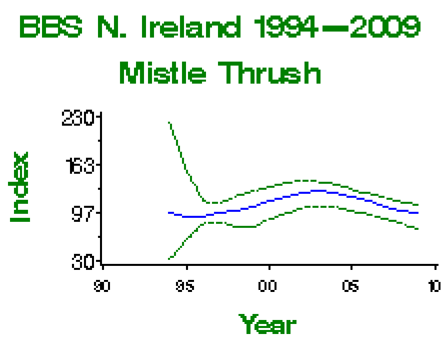




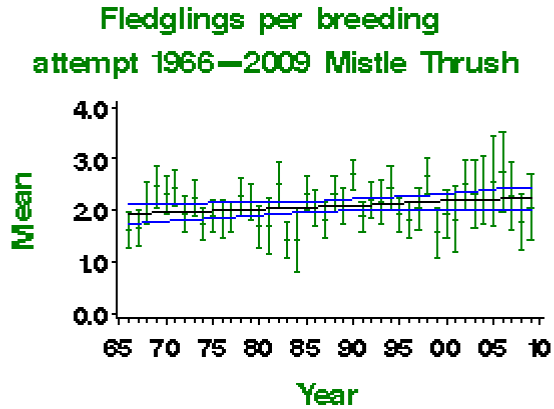


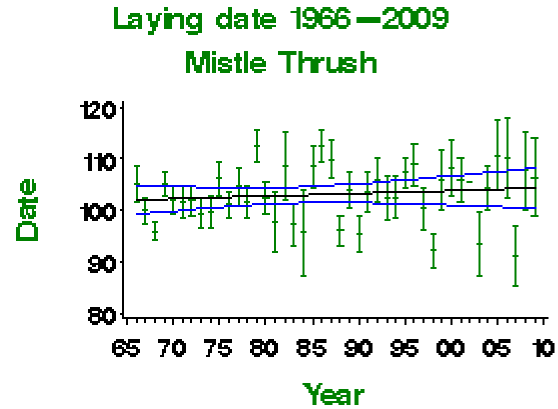






Demographic trends

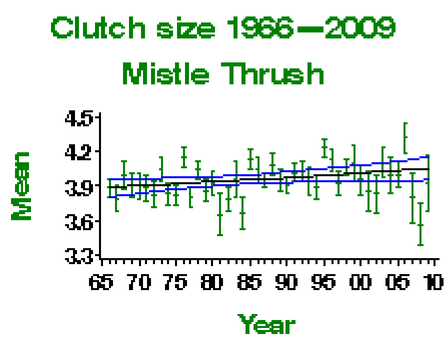


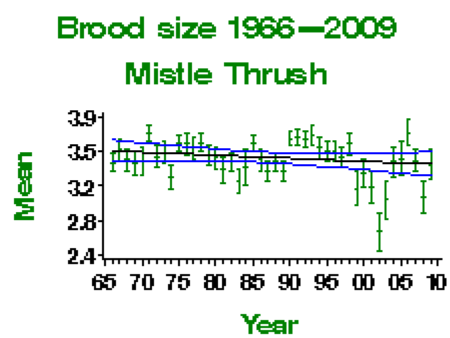


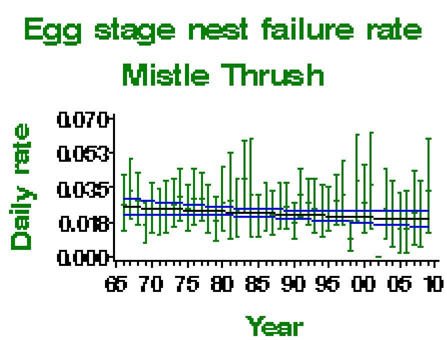
More on demographic trends

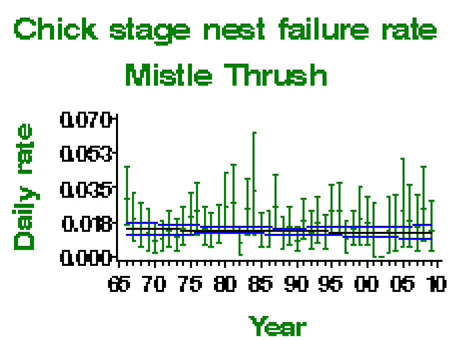
Table of demographic changes for Mistle Thrush

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment
Fledglings per breeding attempt	40	1968-2008	23	None				
Clutch size	40	1968-2008	34	Linear increase	3.9 eggs	4.05 eggs	3.9%	
Brood size	40	1968-2008	66	None				
Daily failure rate (eggs)	40	1968-2008	56	None				
Daily failure rate (chicks)	40	1968-2008	59	None				
Laying date	40	1968-2008	28	None				Small sample









Additional information

- Maps and statistics from British and Irish atlases
- BirdFacts page on species biology
- BirdTrack results
- Garden BirdWatch results
- Atlas 2007–11 latest results

CETTI'S WARBLER
Cettia cetti

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe)
UK: green

Long-term trend

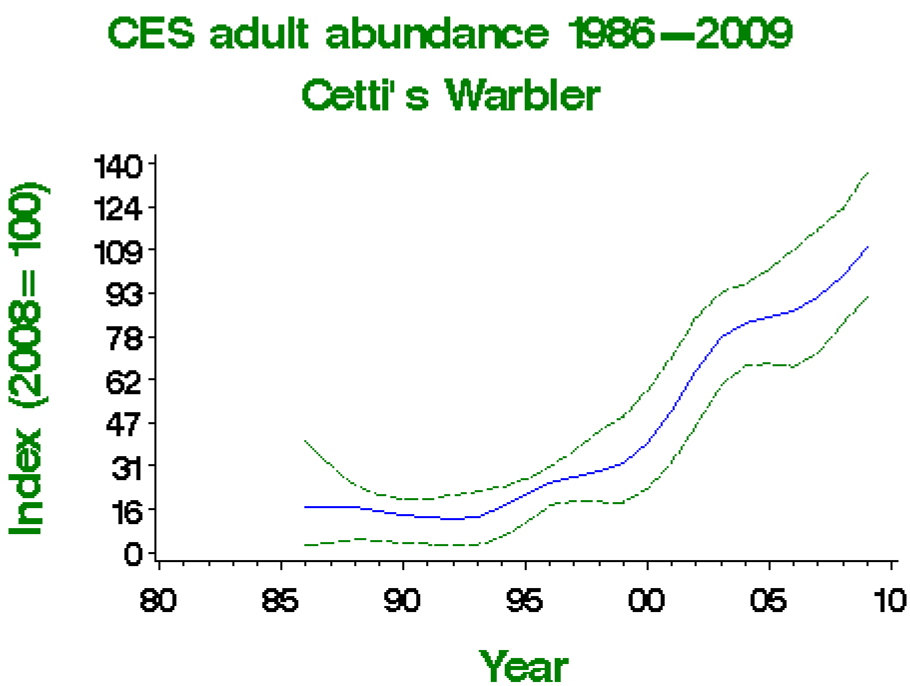
England, Wales: increase

UK population size

534 pairs in 1997–2001 (RBBP data: **BiE04**); mean of 645 pairs in 1998–2002 (RBBP data: **APEP06**); at least 2,257 singing males or territories in 2008 (**Holling & RBBP 2010b**)

Status summary

Cetti's Warblers were first recorded in Britain as recently as 1961. Colonisation, which began in Kent in 1972 or 1973, continues to be monitored annually by **RBBP**. Numbers and breeding range increased spectacularly during the first 12 years, with Norfolk and Dorset gradually overtaking Kent as the main host counties (**Gibbons *et al*. 1993**, **Wotton *et al*. 1998**). Severe winters after 1978 led to the temporary extinction of the Kent population in 1988. Populations in milder regions continued to grow, but overall the UK population fell by over a third between 1984 and 1986. In the absence of severe winters since 1986, increase and range expansion have continued. The first breeding records north of the Humber were made in 2006 (**Holling & RBBP 2009**). Much constant-effort ringing takes place in prime Cetti's Warbler habitat; despite the comparative rarity of this species, therefore, CES population and productivity indices are already available (**Robinson *et al*. 2007**). CES data confirm the species' sensitivity to cold winters, which appears to have become more evident as the breeding range has expanded into more testing climates. Numbers have risen steeply across Europe since 1990 (**PECBMS 2010**).

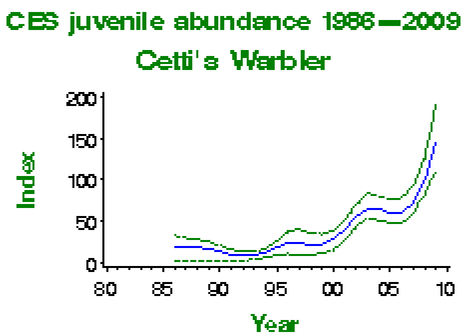


1998-2008: 244% (confidence interval 94% to 775%)

Population changes in detail

Table of population changes for Cetti's Warbler

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CES adults	10	1998-2008	11	244	94	775		Small sample
	5	2003-2008	13	30	-3	116		Small sample
CES juveniles	10	1998-2008	12	363	128	1355		Small sample
	5	2003-2008	14	53	6	124		Small sample



Demographic trends

Demographic information is not currently available for this species

Additional information

- Maps and statistics from British and Irish atlases
- BirdFacts page on species biology
- BirdTrack results

GRASSHOPPER WARBLER
Locustella naevia

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: no SPEC category (concentrated in Europe, conservation status favourable)
UK: red (>50% population decline)
UK Biodiversity Action Plan: priority species

Long-term trend

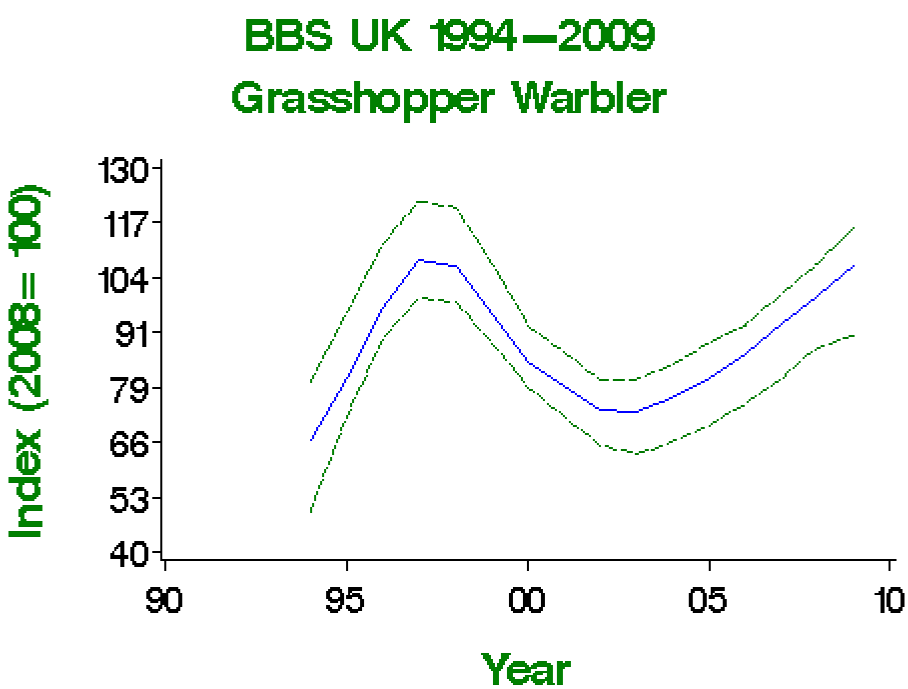
UK: rapid decline

UK population size

11,750 pairs in 1990 (1988–91 Atlas: APEP06); 12,300 pairs in 2000 (updated using BBS trend: BiE04)

Status summary

Grasshopper Warbler was previously amber-listed because of a contraction in range during the period preceding the 1988–91 Atlas, reportedly due to habitat loss (Gibbons *et al.* 1993). The CBC index suffered from small and severely dwindling sample sizes, but the available data indicate a rapid population decline between the mid 1960s and mid 1980s, when numbers became too small for annual monitoring (Marchant *et al.* 1990). On this basis, the species is now red-listed. The BBS shows wide fluctuations in abundance since 1994, and currently an overall shallow increase. Given suitable habitat and conditions, the species has high reproductive potential, as demonstrated by analysis of nest record data (Glue 1990). Numbers have shown widespread moderate decrease across Europe since 1980 (PECBMS 2010).



1995-2008: 24% (confidence interval -9% to 50%)

Population changes in detail

Table of population changes for Grasshopper Warbler

Source	Period	Years	Plots	Change	Lower	Upper	Alert	Comment

	(yrs)		(n)	(%)	limit	limit		
BBS UK	13	1995-2008	70	24	-9	50		
	10	1998-2008	74	-7	-29	10		
	5	2003-2008	80	37	14	64		
BBS England	13	1995-2008	31	-23	-47	4		
	10	1998-2008	32	-31	-53	-12	>25	
	5	2003-2008	35	2	-22	24		

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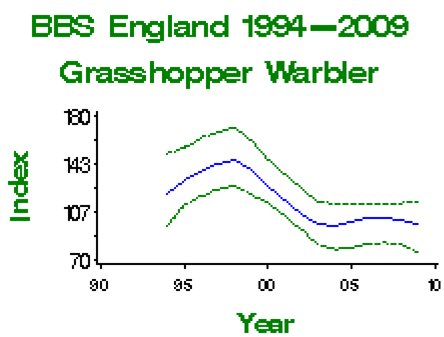


Demographic trends

Demographic information is not currently available for this species

Additional information

- **Maps and statistics from British and Irish atlases**
- **BirdFacts page on species biology**
- **BirdTrack results**

SEDGE WARBLER
Acrocephalus schoenobaenus

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: no SPEC category (concentrated in Europe, conservation status favourable)
UK: green

Long-term trend

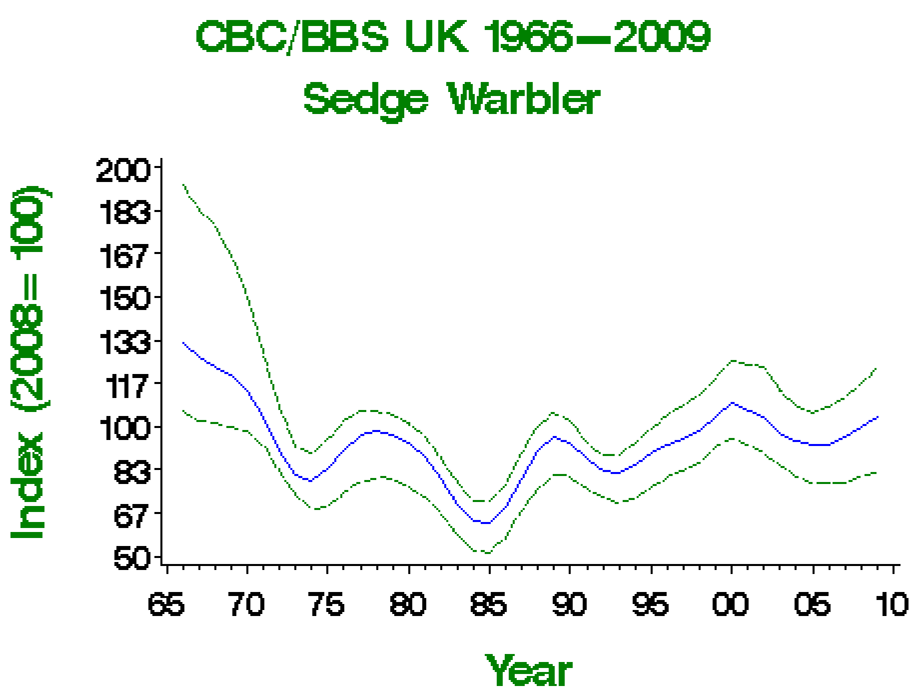
UK: shallow decline
England: moderate decline

UK population size

321,000 territories in 2000 (1988–91 Atlas estimate updated using CBC/BBS trend: **BiE04**, **APEP06**)

Status summary

The trend in England is apparently of moderate decline, but this is uncertain because the long-term changes are partly obscured by shorter fluctuations in numbers. Detailed analysis of BTO data sets has shown that much of the year-to-year variation in population size is driven by changes in adult survival rates which, in turn, are related to changes in rainfall on their wintering grounds, just south of the Sahara Desert, in the West African Sahel (**Peach *et al.* 1991**). The smoothed CBC/BBS and WBS/WBBS trends show four troughs in population, related to years of poor West African rainfall, with a low point in 1984–85. The CES, which provides the biggest Sedge Warbler sample, shows the most recent three of the same troughs. Daily nest failure rates at the egg stage have halved, and the numbers of fledglings per breeding attempt has shown linear increase. CES productivity data show a sustained decrease since the late 1980s.



1967-2008: -21% (confidence interval -56% to 9%)

Population changes in detail

Table of population changes for Sedge Warbler

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS UK	41	1967-2008	130	-21	-56	9		
	25	1983-2008	182	43	8	96		
	10	1998-2008	309	2	-13	20		
	5	2003-2008	313	2	-13	16		
CBC/BBS England	41	1967-2008	89	-36	-66	-8	>25	
	25	1983-2008	119	22	-12	60		
	10	1998-2008	199	-6	-21	4		
	5	2003-2008	203	-10	-21	-2		
WBS/WBBS waterways	33	1975-2008	68	-40	-60	-19	>25	
	25	1983-2008	79	-25	-44	-3	>25	
	10	1998-2008	124	-27	-38	-16	>25	
	5	2003-2008	127	-17	-27	-10		
CES adults	24	1984-2008	65	-45	-61	-28	>25	
	10	1998-2008	75	-47	-54	-40	>25	
	5	2003-2008	70	-38	-45	-31	>25	
CES juveniles	24	1984-2008	63	9	-38	226		
	10	1998-2008	73	-27	-40	-11	>25	
	5	2003-2008	69	-20	-34	1		
BBS UK	13	1995-2008	284	9	-11	32		
	10	1998-	299	1	-15	15		

		2008						
	5	2003-2008	313	2	-13	14		
BBS England	13	1995-2008	181	-7	-22	7		
	10	1998-2008	190	-5	-17	6		
	5	2003-2008	202	-8	-18	2		
BBS Scotland	13	1995-2008	51	35	-3	99		
	10	1998-2008	52	11	-22	45		
	5	2003-2008	54	13	-23	50		

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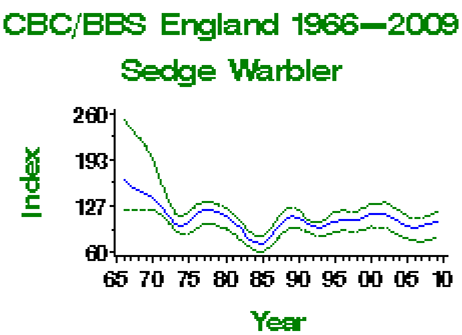
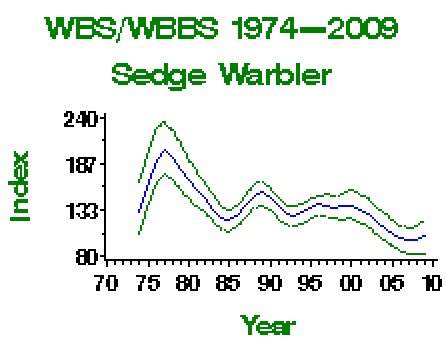
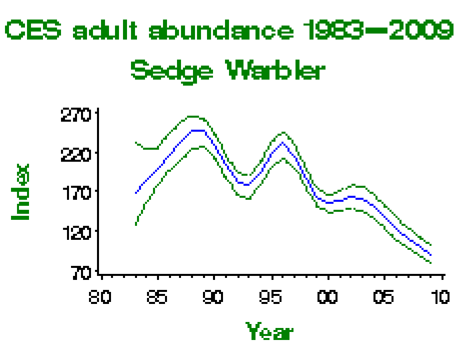
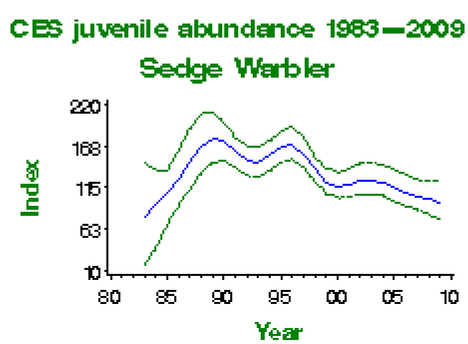
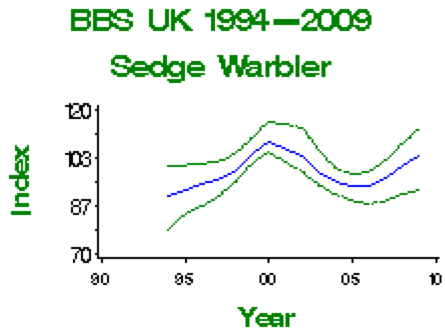
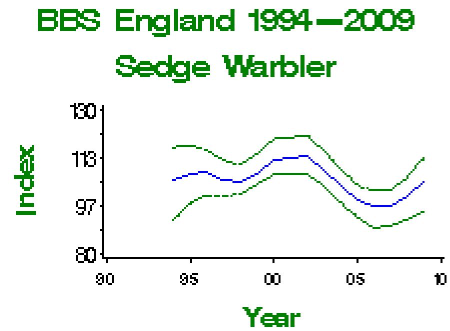


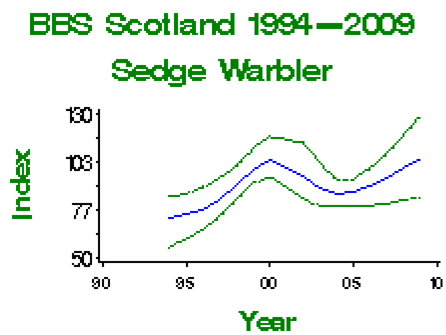




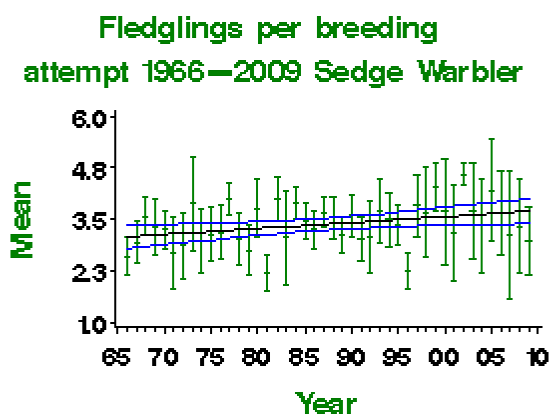


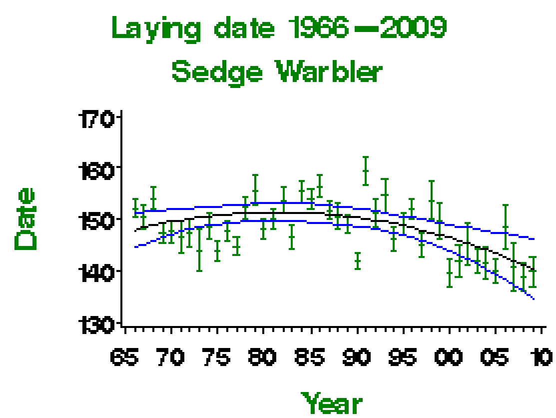






Demographic trends



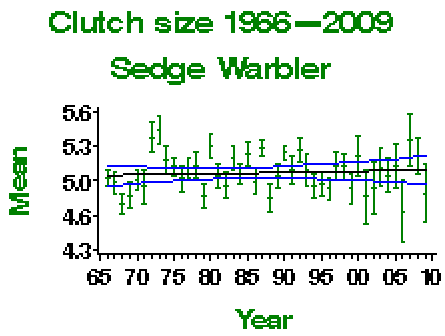


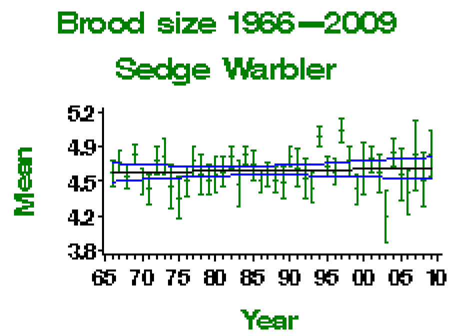
More on demographic trends

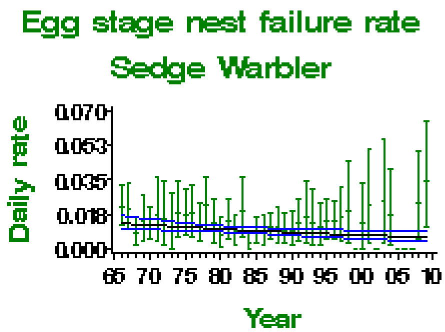
Table of demographic changes for Sedge Warbler

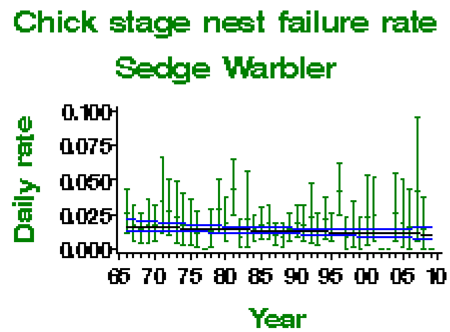
Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment
Fledglings per breeding attempt	40	1968-2008	25	Linear increase	3.11 fledglings	3.69 fledglings	18.7%	
Clutch size	40	1968-2008	36	None				
Brood size	40	1968-2008	56	None				
Daily failure rate (eggs)	40	1968-2008	42	Linear decline	1.28% nests/day	0.62% nests/day	-51.6%	
Daily failure rate (chicks)	40	1968-2008	48	None				
Laying date	40	1968-2008	48	Curvilinear	May 29	May 21	-8 days	
Juvenile to Adult ratio (CES)	24	1984-2008	71	Smoothed trend	229 Index value	100 Index value	-56% >50	
Juvenile to Adult ratio	10	1998-	82	Smoothed	107 Index	100 Index	-6%	

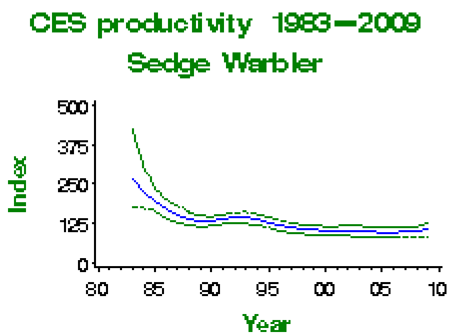
(CES)		2008		trend	value	value		
Juvenile to Adult ratio (CES)	5	2003-2008	77	Smoothed trend	101 Index value	100 Index value	-1%	

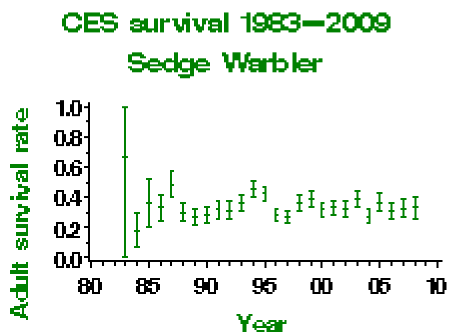












Additional information

- Maps and statistics from British and Irish atlases
- BirdFacts page on species biology
- BirdTrack results
- Atlas 2007–11 latest results

REED WARBLER
Acrocephalus scirpaceus

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: no SPEC category (concentrated in Europe, conservation status favourable)
UK: green

Long-term trend

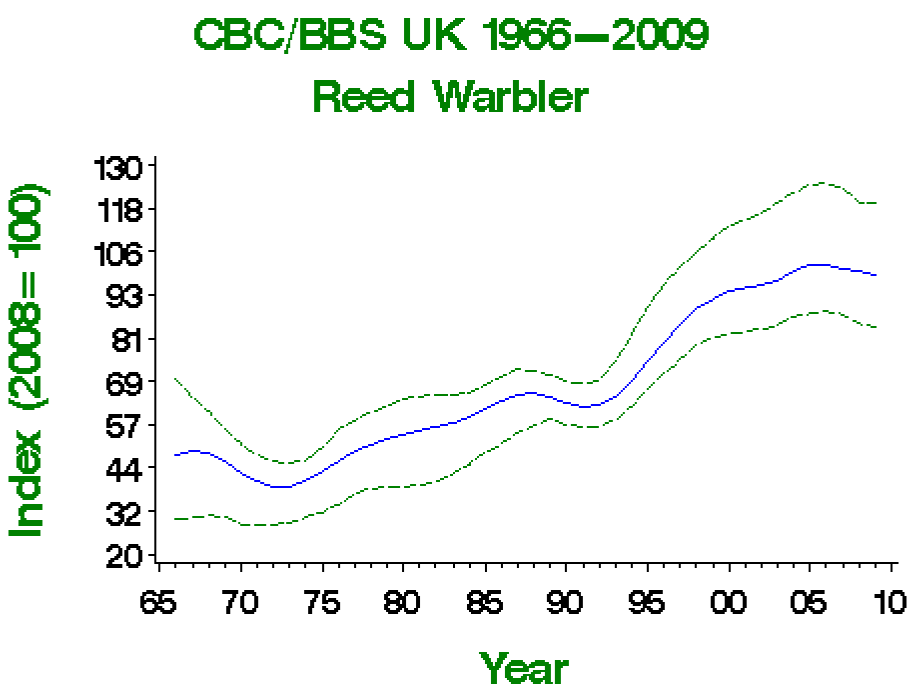
UK: probable rapid increase

UK population size

60,800–122,000 pairs in 2000 (1988–91 Atlas estimate updated using CBC/BBS trend: **BiE04**, **APEP06**)

Status summary

This species has an unusually clumped distribution, with very high breeding concentrations in *Phragmites* reedbeds, where numbers are very hard to census. Because of this, CES, which has many sites in reedbeds, ought perhaps be a better measure of population change than either CBC/BBS or WBS/WBBS, where the species is encountered mainly at low density or in linear habitats. CES shows a decline from 1983 until the early 1990s, followed by a partial recovery, and another more recent decline. Both CBC/BBS and WBS/WBBS show progressive moderate increases, however, perhaps linked to increasingly sensitive management of small and linear wetland sites. Population increase, as indicated by the census work, accords with the remarkable range expansion the species has achieved since the 1960s, as recorded by **atlas projects**. West Wales, northwest and northeast England were colonised, as was the east coast of Ireland, between 1968–72 and 1988–91 (**Gibbons *et al.* 1993**), and the species is now regular as far north as the Tay reedbeds (**Robertson 2003**). Breeding performance as measured by brood size and failure rates has improved slightly; there has been linear increase in the numbers of fledglings per breeding attempt, and a small improvement is apparent in CES productivity. The trend towards earlier laying can be partly explained by recent climate change (**Crick & Sparks 1999**).



1967-2008: 104% (confidence interval 31% to 347%)

Population changes in detail

Table of population changes for Reed Warbler

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS UK	41	1967-2008	58	104	31	347		
	25	1983-2008	82	74	28	198		
	10	1998-2008	136	12	-3	27		
	5	2003-2008	144	3	-7	15		
CBC/BBS England	41	1967-2008	55	76	18	250		
	25	1983-2008	77	51	15	121		
	10	1998-2008	130	8	-7	23		
	5	2003-2008	137	3	-7	14		
WBS/WBBS waterways	27	1981-2008	41	80	4	251		
	25	1983-2008	43	83	2	256		
	10	1998-2008	75	-1	-16	16		
	5	2003-2008	77	-2	-13	10		
CES adults	24	1984-2008	55	-40	-52	-23	>25	
	10	1998-2008	63	-33	-41	-22	>25	
	5	2003-2008	61	-20	-27	-12		
CES juveniles	24	1984-2008	57	20	-32	168		
	10	1998-2008	65	-13	-26	5		
	5	2003-2008	63	-13	-26	2		
BBS UK	13	1995-2008	117	28	8	54		

	10	1998-2008	128	13	-1	32		
	5	2003-2008	144	4	-8	14		
BBS England	13	1995-2008	111	22	4	43		
	10	1998-2008	122	9	-4	28		
	5	2003-2008	137	3	-6	16		

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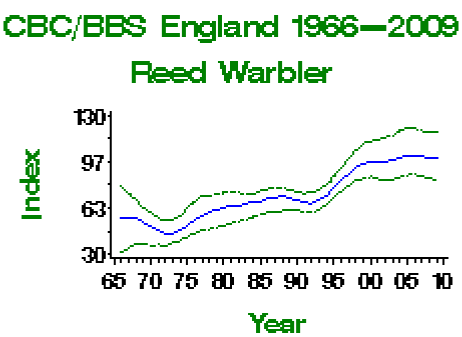
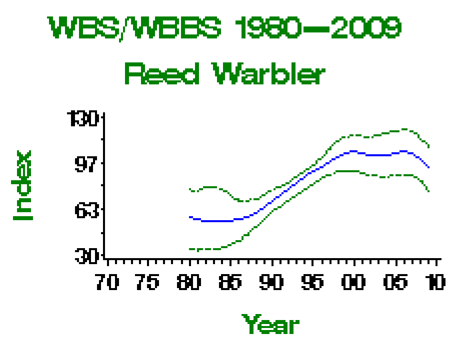
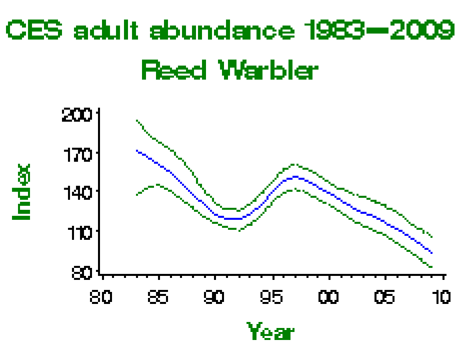
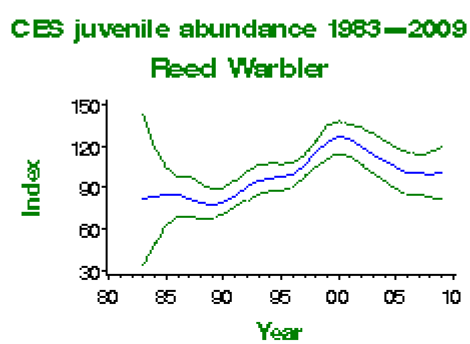
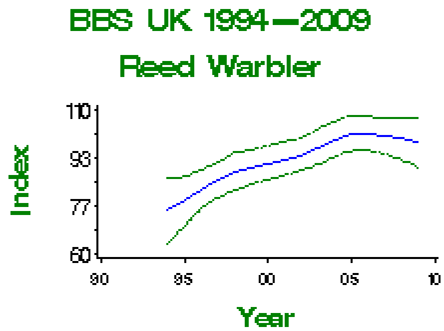
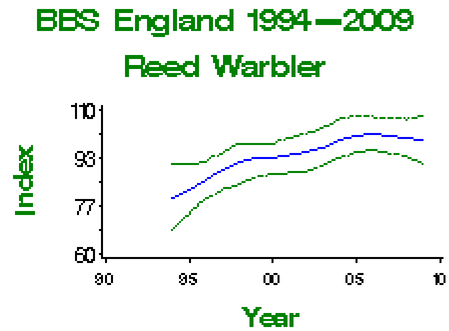




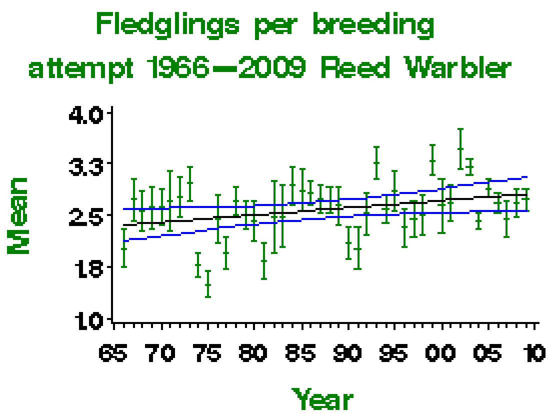


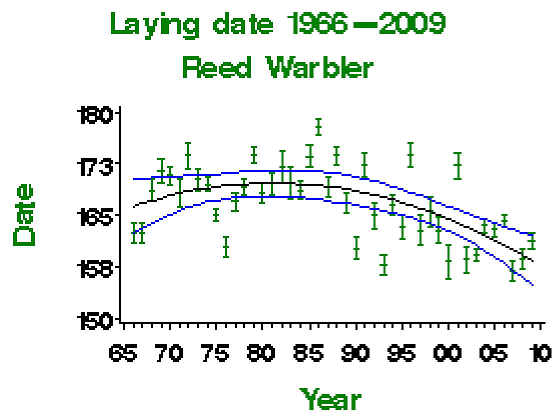






Demographic trends

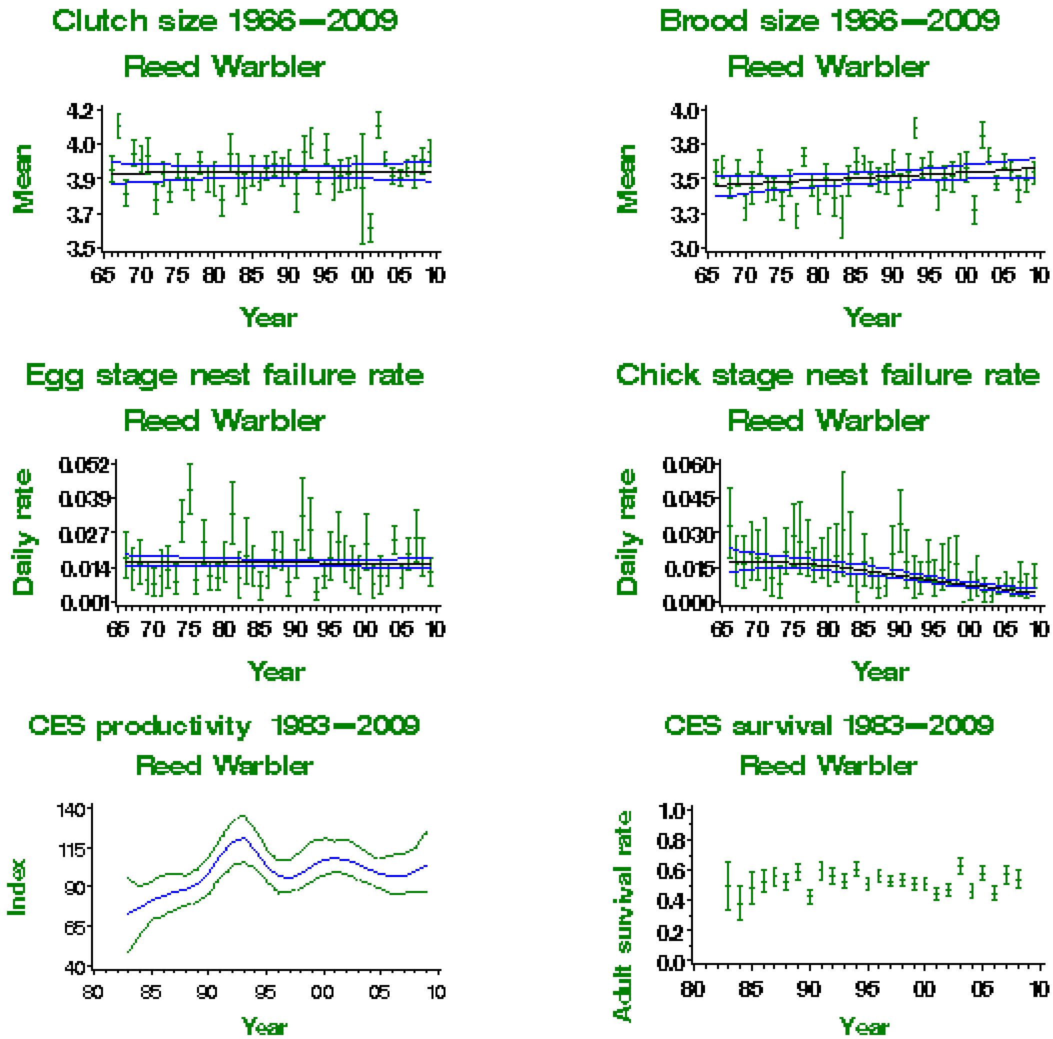




More on demographic trends

Table of demographic changes for Reed Warbler

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment
Fledglings per breeding attempt	40	1968-2008	74	Linear increase	2.38 fledglings	2.8 fledglings	17.6%	
Clutch size	40	1968-2008	111	None				
Brood size	40	1968-2008	128	None				
Daily failure rate (eggs)	40	1968-2008	146	None				
Daily failure rate (chicks)	40	1968-2008	113	Curvilinear	1.75% nests/day	0.45% nests/day	-74.3%	
Laying date	40	1968-2008	159	Curvilinear	Jun 16	Jun 8	-8 days	
Juvenile to Adult ratio (CES)	24	1984-2008	61	Smoothed trend	77 Index value	100 Index value	30%	
Juvenile to Adult ratio (CES)	10	1998-2008	70	Smoothed trend	99 Index value	100 Index value	1%	
Juvenile to Adult ratio (CES)	5	2003-2008	67	Smoothed trend	105 Index value	100 Index value	-5%	



Additional information

- **Maps and statistics from British and Irish atlases**
- **BirdFacts page on species biology**
- **BirdTrack results**

BLACKCAP
Sylvia atricapilla

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: no SPEC category (concentrated in Europe, conservation status favourable)
UK: green

Long-term trend

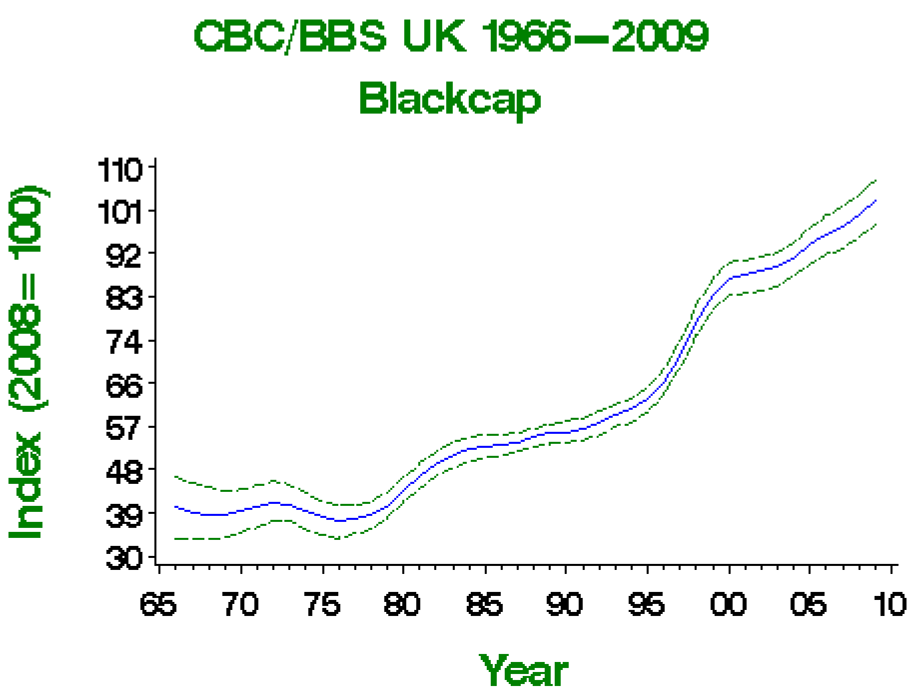
UK, England: rapid increase

UK population size

932,000 territories in 2000 (1988–91 Atlas estimate updated using CBC/BBS trend: **BiE04**, **APEP06**)

Status summary

Blackcap abundance in the UK has increased consistently since the late 1970s, a trend common to all habitats and evident from both the CBC/BBS and the CES indices, although the causes remain unknown. Productivity has fluctuated markedly according to CES, obscuring any long-term trend, while survival rates have been stable. The trend towards earlier laying, amounting to an advance of ten days since 1968, may be a response to recent climate change (**Crick & Sparks 1999**). The more rapid increase in Scotland indicated by BBS suggests that climatic warming may be allowing this species to extend its range northwards. Numbers have shown widespread rapid increase across Europe since 1980 (**PECBMS 2010**).



1967-2008: 157% (confidence interval 110% to 217%)

Population changes in detail

Table of population changes for Blackcap

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment

CBC/BBS UK	41	1967-2008	587	157	110	217		
	25	1983-2008	875	97	83	116		
	10	1998-2008	1594	28	23	32		
	5	2003-2008	1713	12	9	16		
CBC/BBS England	41	1967-2008	515	142	95	197		
	25	1983-2008	763	87	71	103		
	10	1998-2008	1376	23	17	27		
	5	2003-2008	1477	9	6	13		
CES adults	24	1984-2008	89	50	18	83		
	10	1998-2008	104	6	-4	17		
	5	2003-2008	101	7	-1	15		
CES juveniles	24	1984-2008	92	8	-20	50		
	10	1998-2008	106	13	-1	32		
	5	2003-2008	102	9	-4	31		
BBS UK	13	1995-2008	1394	61	54	70		
	10	1998-2008	1543	29	22	33		
	5	2003-2008	1713	12	9	16		
BBS England	13	1995-2008	1205	51	42	58		
	10	1998-2008	1327	24	18	27		
	5	2003-2008	1470	9	6	12		
BBS Scotland	13	1995-2008	46	178	90	297		

	10	1998-2008	54	68	26	109		
	5	2003-2008	66	25	4	53		
BBS Wales	13	1995-2008	113	60	33	87		
	10	1998-2008	128	23	8	39		
	5	2003-2008	136	11	0	23		

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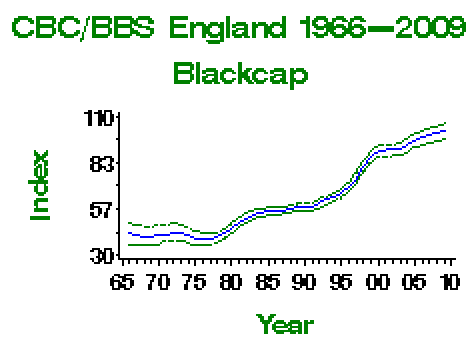
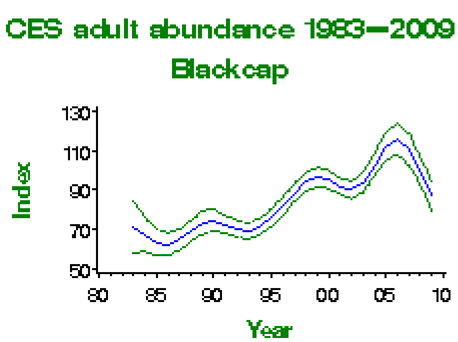
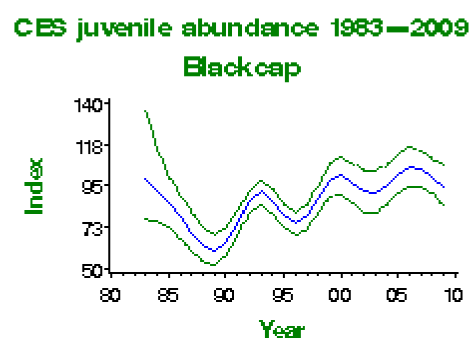
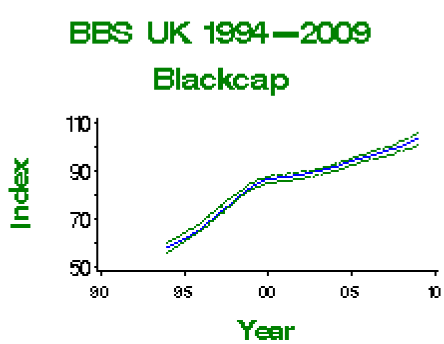
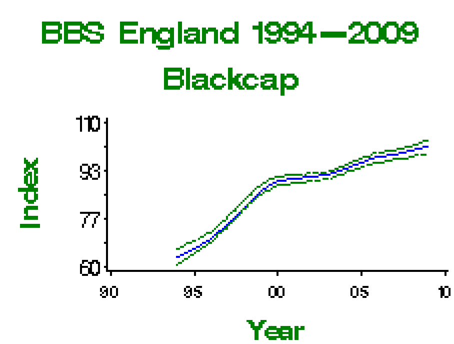
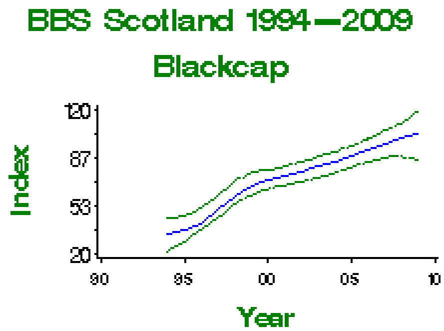


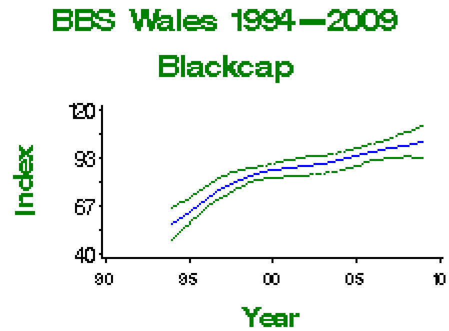




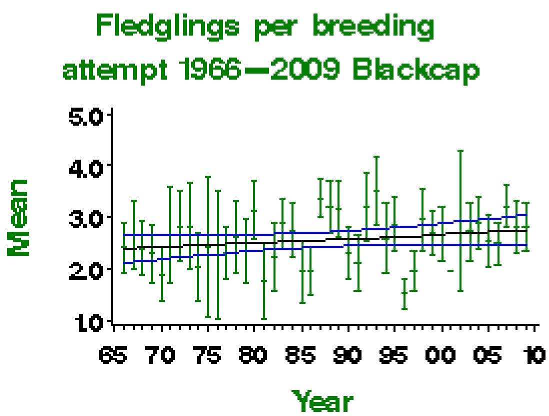


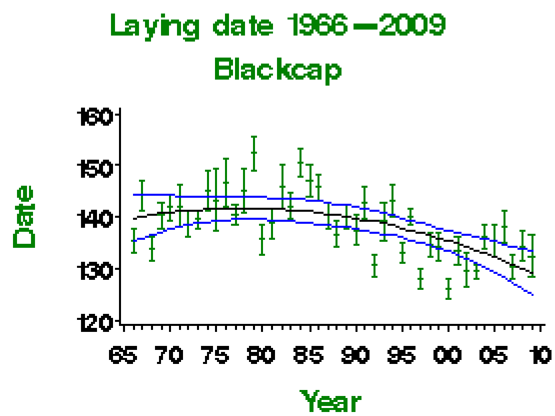






Demographic trends

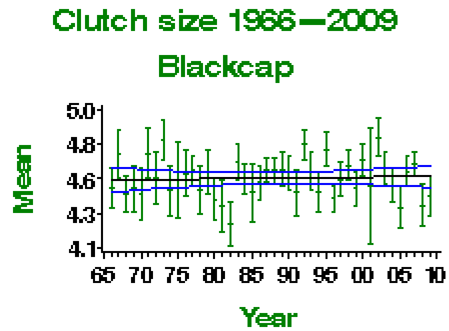


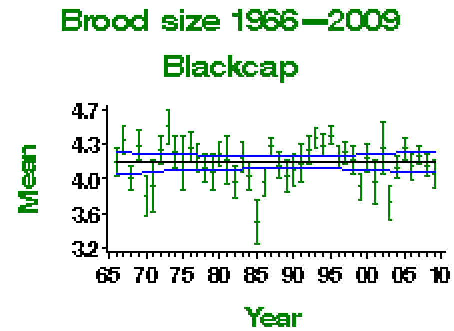


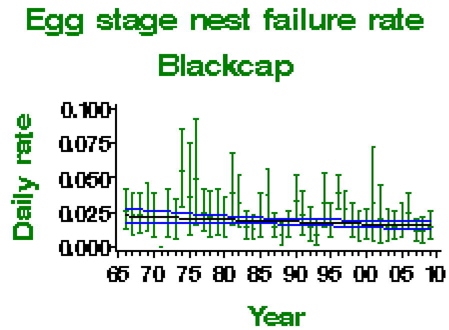
More on demographic trends

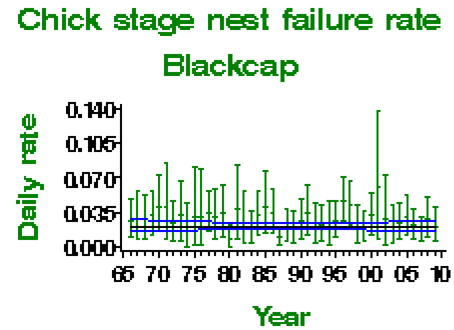
Table of demographic changes for Blackcap

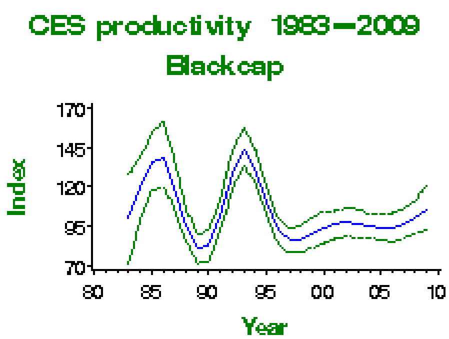
Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment
Fledglings per breeding attempt	40	1968-2008	25	None				
Clutch size	40	1968-2008	36	None				
Brood size	40	1968-2008	42	None				
Daily failure rate (eggs)	40	1968-2008	47	Linear decline	2.22% nests/day	1.56% nests/day	-29.7%	
Daily failure rate (chicks)	40	1968-2008	38	None				
Laying date	40	1968-2008	37	Curvilinear	May 20	May 10	-10 days	
Juvenile to Adult ratio (CES)	24	1984-2008	97	Smoothed trend	120 Index value	100 Index value	-17%	
Juvenile to Adult ratio (CES)	10	1998-2008	112	Smoothed trend	86 Index value	100 Index value	16%	
Juvenile to Adult ratio (CES)	5	2003-2008	108	Smoothed trend	97 Index value	100 Index value	3%	

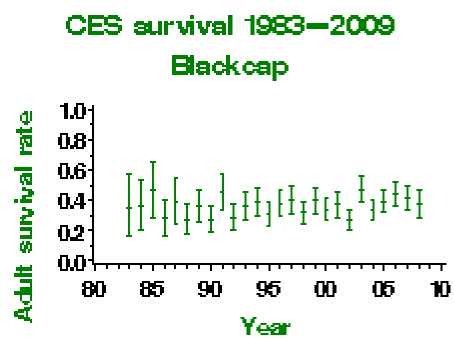












Additional information

- **Maps and statistics from British and Irish atlases**
- **BirdFacts page on species biology**
- **BirdTrack results**
- **Garden BirdWatch results**

GARDEN WARBLER
Sylvia borin

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: no SPEC category (concentrated in Europe, conservation status favourable)
UK: green

Long-term trend

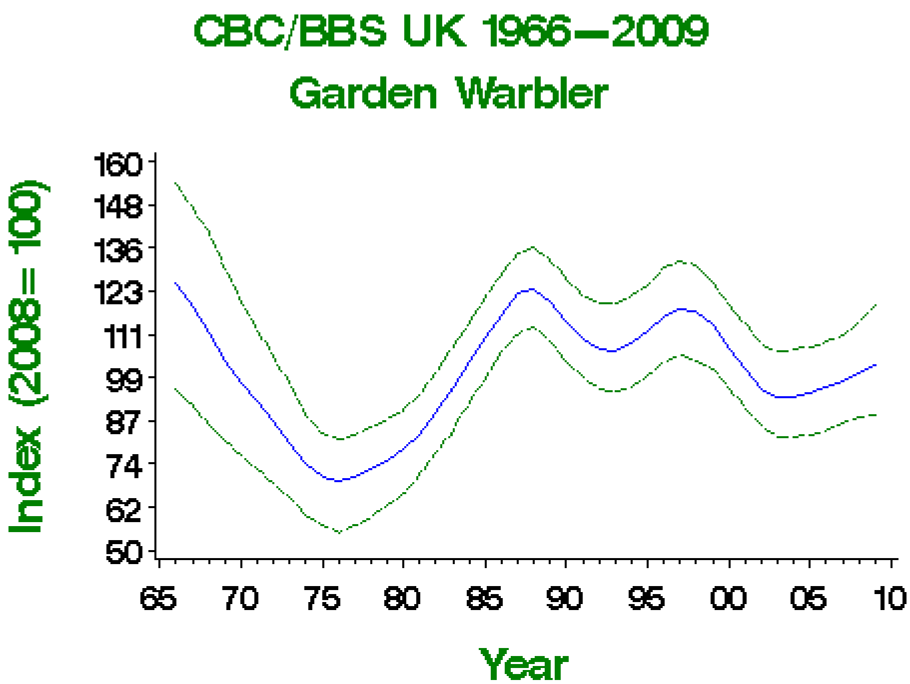
UK, England: probable shallow decline

UK population size

190,000 territories in 2000 (1988–91 Atlas estimate updated using CBC/BBS trend: **BiE04**, **APEP06**)

Status summary

Garden Warbler abundance has varied alongside that of other trans-Saharan migrant warblers (**Siriwardena *et al.* 1998b**), probably reflecting the influence of changes in their winter environment. Despite large short-term fluctuations in abundance, the CBC/BBS and CES both suggest that the population may be in long-term decline. There has been no change in fledglings per breeding attempt or in CES survival rates, but post-fledging productivity, as measured by the CES, has declined sharply since 1983. Numbers have shown widespread shallow decline across Europe since 1980 (**PECBMS 2010**).



1967-2008: -16% (confidence interval -43% to 28%)

Population changes in detail

Table of population changes for Garden Warbler

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS UK	41	1967-	211	-16	-43	28		

		2008						
	25	1983-2008	298	4	-18	32		
	10	1998-2008	471	-15	-24	-5		
	5	2003-2008	461	7	-3	18		
CBC/BBS England	41	1967-2008	179	-22	-50	19		
	25	1983-2008	249	-7	-26	22		
	10	1998-2008	389	-22	-30	-15		
	5	2003-2008	382	3	-5	12		
CES adults	24	1984-2008	64	-8	-36	38		
	10	1998-2008	68	-17	-30	-4		
	5	2003-2008	62	15	1	31		
CES juveniles	24	1984-2008	64	-34	-57	15		
	10	1998-2008	68	-22	-39	-1		
	5	2003-2008	64	7	-13	31		
BBS UK	13	1995-2008	423	-13	-23	0		
	10	1998-2008	444	-14	-23	-4		
	5	2003-2008	461	7	-3	18		
BBS England	13	1995-2008	348	-19	-27	-9		
	10	1998-2008	363	-22	-30	-14		
	5	2003-2008	379	2	-7	12		
BBS Wales	13	1995-2008	54	-21	-44	7		

	10	1998-2008	58	-16	-36	10	
	5	2003-2008	57	12	-11	38	

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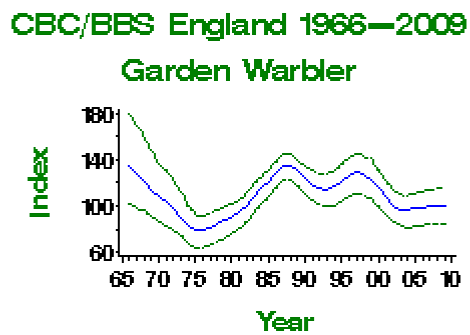
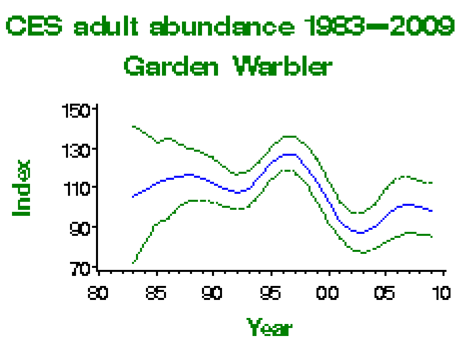
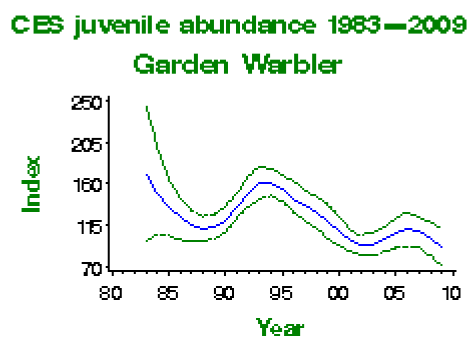
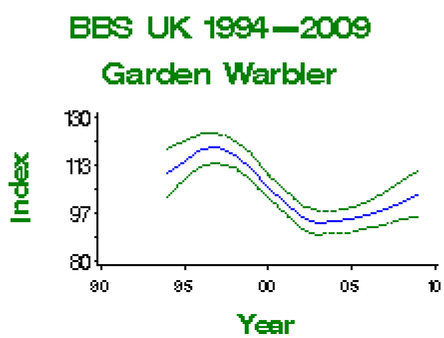
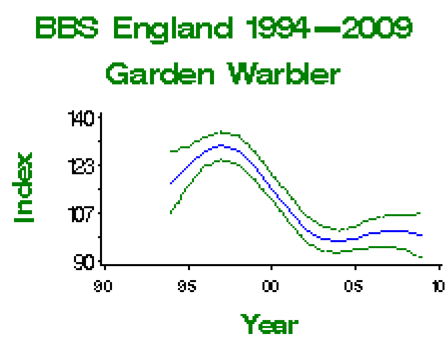
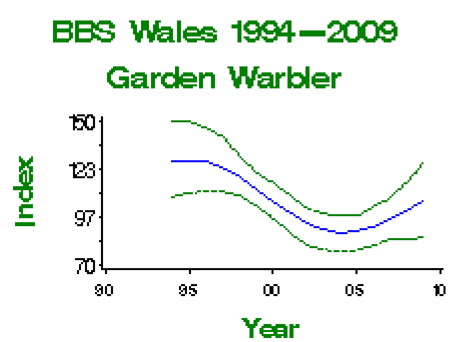




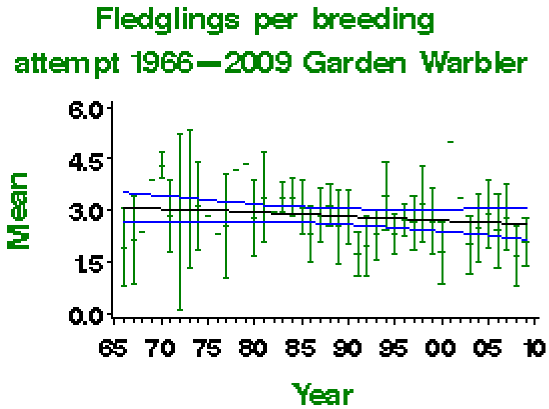


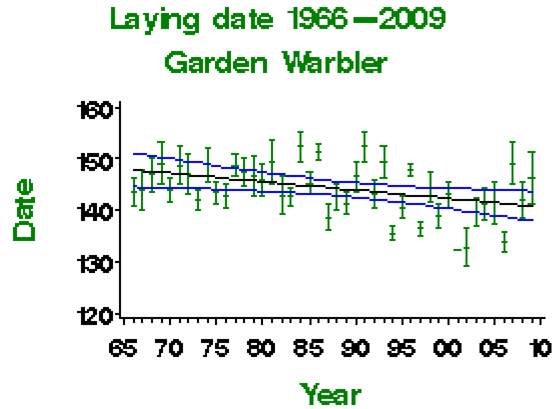






Demographic trends

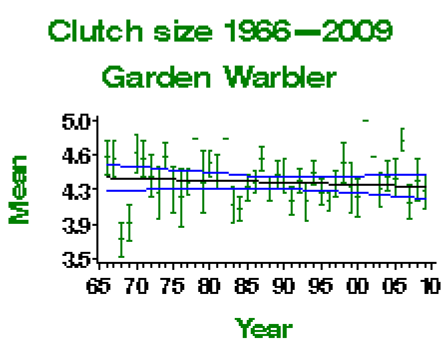


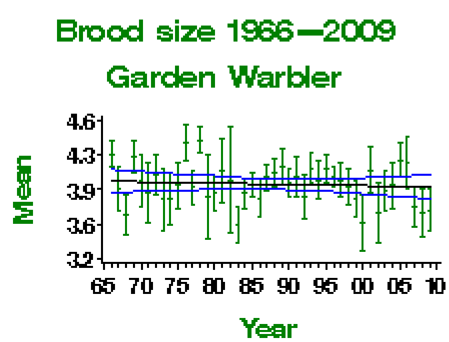


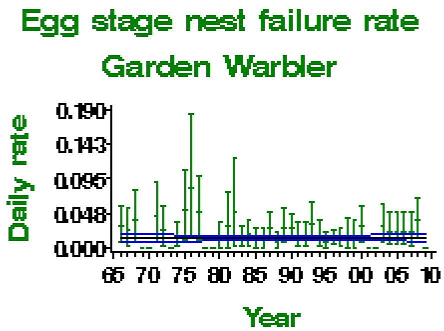
More on demographic trends

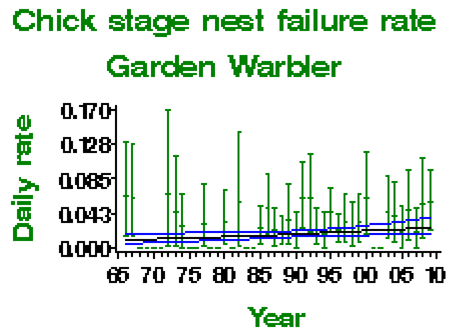
Table of demographic changes for Garden Warbler

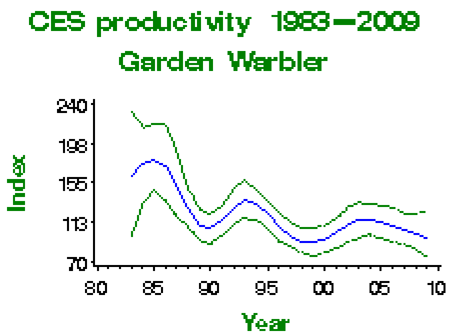
Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment
Fledglings per breeding attempt	40	1968-2008	10	None				
Clutch size	40	1968-2008	16	None				Small sample
Brood size	40	1968-2008	24	None				Small sample
Daily failure rate (eggs)	40	1968-2008	22	None				Small sample
Daily failure rate (chicks)	40	1968-2008	19	Linear increase	1.1% nests/day	2.52% nests/day	129.1%	Small sample
Laying date	40	1968-2008	21	Linear decline	May 28	May 21	-7 days	Small sample
Juvenile to Adult ratio (CES)	24	1984-2008	78	Smoothed trend	175 Index value	100 Index value	-43% >25	
Juvenile to Adult ratio (CES)	10	1998-2008	83	Smoothed trend	92 Index value	100 Index value	9%	
Juvenile to Adult ratio (CES)	5	2003-2008	78	Smoothed trend	114 Index value	100 Index value	-12%	

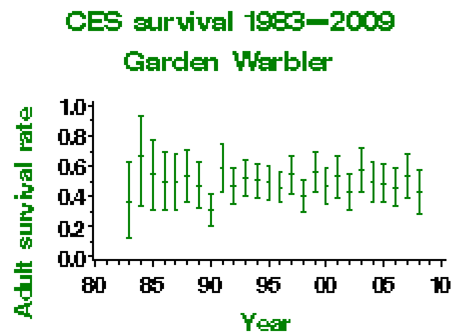












Additional information

- Maps and statistics from British and Irish atlases
- BirdFacts page on species biology
- BirdTrack results

LESSER WHITETHROAT
Sylvia curruca

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe)
UK: green

Long-term trend

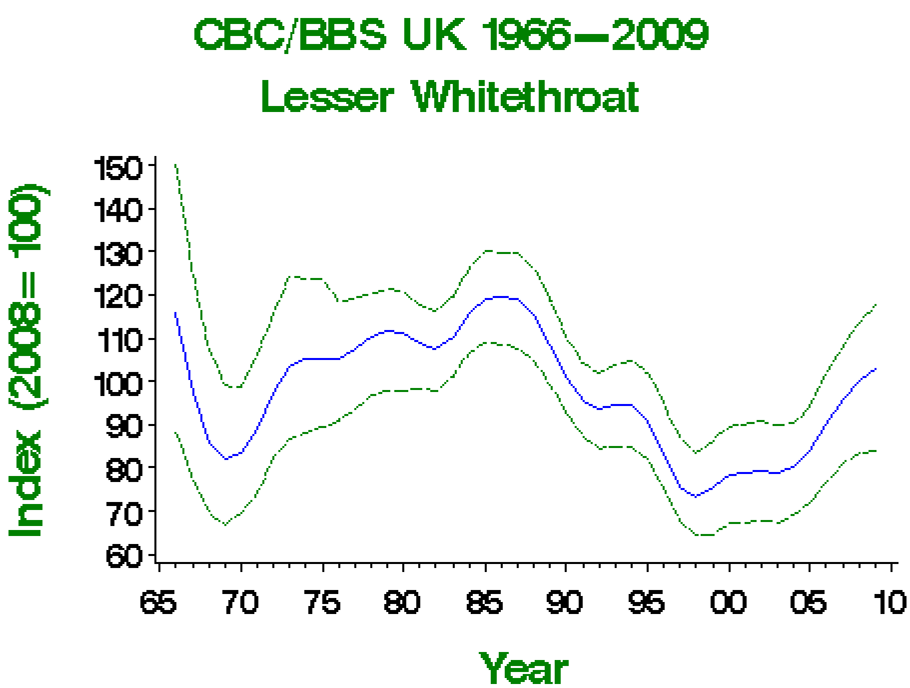
UK, England: fluctuating, with no long-term trend

UK population size

64,000 territories in 2000 (1988–91 Atlas estimate updated using CBC/BBS trend: **BiE04**, **APEP06**)

Status summary

Lesser Whitethroat abundance was roughly stable (albeit with short-term fluctuations) from the 1960s until the late 1980s, but the CBC/BBS and CES trends provide evidence for a subsequent moderate decline that lasted into the late 1990s. These changes were statistically significant, and large enough over the relevant periods to trigger BTO alerts. BBS has subsequently shown a significant sharp upturn, but this contrasts strongly with the continued decrease recorded by CES ringers. Wide fluctuations in survival and productivity have been recorded by CES ringers, and may be influencing population change, but pressures during migration and in winter are the most likely causes of decline (**Fuller *et al.* 2005**).



1967-2008: 3% (confidence interval -33% to 51%)

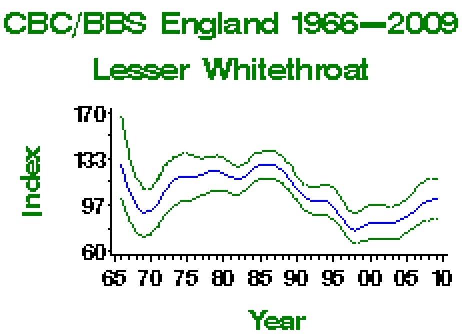
Population changes in detail

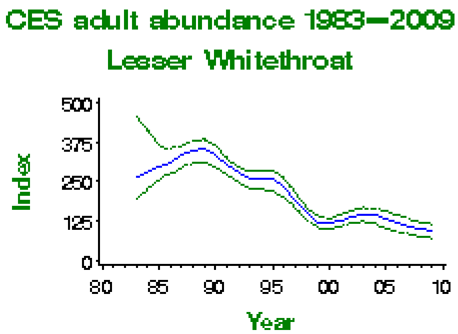
Table of population changes for Lesser Whitethroat

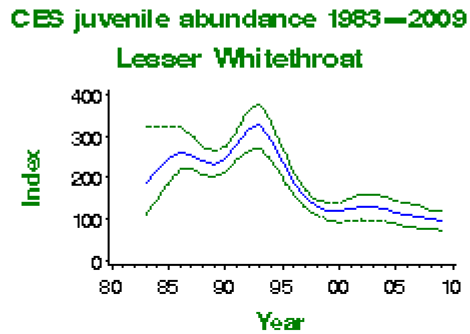
Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment

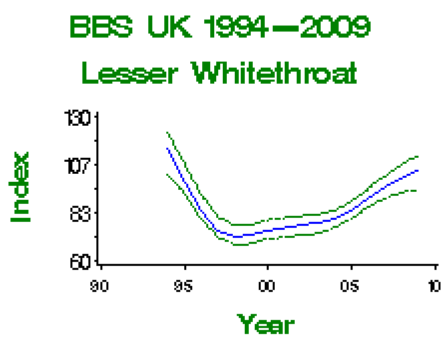
CBC/BBS UK	41	1967-2008	128	3	-33	51		
	25	1983-2008	178	-9	-29	9		
	10	1998-2008	278	36	19	49		
	5	2003-2008	296	27	9	45		
CBC/BBS England	41	1967-2008	123	-7	-37	41		
	25	1983-2008	170	-16	-34	4		
	10	1998-2008	266	31	16	42		
	5	2003-2008	284	21	10	35		
CES adults	24	1984-2008	39	-64	-81	-47	>50	
	10	1998-2008	35	-33	-49	-16	>25	
	5	2003-2008	34	-31	-45	-18	>25	
CES juveniles	24	1984-2008	45	-54	-76	-19	>50	
	10	1998-2008	44	-24	-42	-2		
	5	2003-2008	44	-22	-45	1		
BBS UK	13	1995-2008	248	2	-13	15		
	10	1998-2008	266	41	19	57		
	5	2003-2008	296	28	15	44		
BBS England	13	1995-2008	236	-3	-16	8		
	10	1998-2008	253	34	17	48		
	5	2003-2008	283	22	8	36		

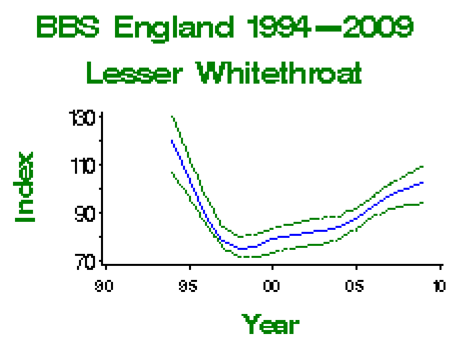
The Breeding Bird Survey is jointly funded by the BTO, JNCC & RSPB











Demographic trends

Table of demographic changes for Lesser Whitethroat

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment
Juvenile to Adult ratio (CES)	24	1984-2008	54	Smoothed trend	64 Index value	100 Index value	57%	
Juvenile to Adult ratio (CES)	10	1998-2008	53	Smoothed trend	74 Index value	100 Index value	35%	
Juvenile to Adult ratio (CES)	5	2003-2008	52	Smoothed trend	80 Index value	100 Index value	25%	

Insufficient data on fledglings per breeding attempt available for this species

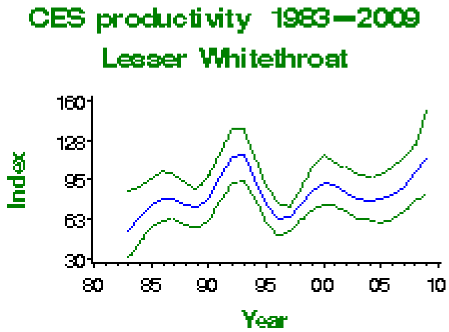
Insufficient data on laying date available for this species

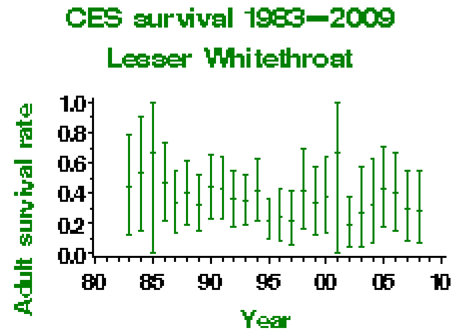
Insufficient data on clutch size available for this species

Insufficient data on brood size available for this species

Insufficient data on nest failure available for this species

Insufficient data on nestling failure available for this species





Additional information

- **Maps and statistics from British and Irish atlases**
- **BirdFacts page on species biology**
- **BirdTrack results**

WHITETHROAT
Sylvia communis

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: no SPEC category (concentrated in Europe, conservation status favourable)
UK: amber (25–50% decline, 1969–2006)

Long-term trend

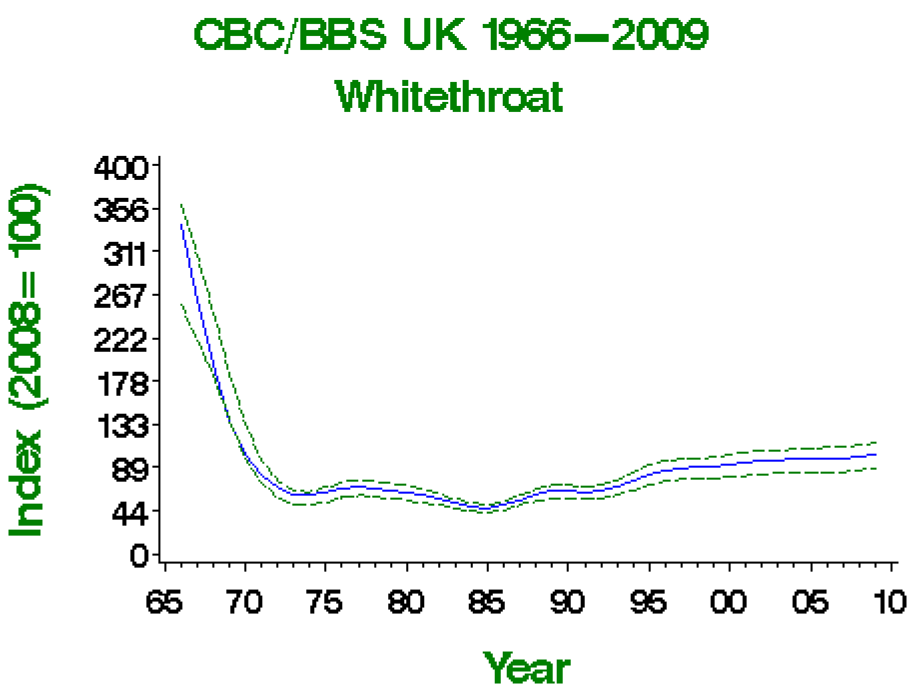
UK, England: rapid decline, followed by increase

UK population size

945,000 territories in 2000 (1988–91 Atlas estimate updated using CBC/BBS trend: **BiE04**, **APEP06**)

Status summary

Whitethroat populations had been stable for a few years up to 1968 but, despite a normal departure for their wintering grounds in West Africa, crashed by around 70% between the 1968 and 1969 breeding seasons. They fluctuated around their lower level until the mid 1980s, since when they have sustained a consistent shallow recovery. Recovery has been most apparent along linear waterways. In a pioneering study, **Winstanley *et al.* (1974)** linked the 1969 crash to droughts in the Whitethroat's wintering grounds in the western Sahel, just south of the Sahara Desert. Annual fluctuations in abundance, which are not shown in the smoothed trends presented here, correlate to those in overwinter survival (**Baillie & Peach 1992**). Other trans-Saharan migrant warblers have shared similarly timed changes in abundance (**Siriwardena *et al.* 1998b**). There has been no trend in the number of fledglings per breeding attempt. Productivity, as measured by CES, rose during the 1980s and has since fluctuated and fallen back. It seems likely that habitat loss since the 1960s, particularly on farmland, will eventually limit the degree of recovery. A shallow upturn has been detected widely across Europe since 1980 (**PECBMS 2010**). The limited extent of UK recovery, coupled with change in the **BoCC** criteria, has resulted in the species moving from the green to the amber list at the latest review (**Eaton *et al.* 2009**).



1967-2008: -62% (confidence interval -72% to -48%)

Population changes in detail

Table of population changes for Whitethroat

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS UK	41	1967-2008	508	-62	-72	-48	>50	
	25	1983-2008	751	93	59	137		
	10	1998-2008	1360	13	6	18		
	5	2003-2008	1466	4	0	8		
CBC/BBS England	41	1967-2008	441	-63	-75	-51	>50	
	25	1983-2008	650	93	59	131		
	10	1998-2008	1173	11	6	16		
	5	2003-2008	1263	2	-2	5		
WBS/WBBS waterways	33	1975-2008	75	119	-3	342		
	25	1983-2008	91	280	170	458		
	10	1998-2008	159	15	4	26		
	5	2003-2008	168	-5	-12	3		
CES adults	24	1984-2008	60	-42	-62	-25	>25	
	10	1998-2008	69	-16	-32	2		
	5	2003-2008	66	-27	-39	-17	>25	
CES juveniles	24	1984-2008	66	-4	-50	93		
	10	1998-2008	74	24	-16	73		
	5	2003-2008	71	-20	-37	-2		
BBS UK	13	1995-2008	1239	20	12	27		

	10	1998-2008	1328	13	7	18		
	5	2003-2008	1466	4	0	8		
BBS England	13	1995-2008	1070	18	11	23		
	10	1998-2008	1143	12	6	17		
	5	2003-2008	1260	2	-2	6		
BBS Scotland	13	1995-2008	72	86	37	148		
	10	1998-2008	78	45	22	80		
	5	2003-2008	90	9	-8	31		
BBS Wales	13	1995-2008	78	-13	-31	6		
	10	1998-2008	86	-16	-30	-2		
	5	2003-2008	93	19	1	37		

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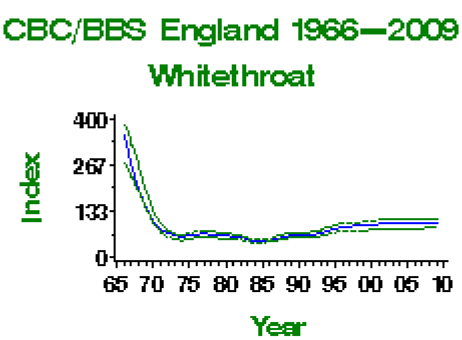
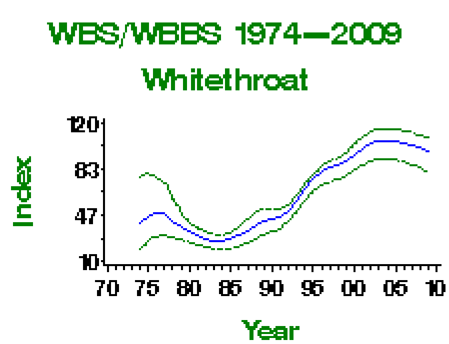
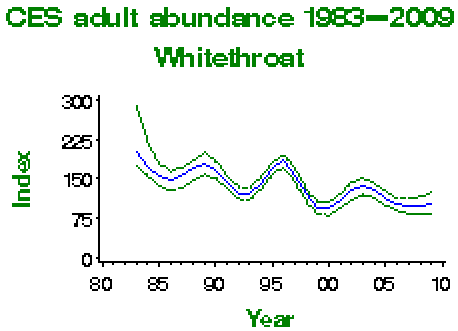
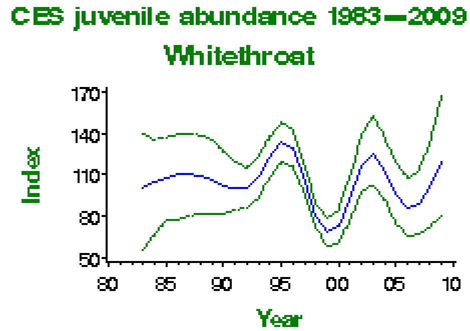
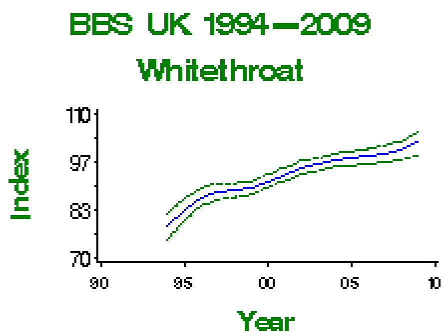
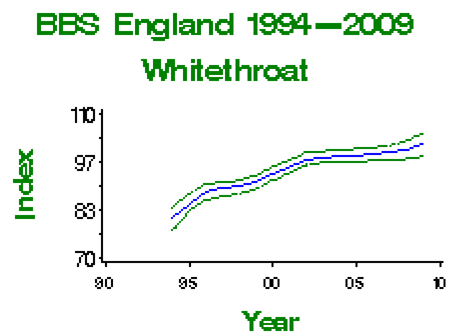


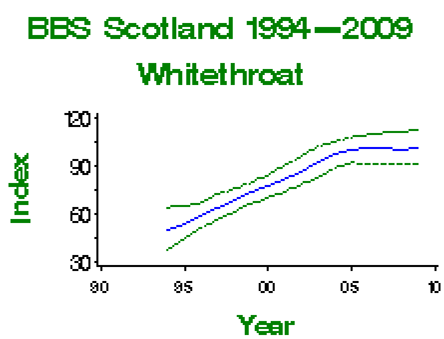


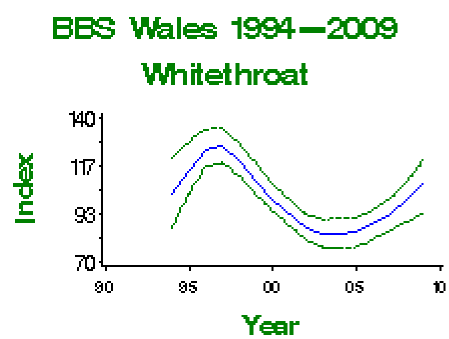




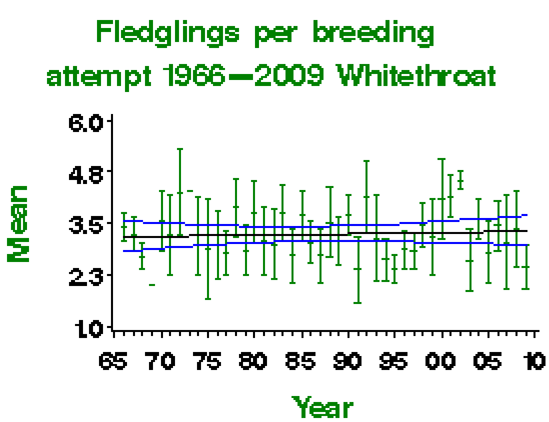


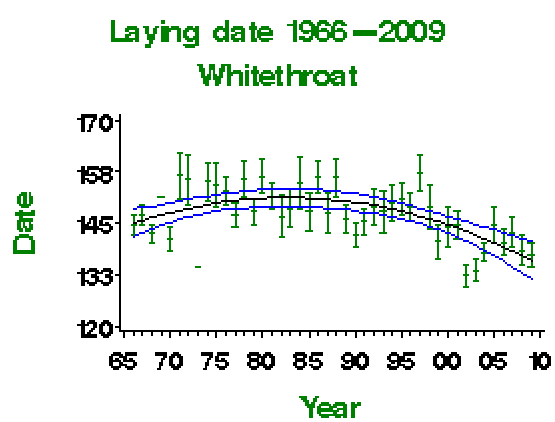






Demographic trends



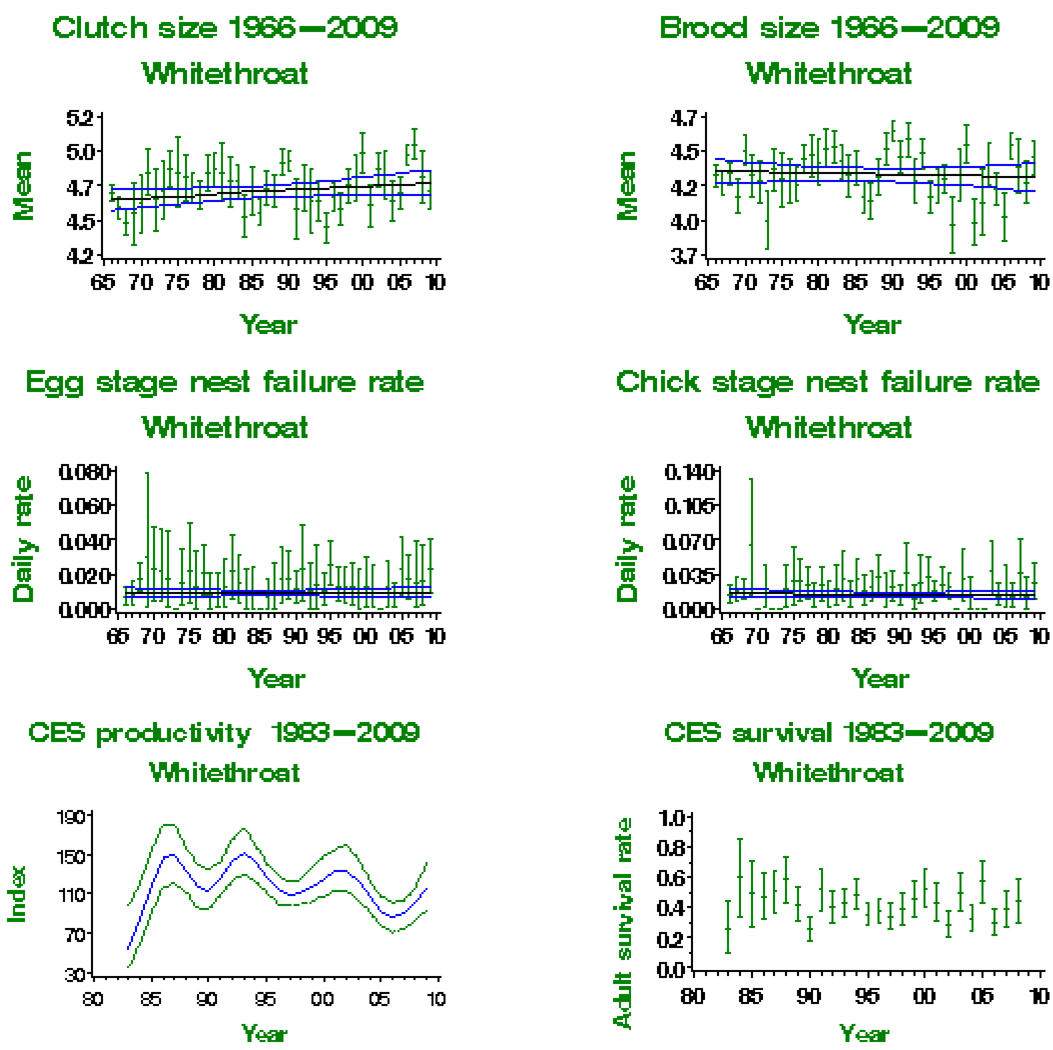


More on demographic trends

Table of demographic changes for Whitethroat

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment
Fledglings per breeding	40	1968-	21	None				

attempt		2008						
Clutch size	40	1968-2008	28	None				Small sample
Brood size	40	1968-2008	63	None				
Daily failure rate (eggs)	40	1968-2008	41	None				
Daily failure rate (chicks)	40	1968-2008	48	None				
Laying date	40	1968-2008	18	Curvilinear	May 26	May 17	-9 days	Small sample
Juvenile to Adult ratio (CES)	24	1984-2008	75	Smoothed trend	84 Index value	100 Index value	20%	
Juvenile to Adult ratio (CES)	10	1998-2008	86	Smoothed trend	112 Index value	100 Index value	-11%	
Juvenile to Adult ratio (CES)	5	2003-2008	81	Smoothed trend	123 Index value	100 Index value	-19%	



Additional information

- Maps and statistics from British and Irish atlases
- BirdFacts page on species biology
- BirdTrack results

WOOD WARBLER
Phylloscopus sibilatrix

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: SPEC category 2 (declining)
UK: red (breeding decline, European status)
UK Biodiversity Action Plan: priority species

Long-term trend

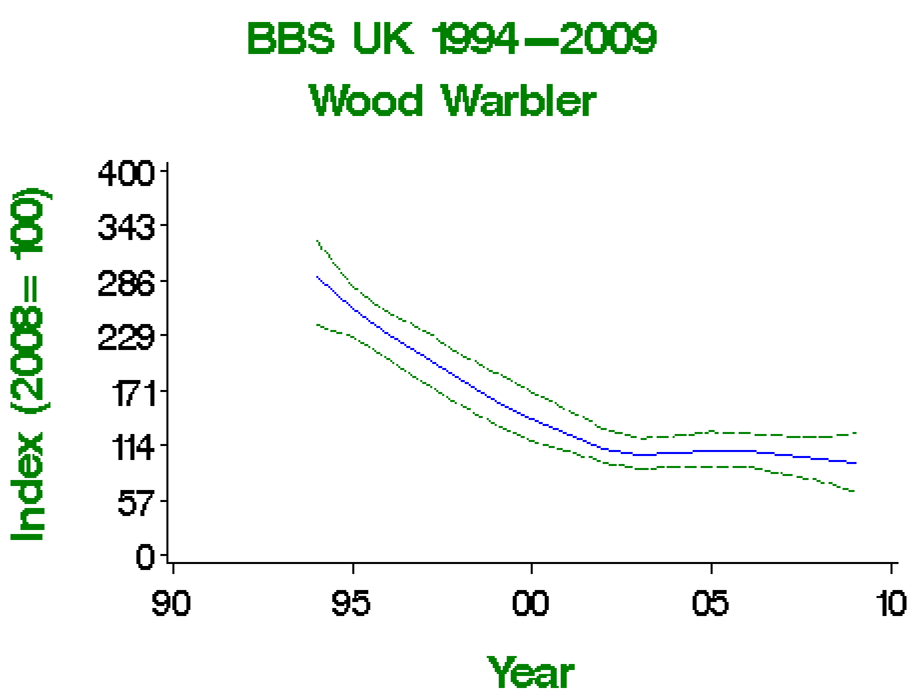
UK: decline

UK population size

17,200 (15,830–18,570) males in 1984–85 (**Bibby 1989**: **APEP06**); 9,000–10,500 pairs in 2000 (updated using BBS trend: **BiE04**)

Status summary

Wood Warblers, which have a westerly distribution in Britain, were monitored relatively poorly until BBS began. Little change was evident at the few CBC plots on which the species occurred (**Marchant *et al.* 1990**, **Crick *et al.* 1998**). The species' breeding range varied little between the two atlas periods (**Gibbons *et al.* 1993**), but has subsequently retreated heavily from lowland England. BBS shows a rapid and significant decline since 1994, and accordingly the species was moved from the green to the amber list in 2002; continued decline has now warranted a further shift to the red list. Nest success has apparently improved considerably at the egg stage, although nest record samples are small. There has been no trend in the number of fledglings per breeding attempt. With declines evident across northern and western Europe, this previously 'secure' species is now provisionally categorised as 'declining' (**BirdLife International 2004**). Numbers have shown widespread moderate decrease across Europe since 1980 (**PECBMS 2010**).



1995-2008: -61% (confidence interval -73% to -47%)

Population changes in detail

Table of population changes for Wood Warbler

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
BBS UK	13	1995-2008	52	-61	-73	-47	>50	
	10	1998-2008	51	-45	-63	-22	>25	
	5	2003-2008	47	-5	-35	27		

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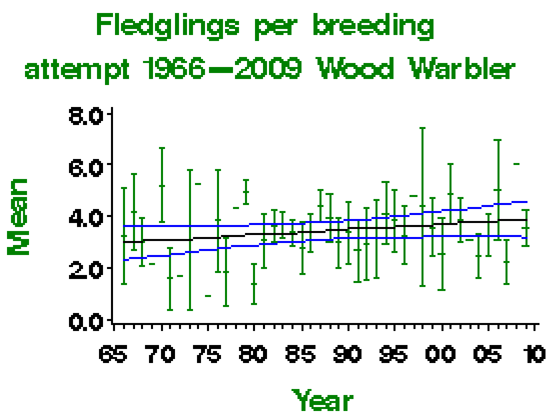
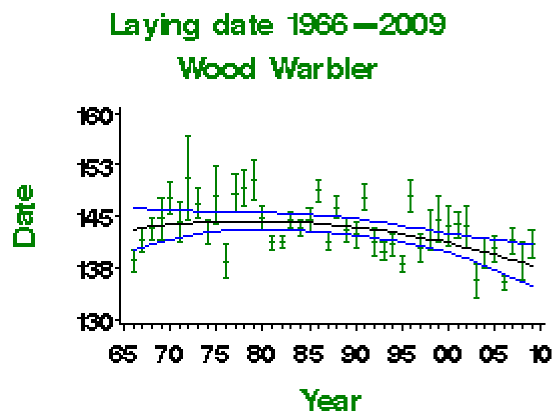
Demographic trends

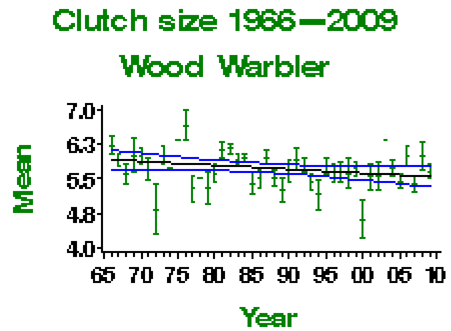


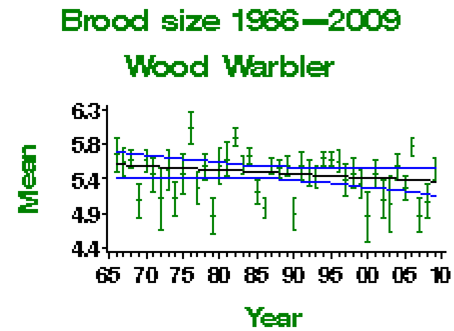


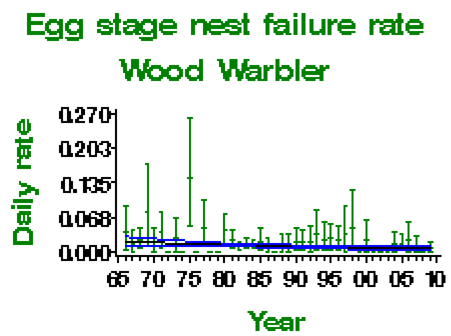
More on demographic trends

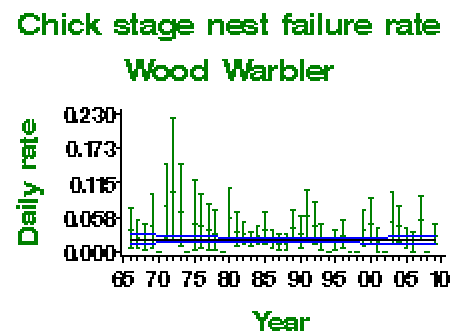
Table of demographic changes for Wood Warbler

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment
Fledglings per breeding attempt	40	1968-2008	11	None				
Clutch size	40	1968-2008	17	None				Small sample
Brood size	40	1968-2008	36	None				
Daily failure rate (eggs)	40	1968-2008	21	Linear decline	1.97% nests/day	0.7% nests/day	-64.5%	Small sample
Daily failure rate (chicks)	40	1968-2008	27	None				Small sample
Laying date	40	1968-2008	31	Curvilinear	May 24	May 18	-6 days	









Additional information

- **Maps and statistics from British and Irish atlases**
- **BirdFacts page on species biology**
- **BirdTrack results**

CHIFFCHAFF
Phylloscopus collybita

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe)
UK: green

Long-term trend

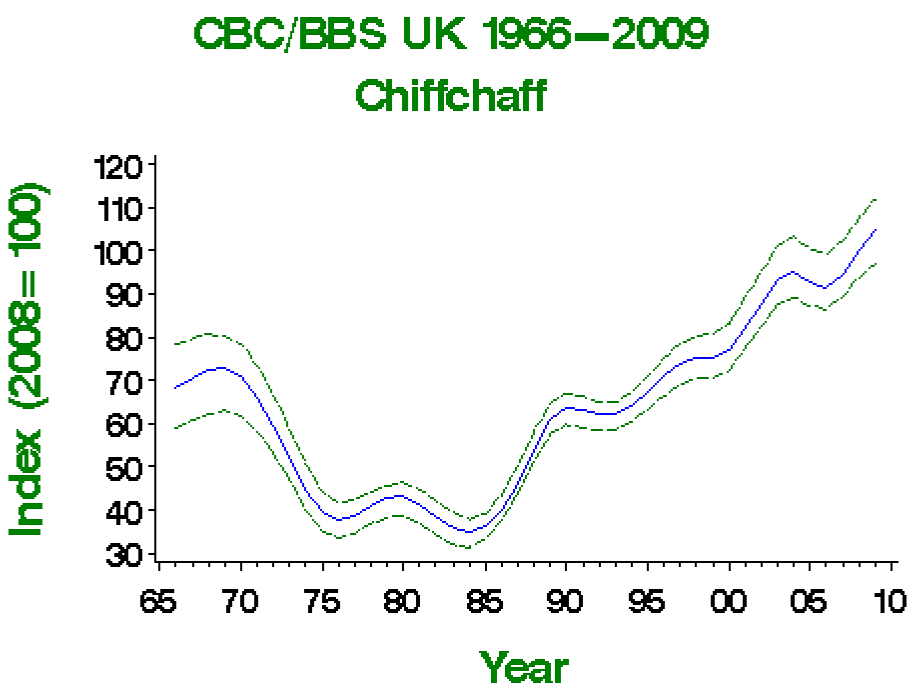
UK, England: shallow increase

UK population size

807,000 territories in 2000 (1988–91 Atlas estimate updated using CBC/BBS trend: **BiE04**, **APEP06**)

Status summary

Chiffchaff abundance crashed in the late 1960s/early 1970s in common with that of other trans-Saharan warblers (**Siriwardena *et al.* 1998a**). After remaining stable for a decade, the population recovered strongly, and has continued to increase. This recovery is evident from both CBC/BBS and CES data. Climate change may partly explain the strong trend towards earlier laying (**Crick & Sparks 1999**). Overwinter survival may be the critical factor responsible for changes in abundance, as it is for **Whitethroat** and **Sedge Warbler**. Productivity as measured by CES has decreased as the population has risen, but there has been no change in fledglings per breeding attempt or in CES survival. Numbers have shown widespread moderate increase across Europe since 1980 (**PECBMS 2010**).



1967-2008: 42% (confidence interval 17% to 77%)

Population changes in detail

Table of population changes for Chiffchaff

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment

CBC/BBS UK	41	1967-2008	537	42	17	77		
	25	1983-2008	804	178	132	239		
	10	1998-2008	1485	33	28	39		
	5	2003-2008	1650	7	4	11		
CBC/BBS England	41	1967-2008	460	47	19	90		
	25	1983-2008	685	185	145	239		
	10	1998-2008	1257	34	28	40		
	5	2003-2008	1397	5	2	8		
CES adults	24	1984-2008	71	164	81	319		
	10	1998-2008	88	44	20	78		
	5	2003-2008	92	-12	-20	-5		
CES juveniles	24	1984-2008	81	106	36	235		
	10	1998-2008	98	41	17	65		
	5	2003-2008	97	-10	-19	2		
BBS UK	13	1995-2008	1302	43	35	52		
	10	1998-2008	1440	33	27	40		
	5	2003-2008	1650	9	4	11		
BBS England	13	1995-2008	1100	45	39	56		
	10	1998-2008	1213	34	29	40		
	5	2003-2008	1389	6	2	9		
BBS Scotland	13	1995-	38	289	143	547		

		2008						
	10	1998-2008	44	146	49	250		
	5	2003-2008	57	39	-4	88		
BBS Wales	13	1995-2008	130	23	8	41		
	10	1998-2008	146	27	15	40		
	5	2003-2008	164	12	3	19		

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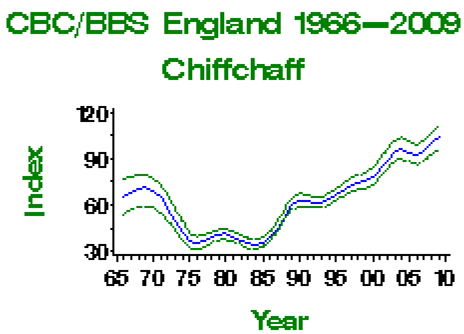
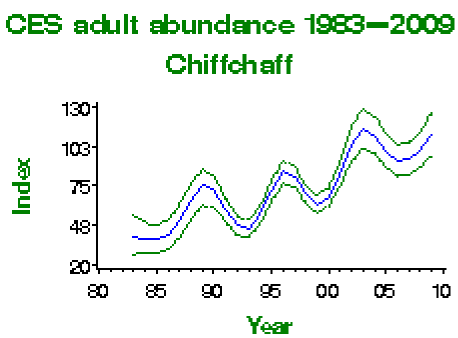
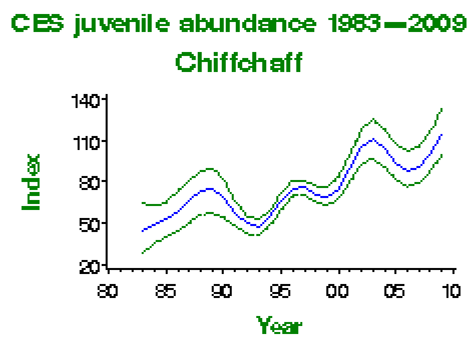
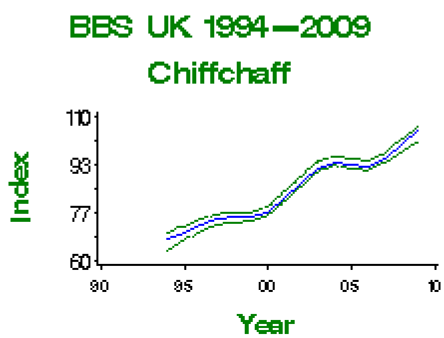
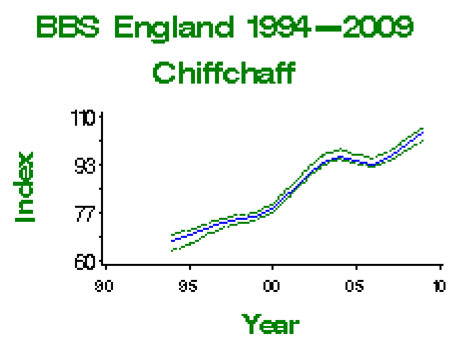
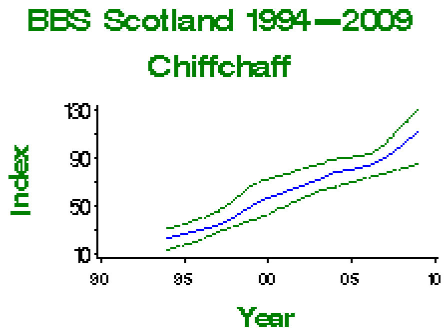


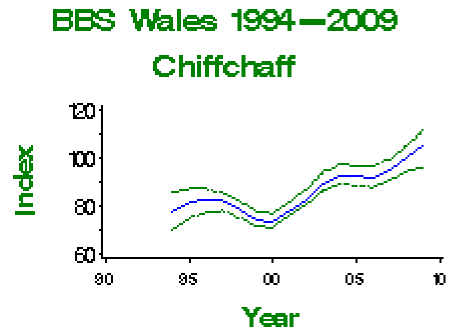




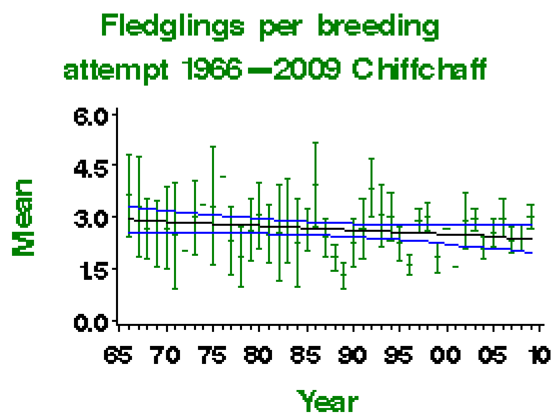


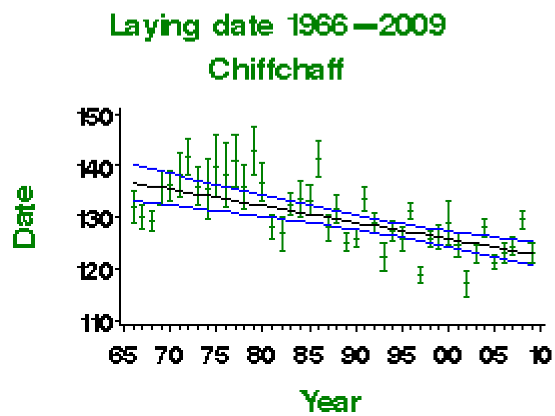






Demographic trends

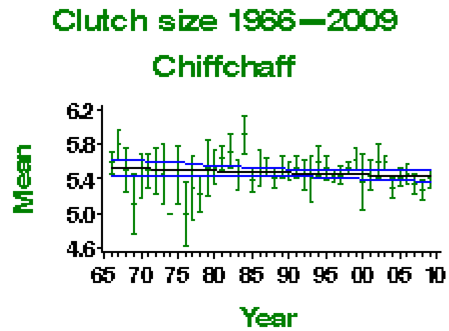


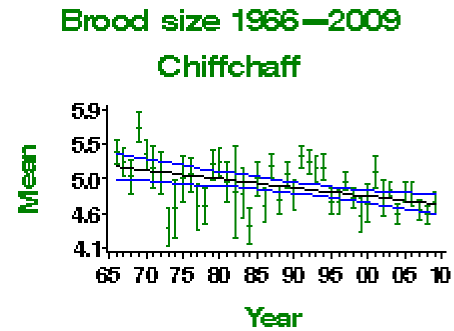


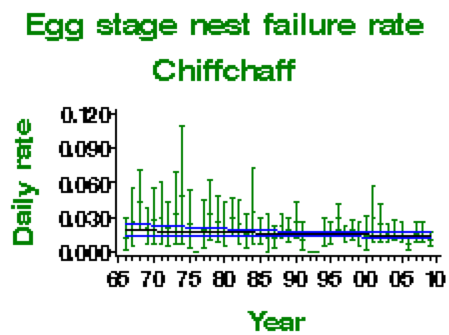
More on demographic trends

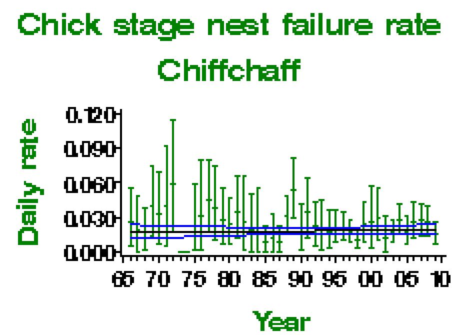
Table of demographic changes for Chiffchaff

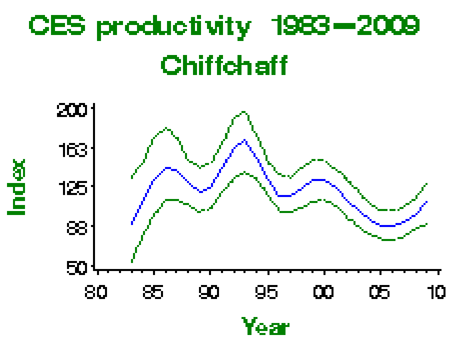
Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment
Fledglings per breeding attempt	40	1968-2008	20	None				
Clutch size	40	1968-2008	32	None				
Brood size	40	1968-2008	35	Linear decline	5.14 chicks	4.69 chicks	-8.8%	
Daily failure rate (eggs)	40	1968-2008	41	None				
Daily failure rate (chicks)	40	1968-2008	37	None				
Laying date	40	1968-2008	47	Linear decline	May 16	May 3	-13 days	
Juvenile to Adult ratio (CES)	24	1984-2008	89	Smoothed trend	110 Index value	100 Index value	-9%	
Juvenile to Adult ratio (CES)	10	1998-2008	105	Smoothed trend	123 Index value	100 Index value	-19%	
Juvenile to Adult ratio (CES)	5	2003-2008	103	Smoothed trend	102 Index value	100 Index value	-2%	

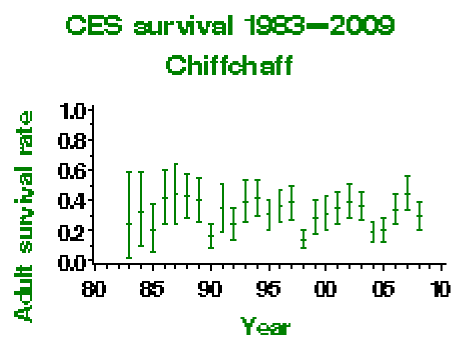












Additional information

- **Maps and statistics from British and Irish atlases**
- **BirdFacts page on species biology**
- **BirdTrack results**

WILLOW WARBLER
Phylloscopus trochilus

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe)
UK: amber (species level, 25–50% population decline; race *trochilus,* 25–50% population decline, European status)

Long-term trend

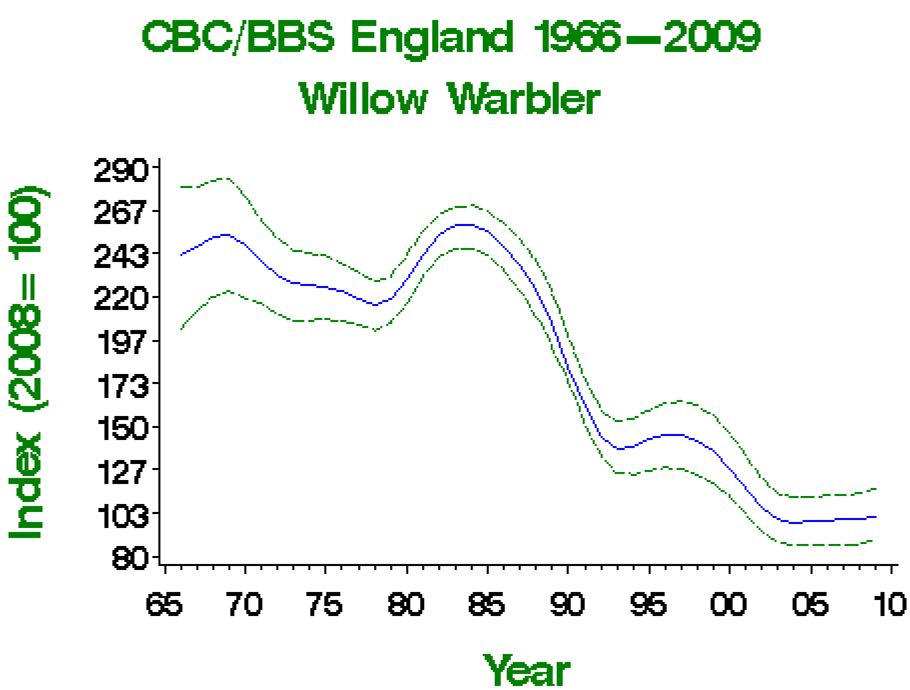
England: rapid decline

UK population size

2,125,000 territories in 2000 (1988–91 Atlas estimate updated using CBC/BBS trend: **BiE04**, **APEP06**)

Status summary

Willow Warbler abundance has shown regionally different trends within the UK (**Morrison *et al.* 2010**). The overall CBC/BBS trend shows a rapid decline during the 1980s and early 1990s, after 20 years of relative stability, and, on the strength of a 31% decline on CBC plots between 1974 and 1999, the species was moved from the green to the amber list. This decline occurred mainly in southern Britain, however, accompanied by a fall in survival rates there (**Peach *et al*. 1995a**), with Scottish populations remaining unaffected. BBS figures since 1994 indicate a stark contrast between an initially upward trend in Scotland and in Northern Ireland, and continued severe decreases in England and in Wales. Pressures on migration and in the winter are likely to be affecting the population, as is a reduction in habitat quality on the breeding grounds (**Fuller *et al.* 2005**). The recent population decline is associated with a shallow decline in productivity as measured by CES and with a substantial increase in failure rates at the egg stage, which raises NRS concern (**Leech & Barimore 2008**). There is a small but significant decrease in the number of fledglings per breeding attempt. Average laying dates have become a week earlier, perhaps in response to recent climatic warming (**Crick & Sparks 1999**). Numbers have shown widespread moderate decrease across Europe since 1980 (**PECBMS 2010**).



1967-2008: -60% (confidence interval -70% to -45%)

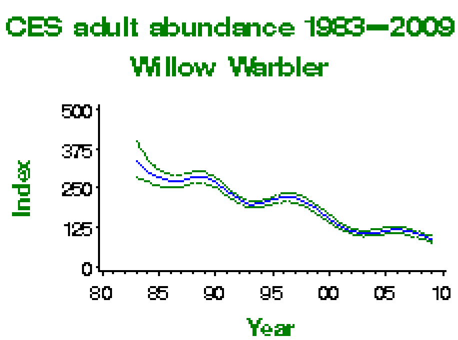
Population changes in detail

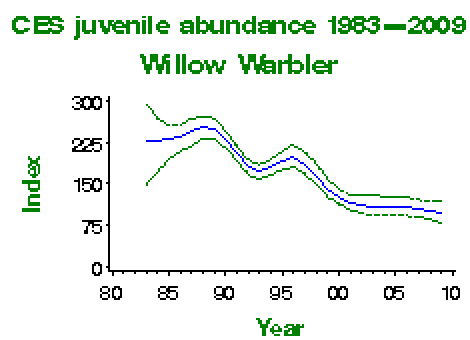
Table of population changes for Willow Warbler

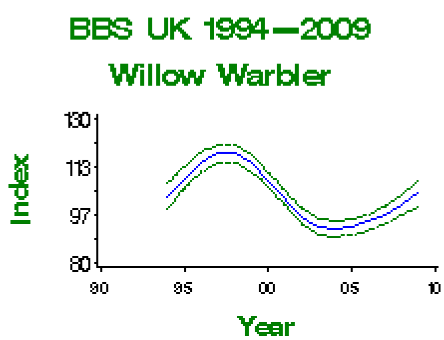
Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS England	41	1967-2008	433	-60	-70	-45	>50	
	25	1983-2008	604	-61	-68	-54	>50	
	10	1998-2008	950	-30	-34	-25	>25	
	5	2003-2008	932	0	-6	5		
CES adults	24	1984-2008	89	-67	-74	-60	>50	
	10	1998-2008	93	-51	-57	-46	>50	
	5	2003-2008	86	-5	-13	2		
CES juveniles	24	1984-2008	92	-56	-68	-32	>50	
	10	1998-2008	101	-39	-52	-23	>25	
	5	2003-2008	95	-7	-23	16		
BBS UK	13	1995-2008	1315	-8	-15	-3		
	10	1998-2008	1348	-15	-20	-9		
	5	2003-2008	1379	8	2	14		
BBS England	13	1995-2008	889	-30	-36	-25	>25	
	10	1998-2008	898	-26	-31	-22	>25	
	5	2003-2008	905	3	-3	7		
BBS Scotland	13	1995-2008	202	16	1	29		
	10	1998-2008	206	-10	-19	1		

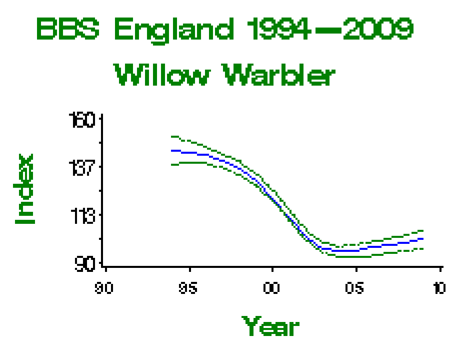
	5	2003-2008	228	7	-1	18		
BBS Wales	13	1995-2008	156	-15	-29	-3		
	10	1998-2008	170	-12	-23	-2		
	5	2003-2008	174	17	7	26		
BBS N.Ireland	13	1995-2008	75	66	32	95		
	10	1998-2008	85	5	-6	18		
	5	2003-2008	92	26	16	38		

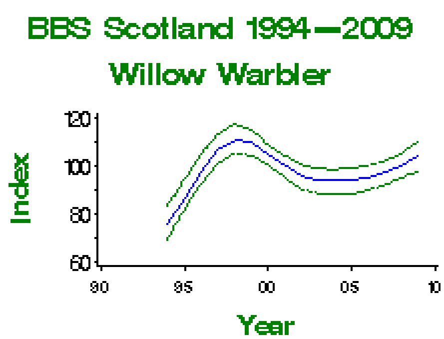
The Breeding Bird Survey is jointly funded by the BTO, JNCC & RSPB

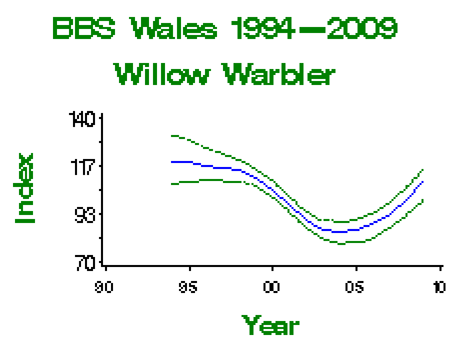


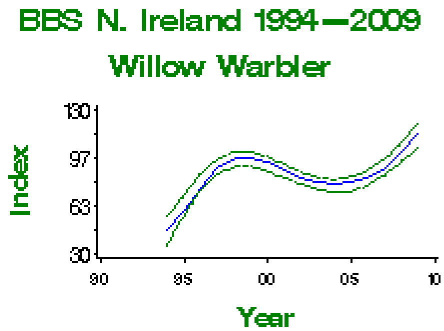




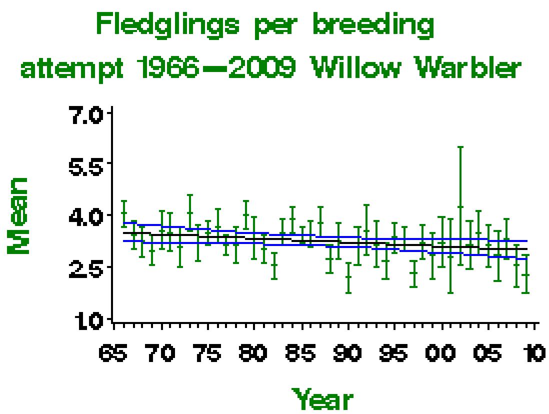


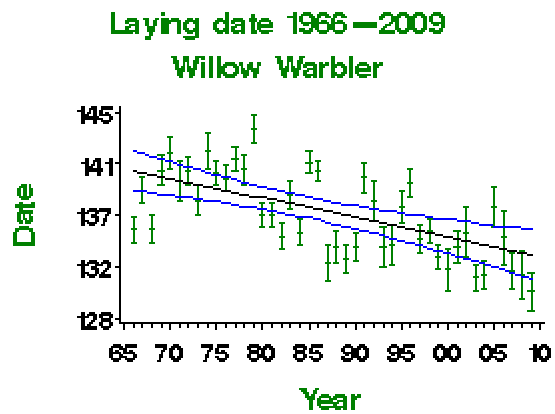






Demographic trends





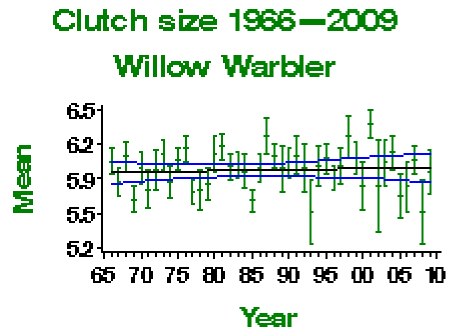
1968-2008 decline from 3.48 to 3.01 fledglings per attempt

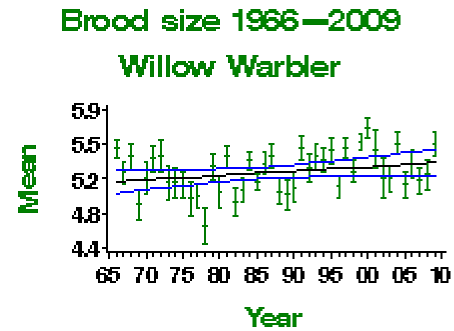
1968-2008 mean laying date advanced from 20 May to 13 May

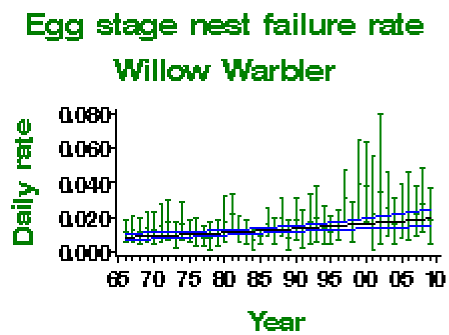
More on demographic trends

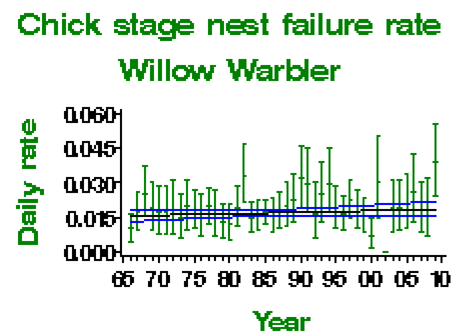
Table of demographic changes for Willow Warbler

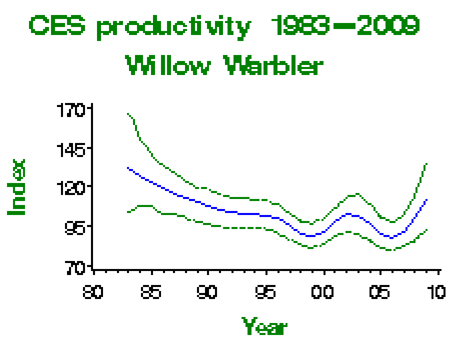
Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment
Fledglings per breeding attempt	40	1968-2008	32	Linear decline	3.48 fledglings	3.01 fledglings	-13.3%	
Clutch size	40	1968-2008	48	None				
Brood size	40	1968-2008	133	None				
Daily failure rate (eggs)	40	1968-2008	68	Linear increase	0.9% nests/day	1.9% nests/day	111.1%	
Daily failure rate (chicks)	40	1968-2008	123	None				
Laying date	40	1968-2008	84	Linear decline	May 20	May 13	-7 days	
Juvenile to Adult ratio (CES)	24	1984-2008	98	Smoothed trend	127 Index value	100 Index value	-21%	
Juvenile to Adult ratio (CES)	10	1998-2008	107	Smoothed trend	91 Index value	100 Index value	10%	
Juvenile to Adult ratio (CES)	5	2003-2008	100	Smoothed trend	102 Index value	100 Index value	-2%	

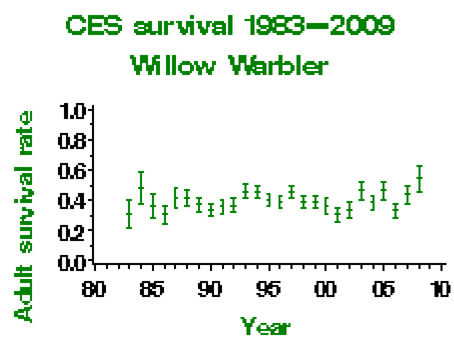












Additional information

- **Maps and statistics from British and Irish atlases**
- **BirdFacts page on species biology**
- **BirdTrack results**
- **Atlas 2007–11 latest results**

GOLDCREST
Regulus regulus

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: no SPEC category (concentrated in Europe, conservation status favourable)
UK: green

Long-term trend

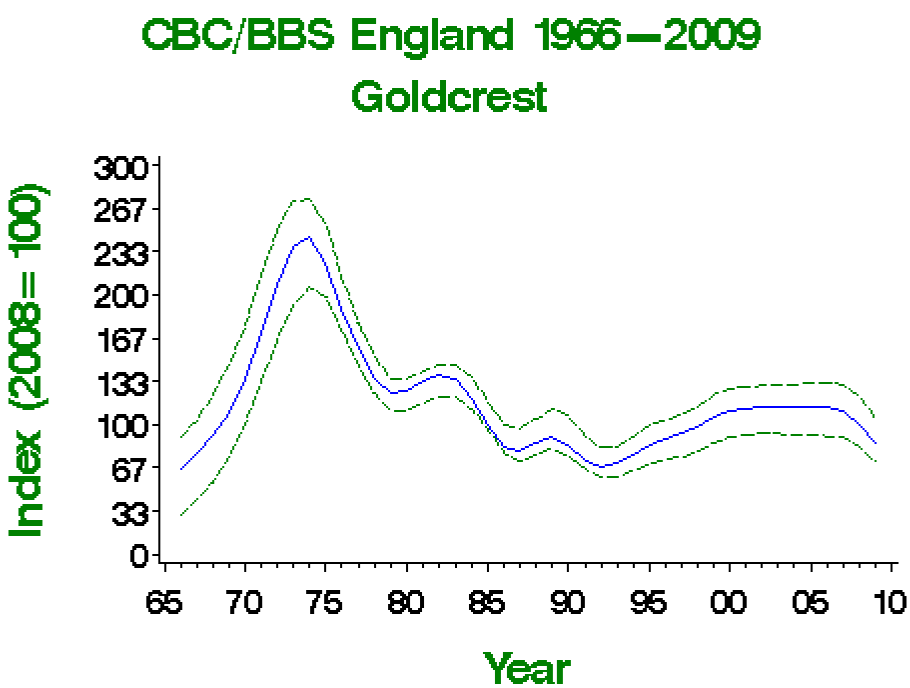
England: fluctuating, with no long-term trend

UK population size

842,000 territories in 2000 (1988–91 Atlas estimate updated using CBC/BBS trend: **BiE04**, **APEP06**)

Status summary

Goldcrest abundance is unusually severely affected by winter weather, and the strong increase in the species' CBC/BBS index up to the mid 1970s can be interpreted as recovery from the cold winters of the early 1960s. The subsequent decline temporarily moved the species to the amber list, but its status has now been restored to green. Trends over longer and shorter periods all suggest population increase, and the long-term trend looks very much like a series of damped oscillations following the 1962/63 winter. The high amplitude of year-to-year change reflects the species high breeding potential, and its sensitivity to cold winter weather. BBS has recorded substantial increases in all UK countries except Wales, where a significant decline has been registered. CBC had relatively poor coverage of conifer plantations, in which Goldcrests occur at increasing densities as the trees mature. The increase in area of prime habitat has therefore been poorly reflected in the long-term trend. Numbers have shown widespread shallow decline across Europe since 1980 (**PECBMS 2010**).



1967-2008: 29% (confidence interval -24% to 198%)

Population changes in detail

Table of population changes for Goldcrest

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS England	41	1967-2008	236	29	-24	198		
	25	1983-2008	335	-26	-41	-2	>25	
	10	1998-2008	613	2	-6	19		
	5	2003-2008	684	-12	-15	-3		
BBS UK	13	1995-2008	738	8	0	28		
	10	1998-2008	817	-14	-17	0		
	5	2003-2008	927	-21	-22	-10		
BBS England	13	1995-2008	523	14	5	35		
	10	1998-2008	585	0	-7	18		
	5	2003-2008	676	-14	-16	-2		
BBS Scotland	13	1995-2008	93	16	-5	53		
	10	1998-2008	98	-21	-33	0		
	5	2003-2008	117	-43	-49	-28	>25	
BBS Wales	13	1995-2008	83	-41	-59	-8	>25	
	10	1998-2008	92	-43	-54	-24	>25	
	5	2003-2008	95	-24	-32	-10		
BBS N.Ireland	13	1995-2008	44	93	37	165		
	10	1998-2008	50	3	-11	47		
	5	2003-2008	56	18	5	70		

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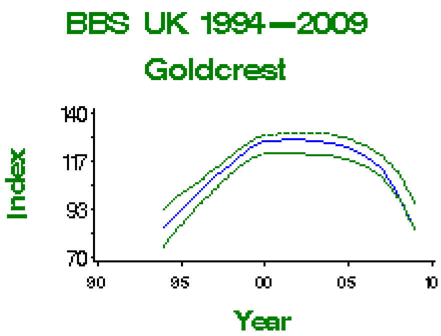
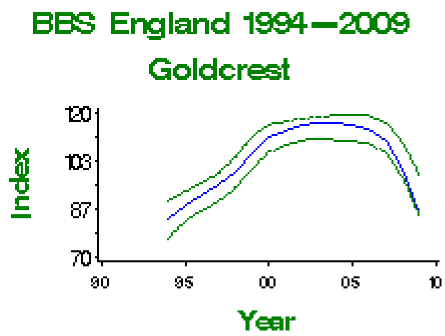
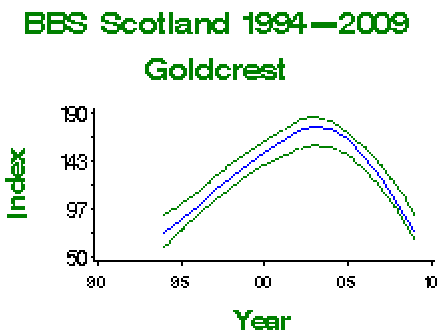
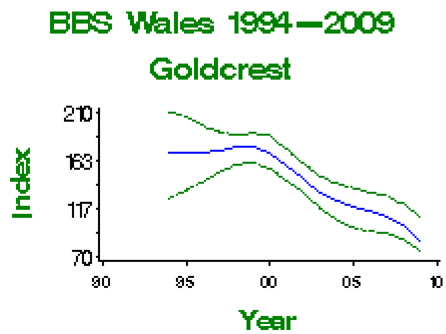
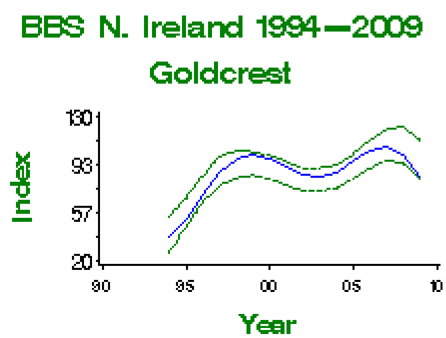










Demographic trends

Demographic information is not currently available for this species

Additional information

- Maps and statistics from British and Irish atlases
- BirdFacts page on species biology
- BirdTrack results
- Garden BirdWatch results

SPOTTED FLYCATCHER
Muscicapa striata

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: SPEC category 3, declining
UK: red (>50% population decline)
UK Biodiversity Action Plan: **click here**, **priority species**

Long-term trend

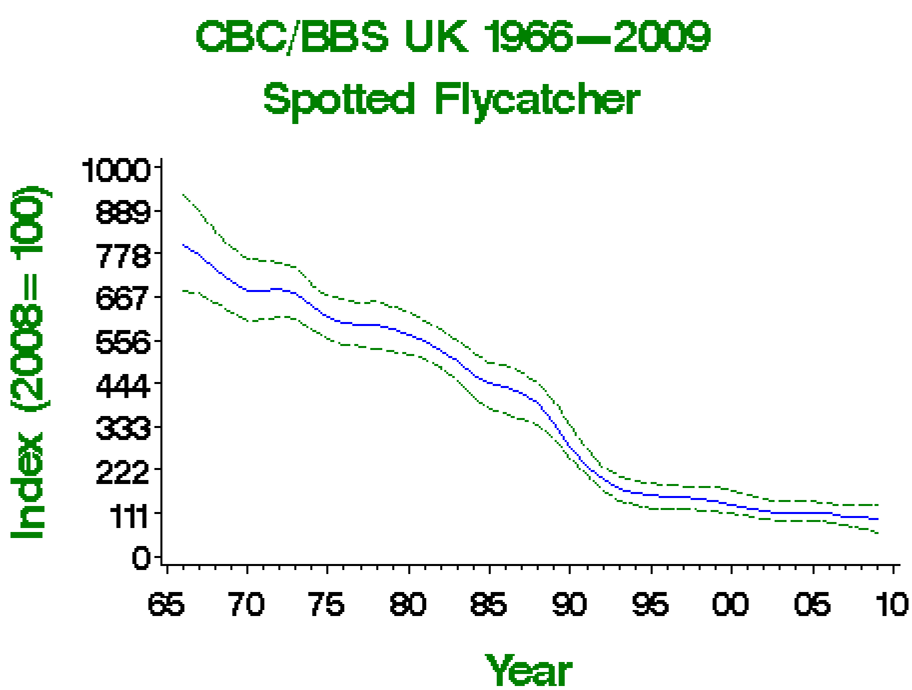
UK, England: rapid decline

UK population size

63,700 territories in 2000 (1988–91 Atlas estimate updated using CBC/BBS trend: **BiE04**, **APEP06**)

Status summary

Spotted Flycatchers have declined rapidly and consistently since the 1960s. Productivity measures indicate lower clutch and brood sizes and greater nest losses at the egg and chick stages, which raise NRS concern (**Leech & Barimore 2008**) and a drop in numbers of fledglings per breeding attempt. Though samples are too small to continue presenting a trend, there was also a decrease overall in the ratio of juveniles to adults in CES captures. Demographic modelling shows that decreases in the annual survival rates of birds in their first year of life are most likely to have driven the decline (**Freeman & Crick 2003**). Decreasing survival rates may have been caused by deteriorations in woodland quality, particularly leading to declines in the large flying insects that are food to the flycatcher, or by conditions either on the wintering grounds or along migration routes (**Fuller *et al.* 2005**). Since trends have been similar across UK regions and habitats, however, it is more likely that the decline has been driven by factors operating outside the UK. Numbers have shown widespread moderate decrease across Europe since 1980 (**PECBMS 2010**). A predator 'control' experiment has indicated that the abundance of nest predators may be determining the breeding success of Spotted Flycatchers, especially in woodland, where nest success was lower overall than in gardens (**Stoate & Szczur 2006**). Another study using nest cameras has identified avian predators, especially **Jays**, as responsible for most nest losses (**Stevens *et al.* 2008**).



1967-2008: -87% (confidence interval -92% to -81%)

Population changes in detail

Table of population changes for Spotted Flycatcher

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS UK	41	1967-2008	124	-87	-92	-81	>50	
	25	1983-2008	148	-80	-87	-73	>50	
	10	1998-2008	210	-32	-47	-11	>25	
	5	2003-2008	196	-11	-37	21		
CBC/BBS England	41	1967-2008	95	-90	-94	-84	>50	
	25	1983-2008	110	-83	-89	-77	>50	
	10	1998-2008	152	-41	-49	-29	>25	
	5	2003-2008	141	-30	-39	-17	>25	
BBS UK	13	1995-2008	199	-39	-54	-21	>25	
	10	1998-2008	201	-31	-48	-13	>25	
	5	2003-2008	196	-11	-37	18		
BBS England	13	1995-2008	142	-48	-58	-36	>25	
	10	1998-2008	143	-41	-51	-31	>25	
	5	2003-2008	138	-29	-39	-18	>25	

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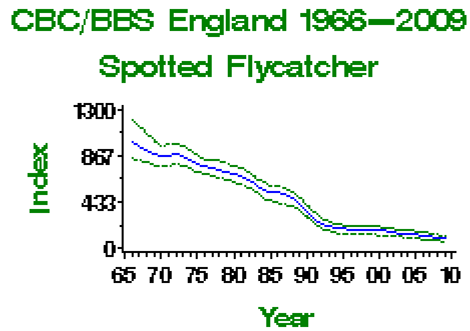
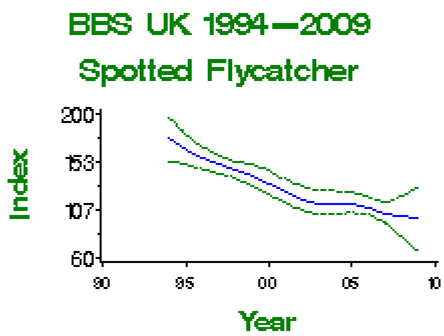
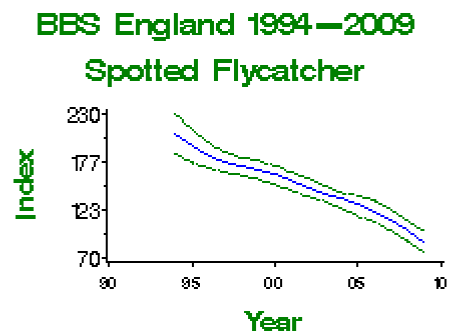
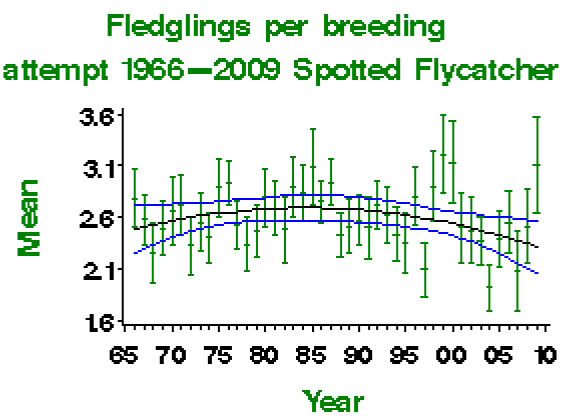
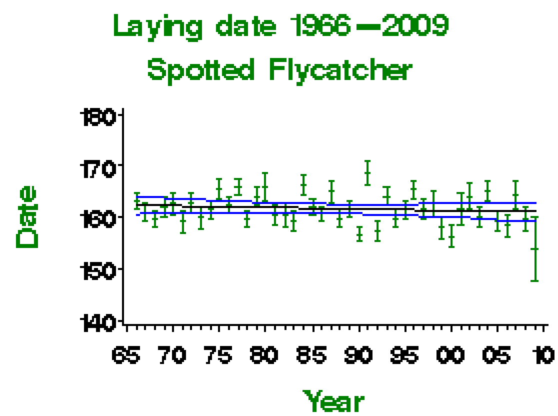






Demographic trends

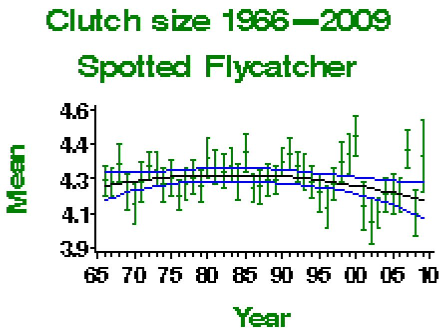


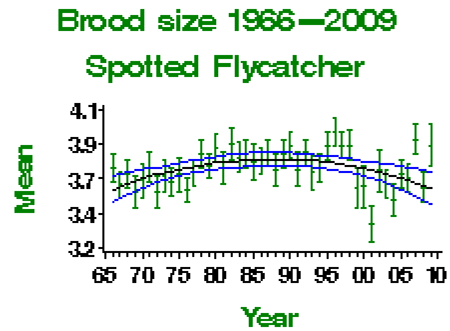


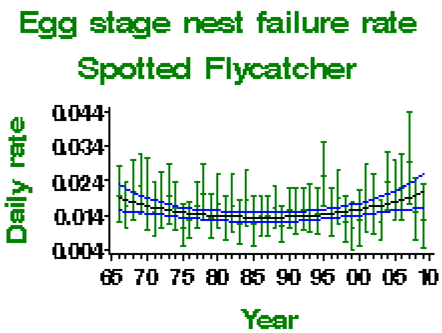
More on demographic trends

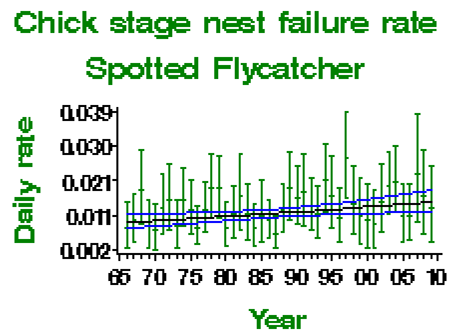
Table of demographic changes for Spotted Flycatcher

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment
Fledglings per breeding attempt	40	1968-2008	55	Curvilinear	2.53 fledglings	2.35 fledglings	-7.2%	
Clutch size	40	1968-2008	79	Curvilinear	4.22 eggs	4.15 eggs	-1.8%	
Brood size	40	1968-2008	128	Curvilinear	3.62 chicks	3.61 chicks	-0.2%	
Daily failure rate (eggs)	40	1968-2008	120	Curvilinear	1.77% nests/day	1.99% nests/day	12.4%	
Daily failure rate (chicks)	40	1968-2008	108	Linear increase	0.97% nests/day	1.47% nests/day	51.5%	
Laying date	40	1968-2008	71	None				









Additional information

- **Maps and statistics from British and Irish atlases**
- **BirdFacts page on species biology**
- **BirdTrack results**

PIED FLYCATCHER
Ficedula hypoleuca

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: no SPEC category (concentrated in Europe, conservation status favourable)
UK: amber (25–50% decline)

Long-term trend

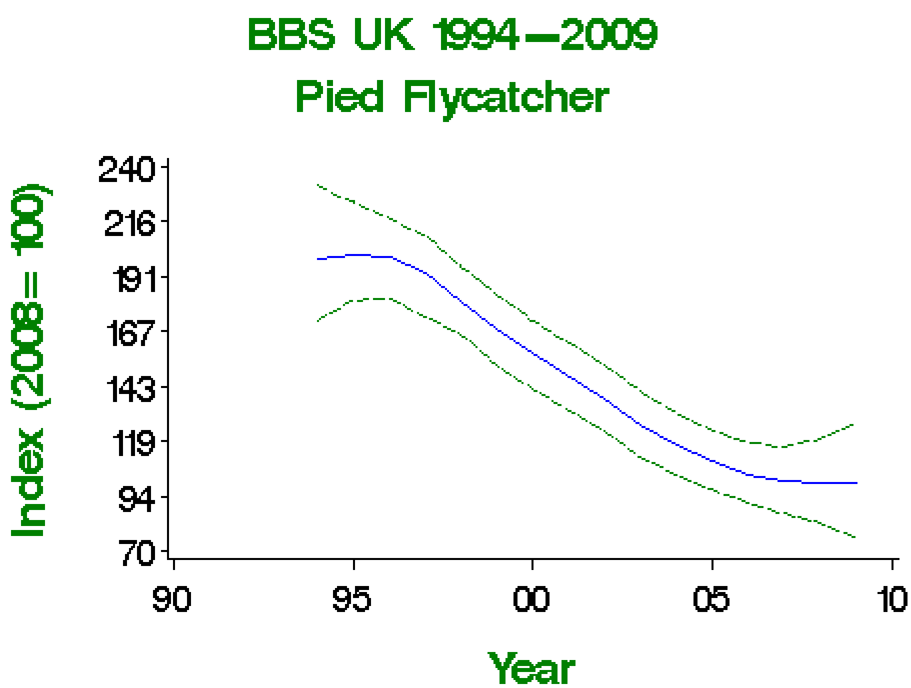
UK: decline

UK population size

35,000–40,000 pairs in 1990 (1988–91 Atlas: **APEP06**); 29,500–33,800 pairs in 2000 (updated using BBS trend: **BiE04**)

Status summary

Pied Flycatchers are restricted to upland deciduous woods in parts of western and northern Britain. The proportions of CBC plots occupied rose during the 1980s, but the species was never numerous enough for trends to be estimated (**Marchant *et al.* 1990**). The 1988–91 breeding atlas revealed a small expansion in range since 1968–72, aided by the provision of nest boxes in new areas (**Gibbons *et al.* 1993**). BBS indicates that abundance has decreased steeply since 1994, prompting the species' recent move from the green to the amber list. Percentage nestbox occupancy has also fallen over a similar period at a number of sites monitored as **RAS** projects. The reasons for this decline are unknown, but lie at least partly outside the breeding season (**Goodenough *et al.* 2009**). No trends are evident in the number of fledglings per breeding attempt. Numbers have fallen widely in Europe since 1980 (**PECBMS 2010**). In the Netherlands, climate change may have brought about decline in Pied Flycatchers by advancing the peak period of food availability for this species in deciduous forests – the birds being unable so far to compensate for the change in food supply by breeding earlier (**Both 2002**, **Both *et al*. 2006**).



1995-2008: -50% (confidence interval -63% to -31%)

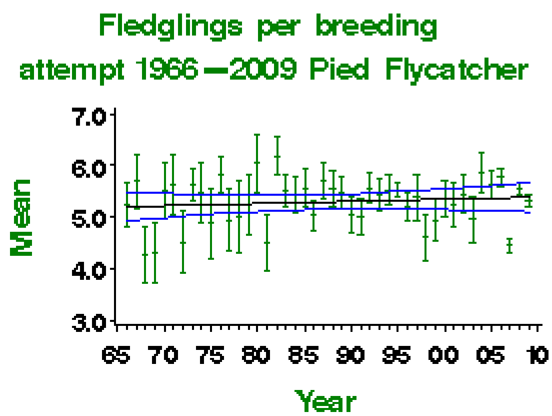
Population changes in detail

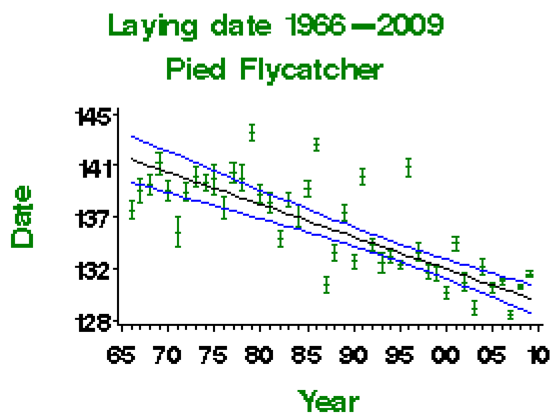
Table of population changes for Pied Flycatcher

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
BBS UK	13	1995-2008	40	-50	-63	-31	>50	
	10	1998-2008	40	-45	-59	-26	>25	

The Breeding Bird Survey is jointly funded by the BTO, JNCC & RSPB

Demographic trends

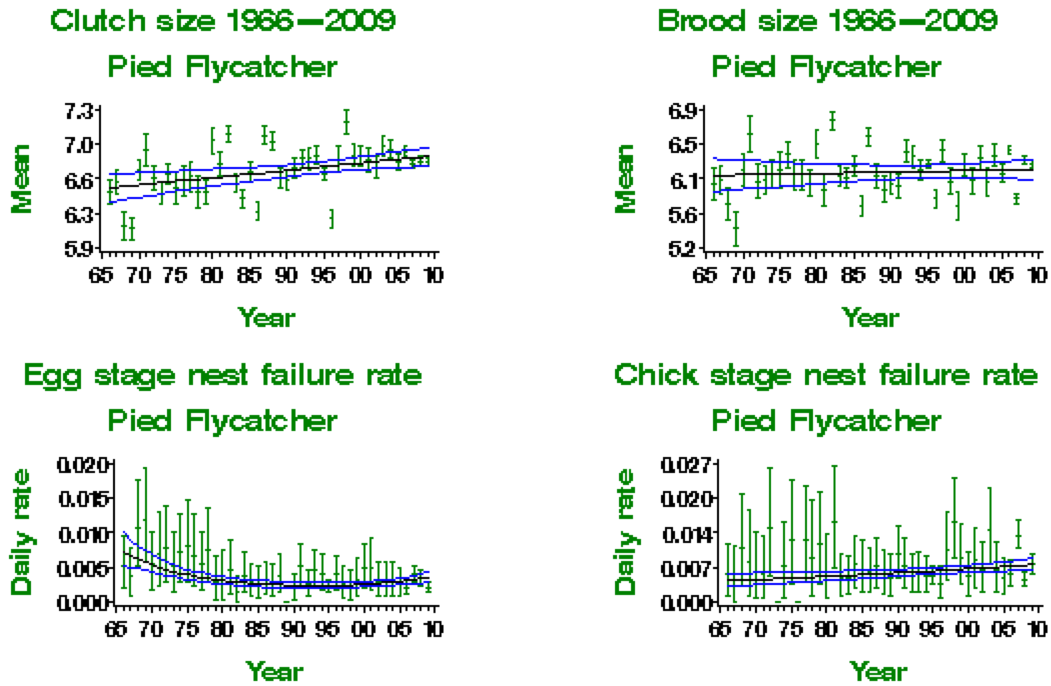




More demographic trends

Table of demographic changes for Pied Flycatcher

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment
Fledglings per breeding attempt	40	1968-2008	104	None				
Clutch size	40	1968-2008	142	Linear increase	6.52 eggs	6.82 eggs	4.5%	
Brood size	40	1968-2008	164	None				
Daily failure rate (eggs)	40	1968-2008	178	Curvilinear	0.63% nests/day	0.34% nests/day	-46%	
Daily failure rate (chicks)	40	1968-2008	148	Linear increase	0.43% nests/day	0.72% nests/day	67.4%	
Laying date	40	1968-2008	179	Linear decline	May 21	May 10	-11 days	



Additional information

- **Maps and statistics from British and Irish atlases**
- **BirdFacts page on species biology**
- **BirdTrack results**

LONG-TAILED TIT
Aegithalos caudatus

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe)
UK: green (species level); amber (race *rosaceus*, >20% of European breeders)

Long-term trend

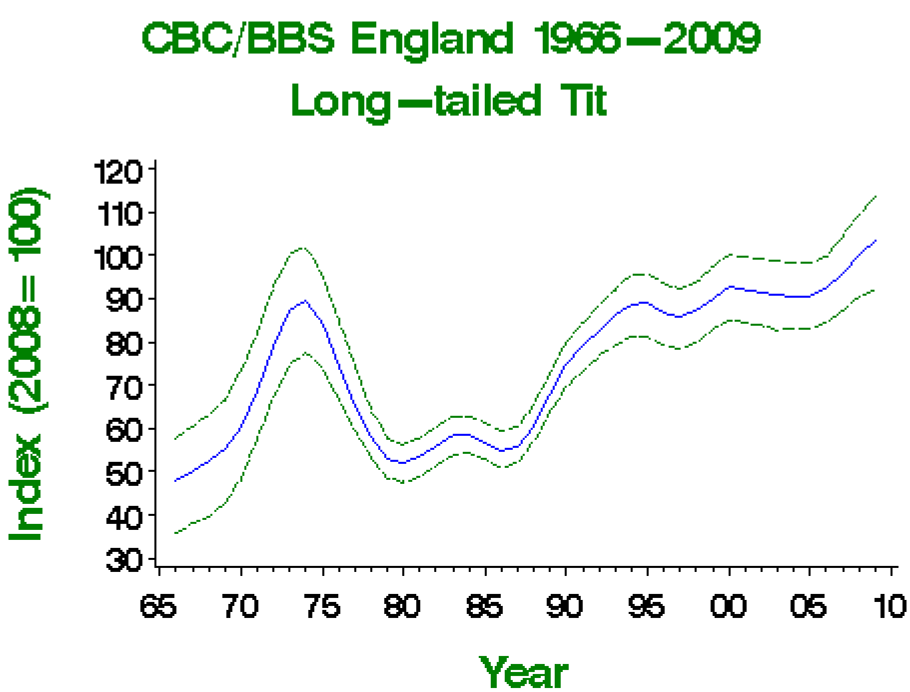
England: moderate increase

UK population size

273,000 territories in 2000 (1988–91 Atlas estimate updated using CBC/BBS trend: **BiE04**, **APEP06**)

Status summary

This species undergoes wide fluctuations in numbers between breeding seasons, suffering heavy mortality when winters are severe, but is able to recover quickly by virtue of its high breeding potential. Numbers were low after the severe winters of the early 1960s and again during a series of relatively cold winters beginning in the late 1970s. The starting years of the 25-year and longest monitoring periods coincided with troughs in population, thus exaggerating the long-term trend. CBC/BBS index trends show progressive increases in Long-tailed Tit abundance beginning in the early 1980s. Clutch and brood sizes have become smaller since the 1960s and, curiously, nest losses have switched from the egg to the chick stage. The overall effect of these changes has been a steep linear increase in the number of fledglings per breeding attempt. The marked trend towards earlier laying may be explained by recent climatic changes (**Crick & Sparks 1999**). There has been widespread moderate increase across Europe since 1980 (**PECBMS 2010**).



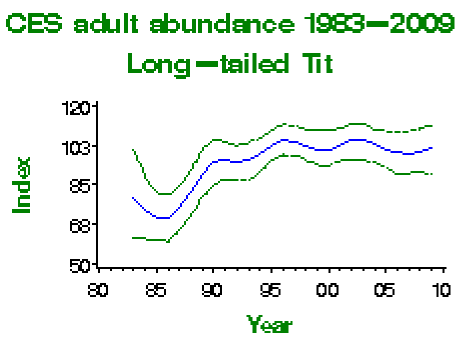
1967-2008: 98% (confidence interval 49% to 185%)

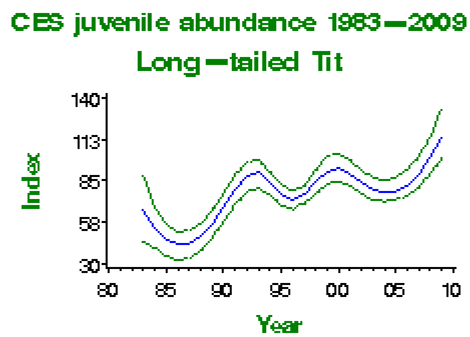
Population changes in detail

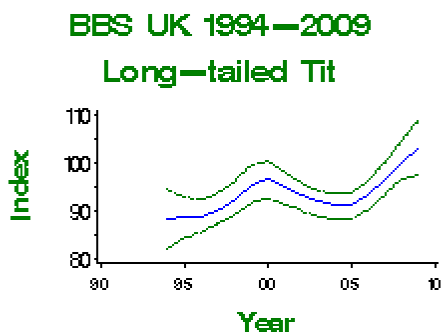
Table of population changes for Long-tailed Tit

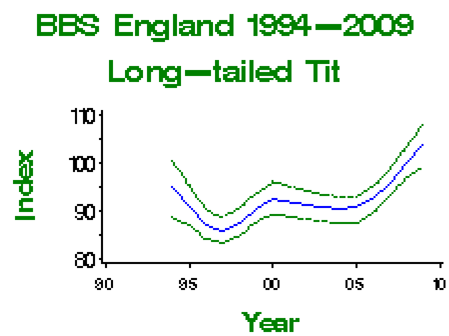
Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS England	41	1967-2008	343	98	49	185		
	25	1983-2008	497	72	47	98		
	10	1998-2008	863	15	7	22		
	5	2003-2008	946	10	4	16		
CES adults	24	1984-2008	79	35	4	80		
	10	1998-2008	96	-2	-16	10		
	5	2003-2008	93	-5	-14	7		
CES juveniles	24	1984-2008	74	85	34	195		
	10	1998-2008	91	19	4	41		
	5	2003-2008	88	26	11	45		
BBS UK	13	1995-2008	850	13	3	23		
	10	1998-2008	936	8	0	17		
	5	2003-2008	1064	9	3	17		
BBS England	13	1995-2008	750	10	3	17		
	10	1998-2008	824	14	7	21		
	5	2003-2008	942	10	4	17		
BBS Scotland	10	1998-2008	30	-12	-48	20		
	5	2003-2008	37	-11	-35	37		
BBS Wales	13	1995-2008	57	13	-9	46		
	10	1998-	64	2	-20	34		

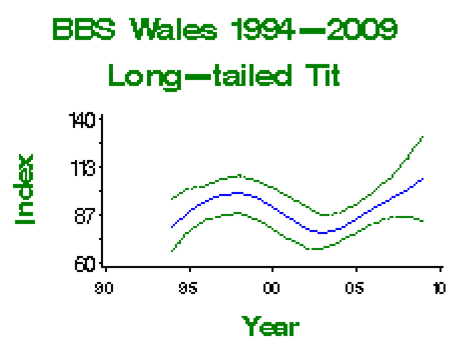
		2008						
	5	2003-2008	66	31	1	69		



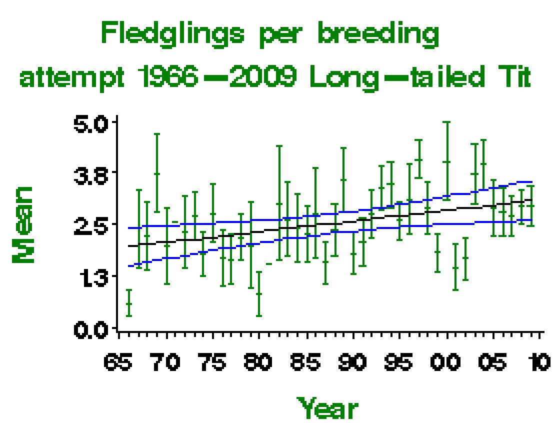


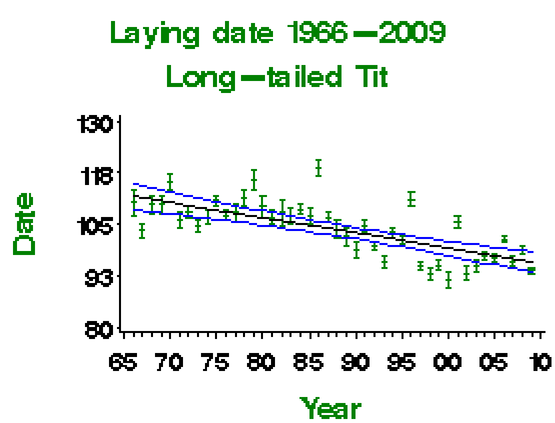






Demographic trends

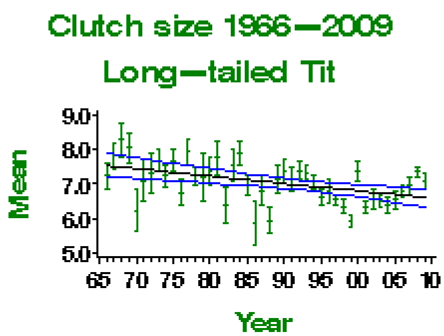


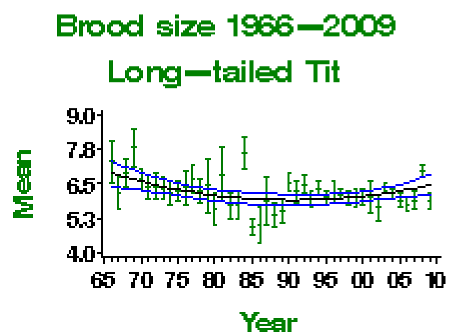


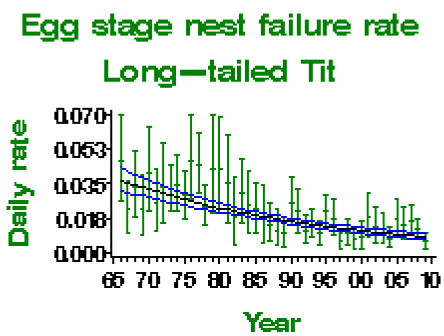
More on demographic trends

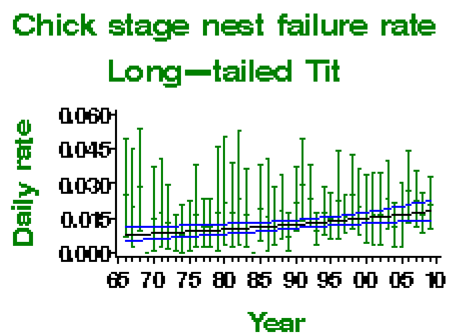
Table of demographic changes for Long-tailed Tit

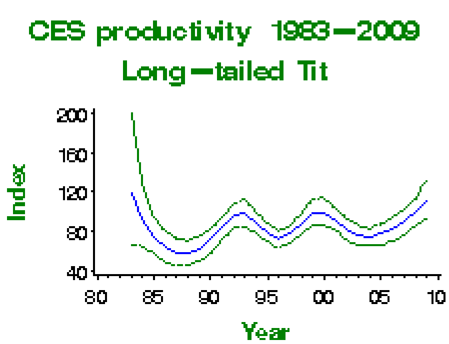
Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment
Fledglings per breeding attempt	40	1968-2008	19	Linear increase	2.02 fledglings	3.05 fledglings	51.4%	
Clutch size	40	1968-2008	36	Linear decline	7.5 eggs	6.64 eggs	-11.5%	
Brood size	40	1968-2008	29	Curvilinear	6.72 chicks	6.39 chicks	-4.9%	Small sample
Daily failure rate (eggs)	40	1968-2008	55	Linear decline	3.46% nests/day	0.86% nests/day	-75.1%	
Daily failure rate (chicks)	40	1968-2008	39	Linear increase	0.81% nests/day	1.76% nests/day	117.3%	
Laying date	40	1968-2008	47	Linear decline	Apr 21	Apr 6	-15 days	
Juvenile to Adult ratio (CES)	24	1984-2008	86	Smoothed trend	93 Index value	100 Index value	8%	
Juvenile to Adult ratio (CES)	10	1998-2008	104	Smoothed trend	88 Index value	100 Index value	13%	
Juvenile to Adult ratio (CES)	5	2003-2008	102	Smoothed trend	76 Index value	100 Index value	32%	











Additional information

- **Maps and statistics from British and Irish atlases**
- **BirdFacts page on species biology**
- **BirdTrack results**
- **Garden BirdWatch results**

GREAT TIT
Parus major

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe)
UK: green (species level, race *major*); amber (race *newtoni*, >20% of European breeders)

Long-term trend

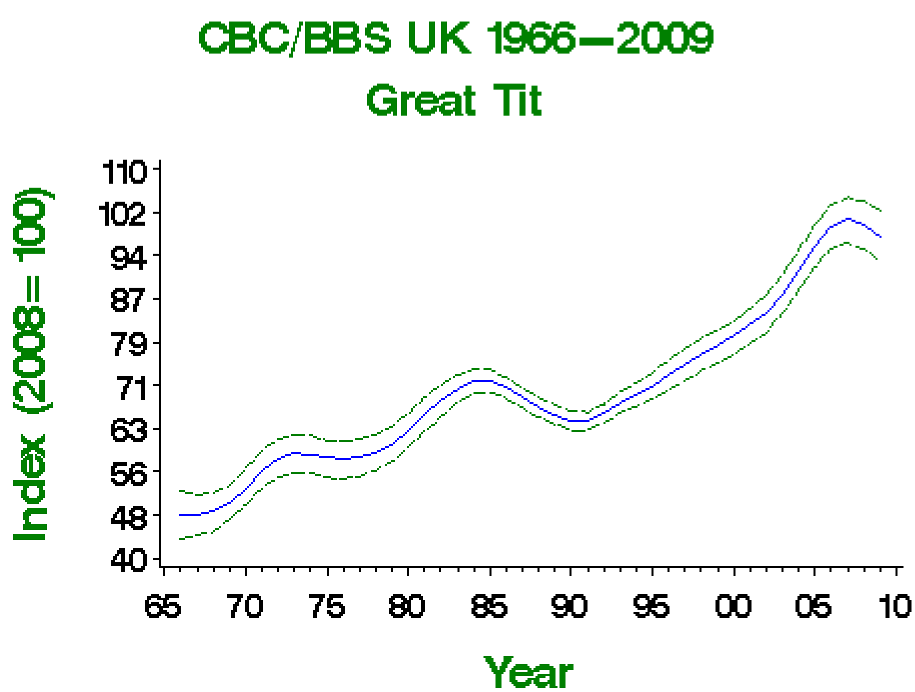
UK: rapid increase
England: moderate increase

UK population size

2,074,000 territories in 2000 (1988–91 Atlas estimate updated using CBC/BBS trend: **BiE04**, **APEP06**)

Status summary

Great Tits have increased steadily since the 1960s, with the exception of two brief periods of stability or shallow decline during the mid 1970s and late 1980s. Recent CBC/BBS and BBS results suggest that this increase is continuing, in all UK countries. More widespread food provision in gardens during winter is one possible explanation for the increase. Alongside population increase there has been a long-term decline in productivity, as measured by CES. A small but significant fall in the number of fledglings per breeding attempt suggests that the reduced numbers of juveniles result from lower productivity of individual attempts rather than from changes in the number of breeding attempts or in post-fledging survival rates. Laying date has advanced by about a week in the UK, in line with climatic change. In a Dutch study population, however, the breeding period did not advance during 1973–95 and became increasingly mistimed with respect to the peak of insect abundance (**Visser *et al.* 1998**).



1967-2008: 109% (confidence interval 86% to 137%)

Population changes in detail

Table of population changes for Great Tit

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS UK	41	1967-2008	835	109	86	137		
	25	1983-2008	1237	42	31	54		
	10	1998-2008	2239	30	27	34		
	5	2003-2008	2442	14	11	18		
CBC/BBS England	41	1967-2008	692	99	76	128		
	25	1983-2008	1018	36	25	48		
	10	1998-2008	1828	29	25	33		
	5	2003-2008	2001	12	9	14		
CES adults	24	1984-2008	92	27	3	52		
	10	1998-2008	107	21	6	36		
	5	2003-2008	104	13	3	24		
CES juveniles	24	1984-2008	95	2	-32	49		
	10	1998-2008	109	20	3	39		
	5	2003-2008	106	-2	-15	13		
BBS UK	13	1995-2008	2008	43	38	49		
	10	1998-2008	2183	29	25	34		
	5	2003-2008	2442	14	11	17		
BBS England	13	1995-2008	1632	39	34	44		
	10	1998-2008	1767	29	25	33		
	5	2003-2008	1980	12	9	14		

BBS Scotland	**13**	**1995-2008**	**142**	**53**	**29**	**79**		
	10	**1998-2008**	**154**	**27**	**11**	**45**		
	5	**2003-2008**	**179**	**27**	**11**	**45**		
BBS Wales	**13**	**1995-2008**	**165**	**47**	**30**	**70**		
	10	**1998-2008**	**184**	**33**	**19**	**51**		
	5	**2003-2008**	**199**	**15**	**7**	**26**		
BBS N.Ireland	**13**	**1995-2008**	**67**	**176**	**101**	**206**		
	10	**1998-2008**	**76**	**59**	**37**	**80**		
	5	**2003-2008**	**88**	**41**	**27**	**58**		

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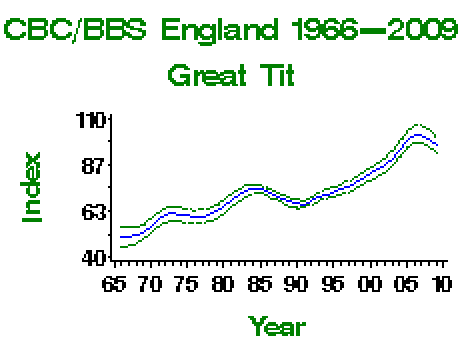
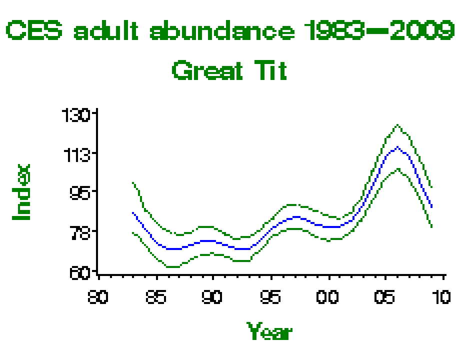
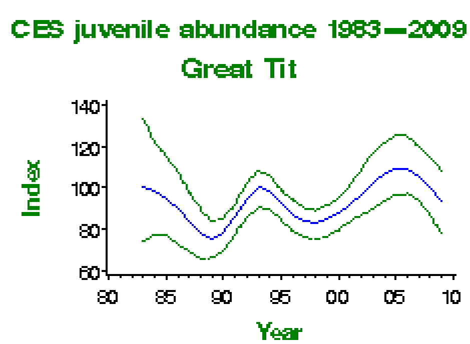
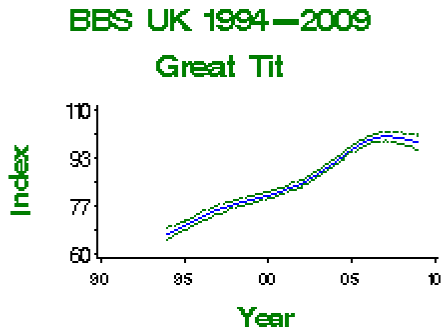
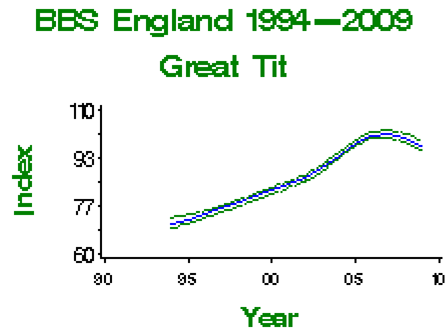
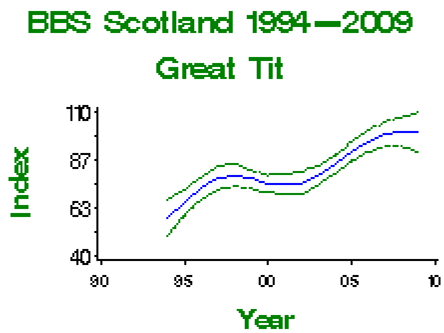


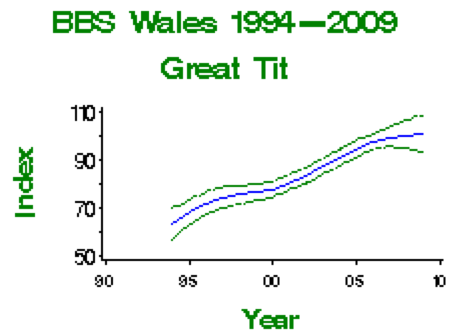


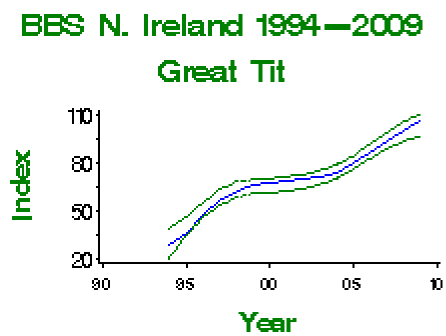




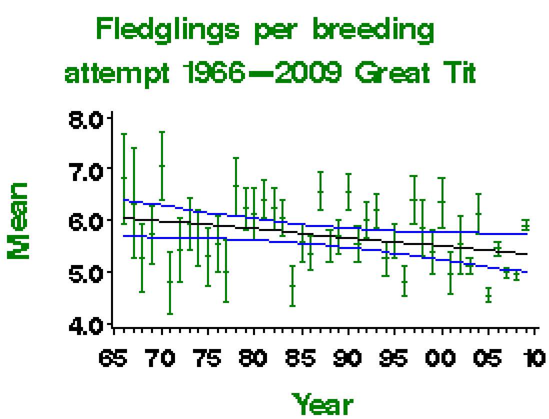


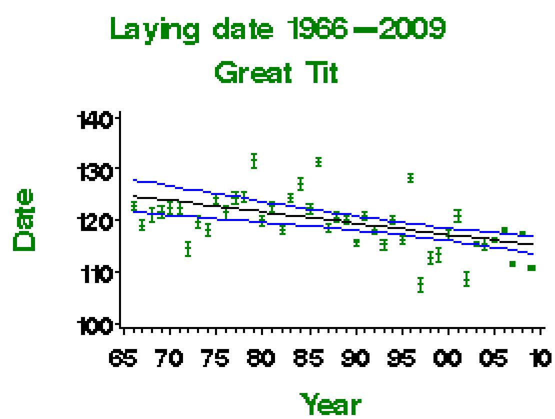






Demographic trends



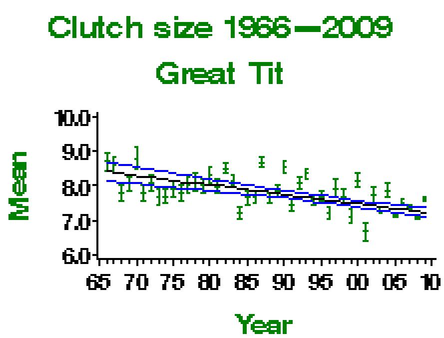


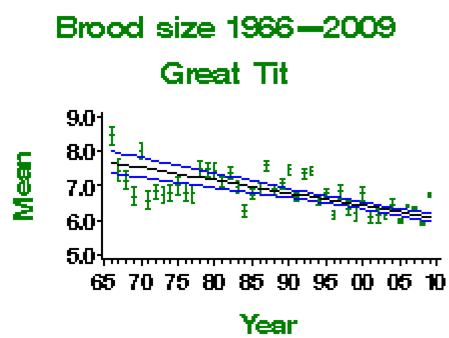
More on demographic trends

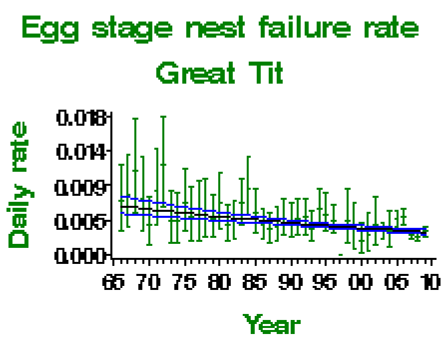
Table of demographic changes for Great Tit

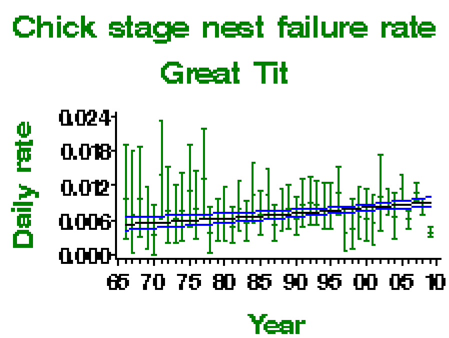
Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment
Fledglings per breeding	40	1968-	149	Linear	6.02	5.38	-10.6%	

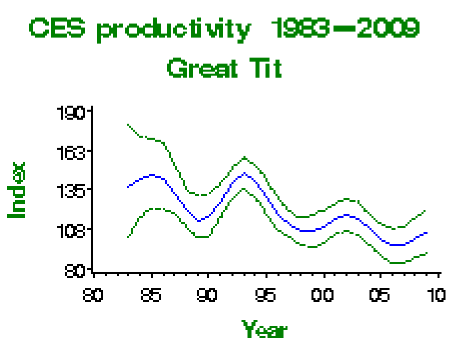
attempt		2008		decline	fledglings	fledglings		
Clutch size	40	1968-2008	199	Linear decline	8.35 eggs	7.27 eggs	-13%	
Brood size	40	1968-2008	400	Linear decline	7.6 chicks	6.13 chicks	-19.4%	
Daily failure rate (eggs)	40	1968-2008	365	Linear decline	0.62% nests/day	0.31% nests/day	-50%	
Daily failure rate (chicks)	40	1968-2008	263	Linear increase	0.55% nests/day	0.91% nests/day	65.5%	
Laying date	40	1968-2008	230	Linear decline	May 4	Apr 26	-8 days	
Juvenile to Adult ratio (CES)	24	1984-2008	101	Smoothed trend	143 Index value	100 Index value	-30% >25	
Juvenile to Adult ratio (CES)	10	1998-2008	115	Smoothed trend	106 Index value	100 Index value	-6%	
Juvenile to Adult ratio (CES)	5	2003-2008	111	Smoothed trend	115 Index value	100 Index value	-13%	

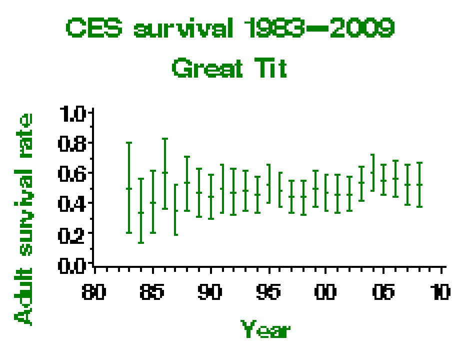












Additional information

- Maps and statistics from British and Irish atlases
- BirdFacts page on species biology
- BirdTrack results
- Garden BirdWatch results

COAL TIT
Periparus ater

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe)
UK: green (species level, race *hibernicus*); amber (race *britannicus*, >20% of European breeders)

Long-term trend

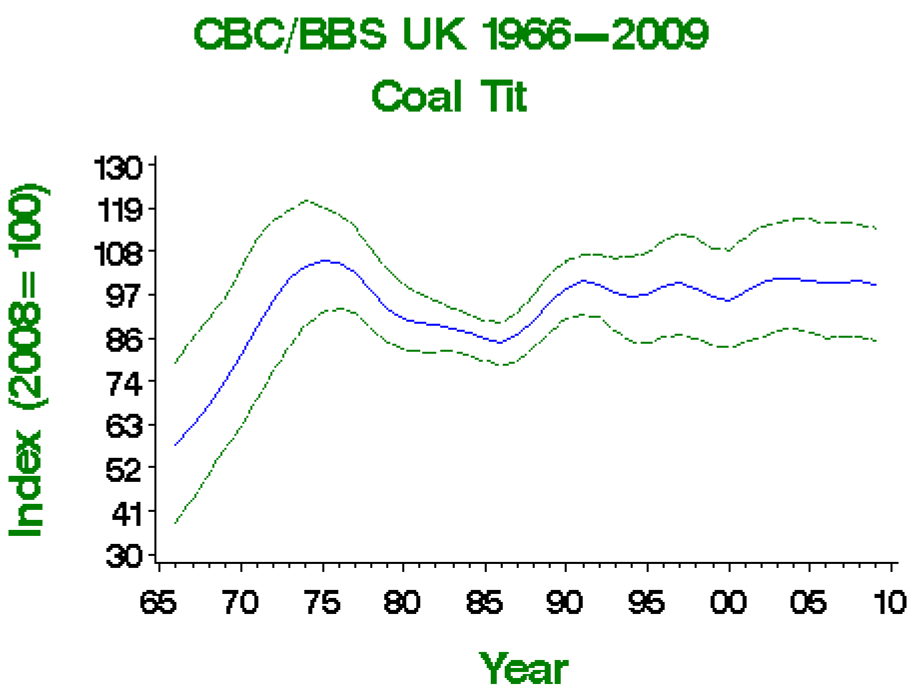
UK, England: moderate increase

UK population size

653,000 territories in 2000 (1988–91 Atlas estimate updated using CBC/BBS trend: **BiE04**, **APEP06**)

Status summary

While other common tit species have increased, the UK Coal Tit population has been rather stable since the mid 1970s, following earlier rapid increase. The ratios of Coal Tit to **Blue** and **Great Tits** caught for ringing have both shown a sustained increase since 1960 (**Perrins 2003**), however, although in these figures population change may be confounded to some degree with changes in behaviour among birds and bird ringers. Confidence intervals are wide, but BBS shows large changes in population sizes that have varied geographically across the UK. This pattern suggests that Coal Tit abundance in the UK may be controlled by a complex range of factors.



1967-2008: 59% (confidence interval 2% to 168%)

Population changes in detail

Table of population changes for Coal Tit

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment

CBC/BBS UK	41	1967-2008	328	59	2	168		
	25	1983-2008	466	13	-8	44		
	10	1998-2008	806	2	-8	12		
	5	2003-2008	873	-1	-9	7		
CBC/BBS England	41	1967-2008	232	59	-6	186		
	25	1983-2008	323	15	-11	50		
	10	1998-2008	550	15	3	30		
	5	2003-2008	605	5	-2	10		
BBS UK	13	1995-2008	713	5	-4	16		
	10	1998-2008	777	0	-9	8		
	5	2003-2008	873	0	-7	7		
BBS England	13	1995-2008	473	17	2	38		
	10	1998-2008	520	11	-2	26		
	5	2003-2008	593	5	-1	13		
BBS Scotland	13	1995-2008	121	-1	-19	19		
	10	1998-2008	125	-6	-21	9		
	5	2003-2008	149	-8	-20	6		
BBS Wales	13	1995-2008	69	-19	-42	7		
	10	1998-2008	77	-11	-31	13		
	5	2003-2008	78	3	-15	19		
BBS N.Ireland	13	1995-2008	58	71	20	105		

	10	1998-2008	67	11	-7	34		
	5	2003-2008	74	-8	-20	6		

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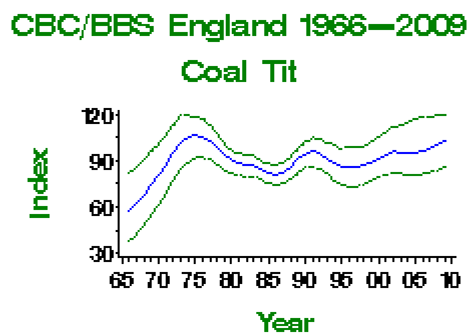
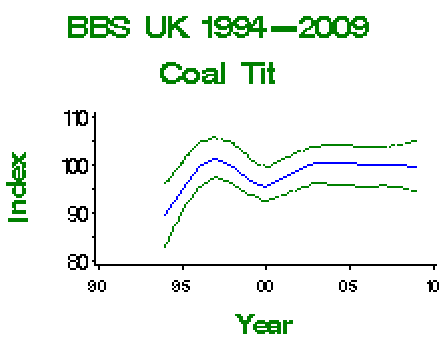
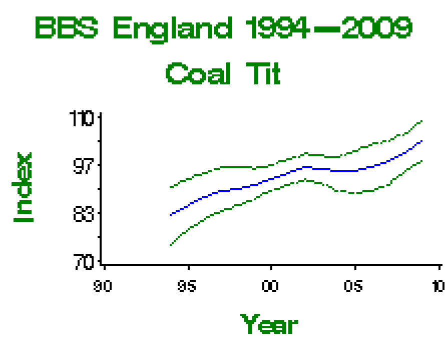
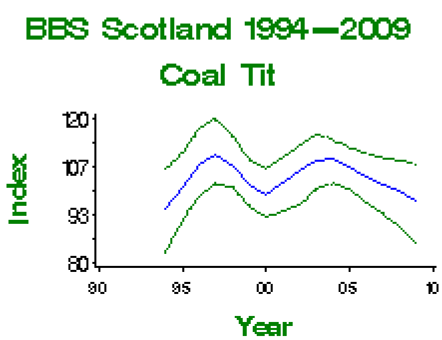
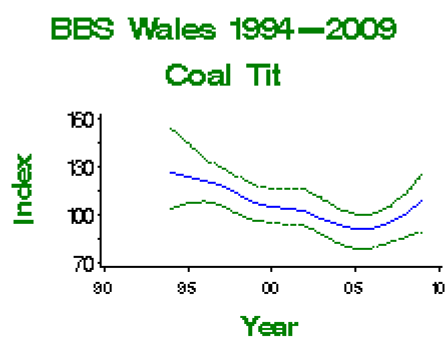
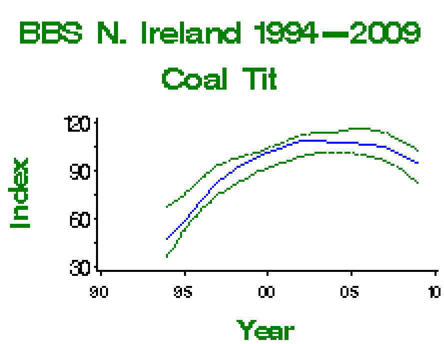












Demographic trends

Demographic information is not currently available for this species

Additional information

- **Maps and statistics from British and Irish atlases**
- **BirdFacts page on species biology**
- **BirdTrack results**
- **Garden BirdWatch results**

WILLOW TIT
Poecile montana

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe)
UK: red (>50% population decline)
UK Biodiversity Action Plan: **priority species**

Long-term trend

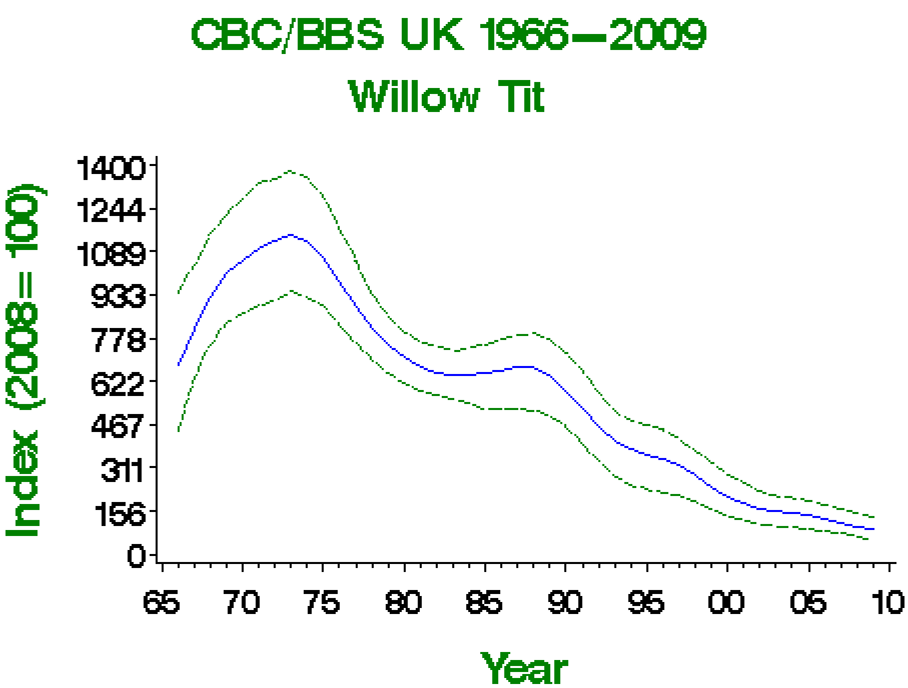
UK, England: rapid decline

UK population size

8,500 territories in 2000 (1988–91 Atlas estimate updated using CBC/BBS trend: **BiE04**, **APEP06**)

Status summary

Willow Tits have been in decline since the mid 1970s, and have become locally extinct in an ever-growing number of former haunts. The continuing decline in the CBC/BBS index through the 1990s, following a brief period of stability during the 1980s, is replicated in the CES abundance trend. The UK conservation listing was upgraded from amber to red in 2002. Numbers have changed least in the wet woodlands that the species prefers (**Siriwardena 2004**). Farmland is now only rarely occupied. The most likely causes of decline are competition with other tit species, increasing nest predation by **Great Spotted Woodpeckers**, and deterioration in the quality of woodland as feeding habitat for Willow Tits through canopy closure and increased browsing by deer (**Perrins 2003**, **Siriwardena 2004**, **Fuller *et al.* 2005**). A study of former CBC sites and other woods that were known to have held the species in the past found that the sites still holding Willow Tits tended to be wetter but did not differ in the density of potential nest predators or avian competitors (**Lewis *et al*. 2007**, **2009**). Willow Tit has shown widespread rapid decline across Europe since 1980, but has declined to a lesser extent in central and eastern Europe than in the north, west and south (**PECBMS 2007, 2010**).



1967-2008: -88% (confidence interval -94% to -76%)

Population changes in detail

Table of population changes for Willow Tit

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS UK	41	1967-2008	43	-88	-94	-76	>50	
	25	1983-2008	45	-85	-91	-75	>50	
	10	1998-2008	53	-65	-74	-50	>50	
	5	2003-2008	49	-36	-51	-15	>25	
CBC/BBS England	41	1967-2008	40	-87	-95	-77	>50	
	25	1983-2008	40	-85	-93	-76	>50	Small CBC sample
	10	1998-2008	47	-63	-71	-50	>50	
	5	2003-2008	43	-36	-50	-18	>25	
CES adults	24	1984-2008	19	-49	-85	-5	>25	Small sample
	10	1998-2008	12	-17	-67	41		Small sample
CES juveniles	24	1984-2008	27	-61	-81	-25	>50	
	10	1998-2008	18	-39	-69	12		Small sample
	5	2003-2008	13	-27	-64	23		Small sample
BBS UK	13	1995-2008	53	-73	-80	-63	>50	
	10	1998-2008	50	-65	-75	-53	>50	
	5	2003-2008	49	-37	-52	-17	>25	
BBS England	13	1995-2008	46	-73	-79	-64	>50	
	10	1998-2008	44	-63	-72	-50	>50	
	5	2003-2008	43	-36	-49	-20	>25	

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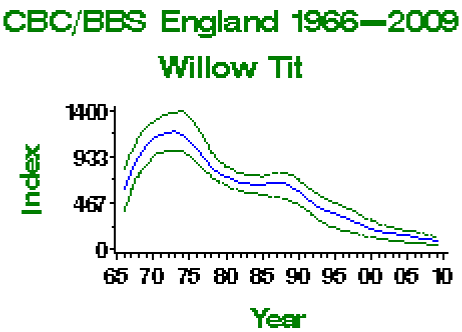
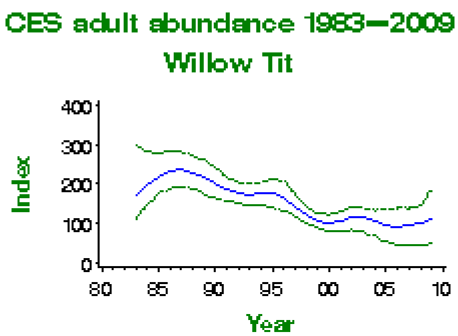
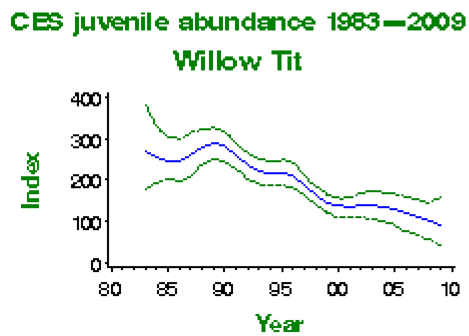
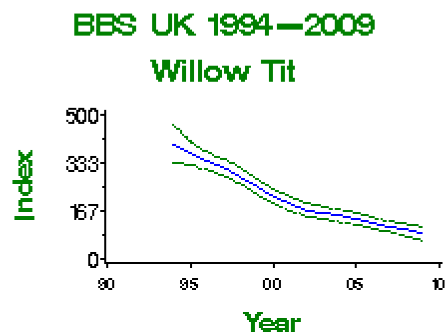
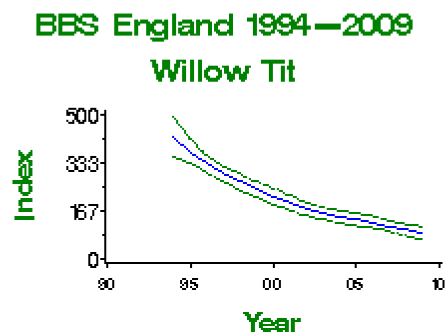










Demographic trends

Table of demographic changes for Willow Tit

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment
Juvenile to Adult ratio (CES)	24	1984-2008	30	Smoothed trend	223 Index value	100 Index value	-55%	
Juvenile to Adult ratio (CES)	10	1998-2008	21	Smoothed trend	163 Index value	100 Index value	-39%	
Juvenile to Adult ratio (CES)	5	2003-2008	16	Smoothed trend	183 Index value	100 Index value	-45%	

Insufficient data on fledglings per breeding attempt available for this species

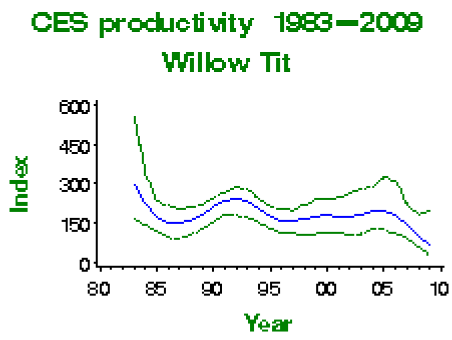
Insufficient data on laying date available for this species

Insufficient data on clutch size available for this species

Insufficient data on brood size available for this species

Insufficient data on nest failure available for this species

Insufficient data on nestling failure available for this species



Additional information

- **Maps and statistics from British and Irish atlases**
- **BirdFacts page on species biology**
- **BirdTrack results**
- **Garden BirdWatch results**

MARSH TIT
Poecile palustris

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: SPEC category 3, declining
UK: red (>50% population decline)
UK Biodiversity Action Plan: **priority species**

Long-term trend

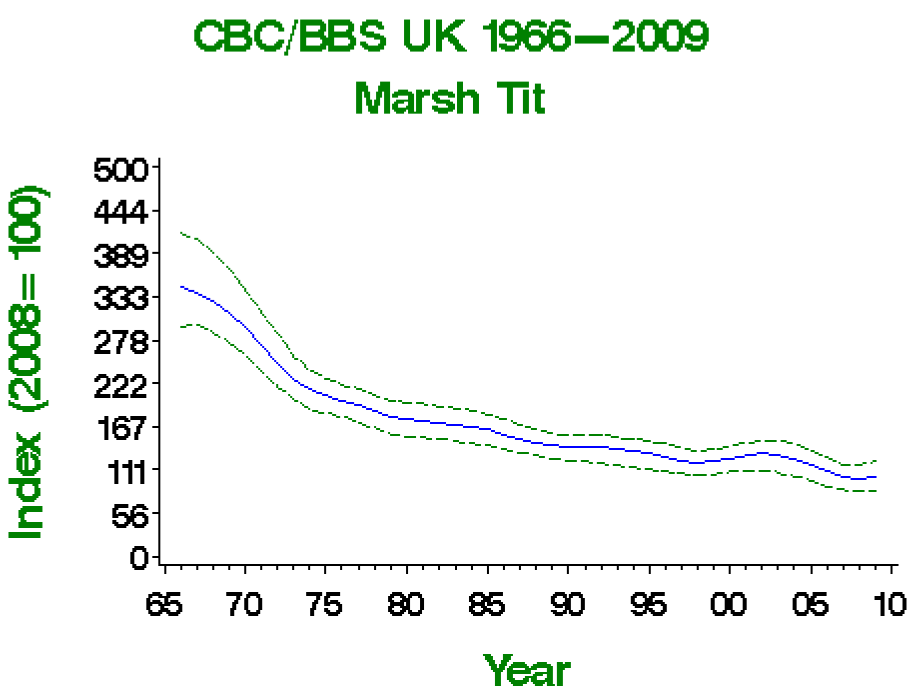
UK, England: rapid decline

UK population size

52,800 territories in 2000 (1988–91 Atlas estimate updated using CBC/BBS trend: **BiE04**, **APEP2**)

Status summary

Marsh Tit abundance has declined almost continuously since BTO monitoring began. The species' UK conservation listing has recently been upgraded from amber to red. Detailed demographic work suggests that the decline may have been driven by low annual survival, and that neither increased predation nor interspecific competition is responsible (**Siriwardena 2006**). Nest failure rates have fallen during the period of decline, but no trend is evident in the number of fledglings per breeding attempt. Marsh Tits nest in woods as small as half a hectare (**Hinsley *et al.* 1995**), but there is evidence from CBC that declines are steeper on smaller plots (G.M. Siriwardena, unpubl.). Reductions in the structural and floristic diversity of woodland, resulting partly from increased browsing by deer, are likely to have caused the decline (**Perrins 2003**, **Fuller *et al*. 2005**). Marsh Tits appear to select breeding territories on the quality of the shrub layer rather than the tree canopy, and may be adversely affected by factors that damage the shrub layer, such as overgrazing and canopy closure (**Hinsley *et al.* 2007**, **Carpenter *et al*. 2010**). Numbers have fallen widely in Europe since 1980 (**PECBMS 2010**), and the European status of this species is no longer considered 'secure' (**BirdLife International 2004**).



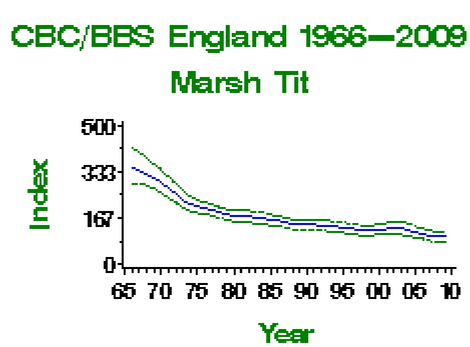
1967-2008: -71% (confidence interval -79% to -60%)

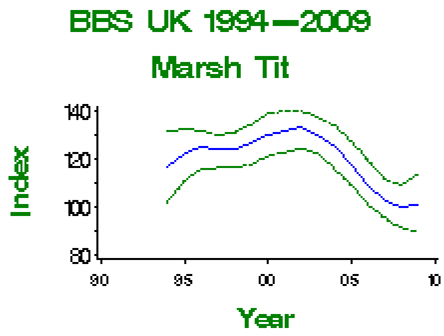
Population changes in detail

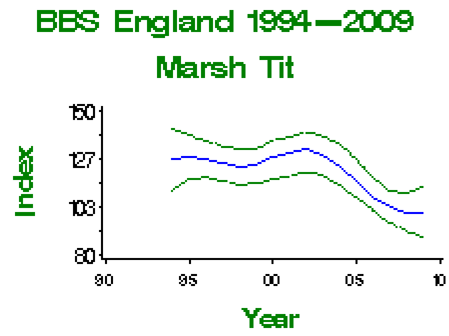
Table of population changes for Marsh Tit

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS UK	41	1967-2008	92	-71	-79	-60	>50	
	25	1983-2008	114	-41	-55	-28	>25	
	10	1998-2008	160	-17	-27	-4		
	5	2003-2008	156	-23	-33	-9		
CBC/BBS England	41	1967-2008	85	-70	-79	-61	>50	
	25	1983-2008	105	-41	-57	-23	>25	
	10	1998-2008	146	-18	-32	-4		
	5	2003-2008	145	-23	-35	-10		
BBS UK	13	1995-2008	141	-18	-30	-3		
	10	1998-2008	147	-19	-30	-6		
	5	2003-2008	156	-23	-32	-10		
BBS England	13	1995-2008	127	-21	-32	-8		
	10	1998-2008	133	-18	-29	-4		
	5	2003-2008	142	-22	-32	-8		

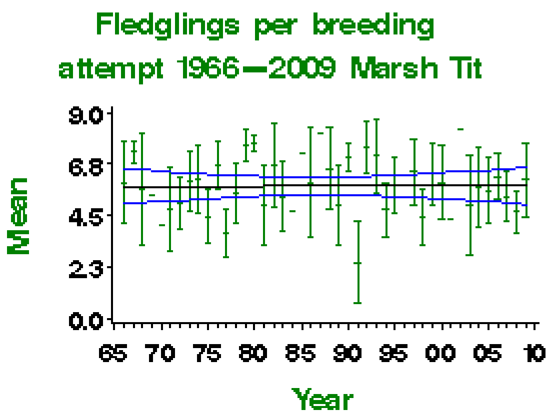
BTO JNCC RSPB The Breeding Bird Survey is jointly funded by the BTO, JNCC & RSPB

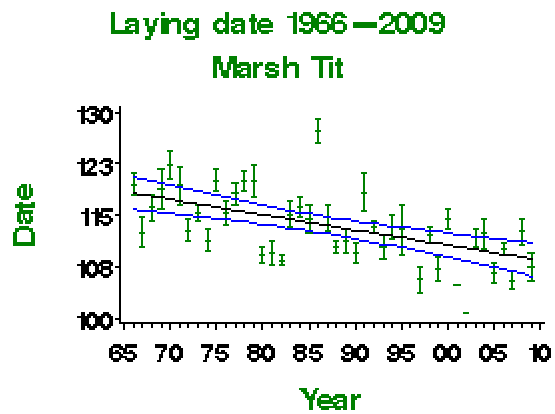






Demographic trends

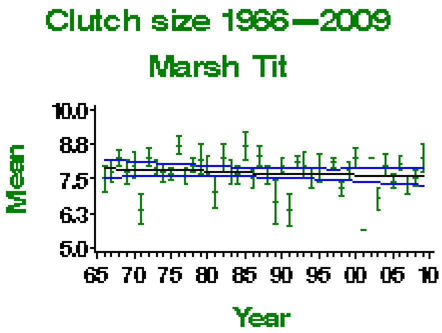


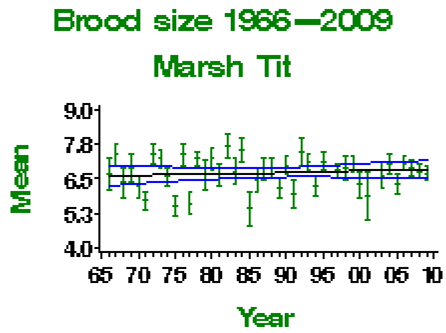


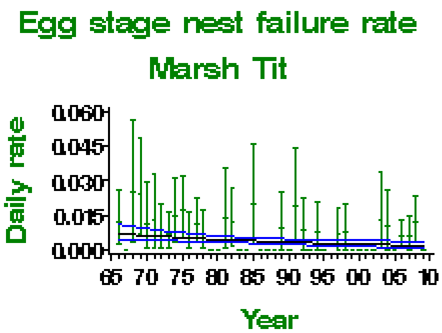
More on demographic trends

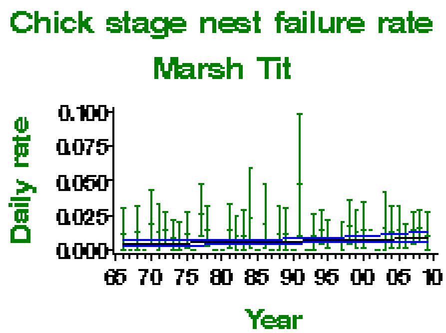
Table of demographic changes for Marsh Tit

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment
Fledglings per breeding attempt	40	1968-2008	11	None				
Clutch size	40	1968-2008	14	None				Small sample
Brood size	40	1968-2008	23	None				Small sample
Daily failure rate (eggs)	40	1968-2008	20	Linear decline	0.68% nests/day	0.21% nests/day	-69.1%	Small sample
Daily failure rate (chicks)	40	1968-2008	20	None				Small sample
Laying date	40	1968-2008	14	Linear decline	Apr 28	Apr 19	-9 days	Small sample









Additional information

- **Maps and statistics from British and Irish atlases**
- **BirdFacts page on species biology**
- **BirdTrack results**
- **Garden BirdWatch results**

NUTHATCH
Sitta europaea

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe)
UK: green

Long-term trend

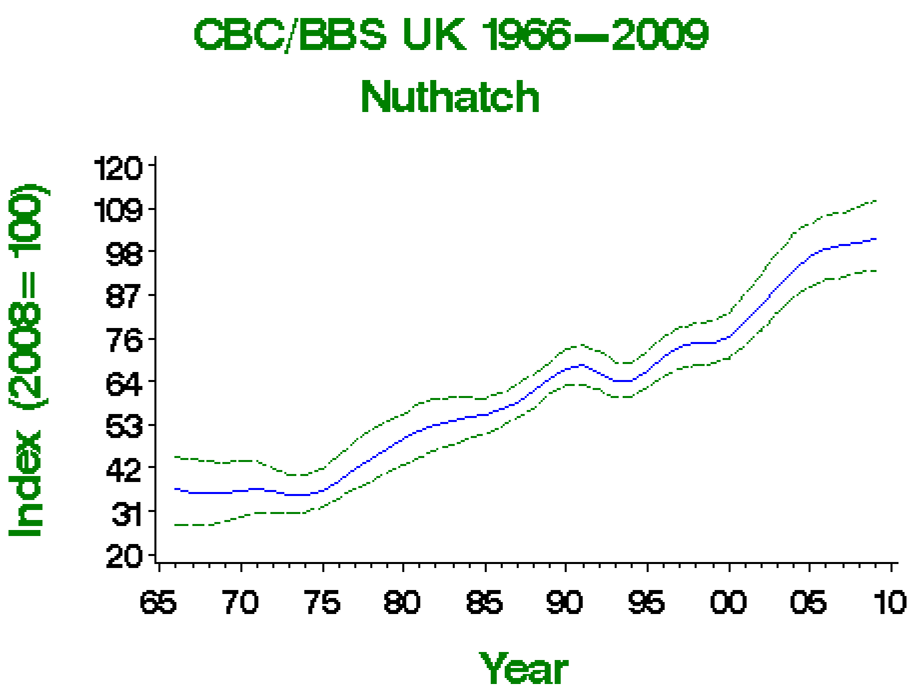
UK, England: rapid increase

UK population size

144,000 territories in 2000 (1988–91 Atlas estimate updated using CBC/BBS trend: **BiE04**, **APEP06**)

Status summary

Nuthatch abundance in the UK has increased rapidly since the mid 1970s. Despite minor setbacks during the 1990s, there is no indication yet of a halt to the upward trend. This increase has been accompanied by a range expansion into northern England (**Gibbons *et al.* 1993**) and southern Scotland, and has been associated with a large increase in brood size, reduced nest failure, and linear increase in the number of fledglings per breeding attempt. In Wales, numbers now appear to be in decline. The reasons for these changes are unknown. A trend towards earlier laying, perhaps as a result of climate change (**Crick *et al.* 1997**), has also been identified. Numbers have shown widespread moderate increase across Europe since 1980 (**PECBMS 2010**).



1967-2008: 178% (confidence interval 98% to 303%)

Population changes in detail

Table of population changes for Nuthatch

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS UK	41	1967-	191	178	98	303		

		2008						
	25	1983-2008	279	84	54	127		
	10	1998-2008	488	35	26	48		
	5	2003-2008	544	13	6	21		
CBC/BBS England	41	1967-2008	165	191	122	309		
	25	1983-2008	239	86	51	138		
	10	1998-2008	414	43	30	58		
	5	2003-2008	468	17	8	25		
BBS UK	13	1995-2008	419	50	35	66		
	10	1998-2008	467	34	23	48		
	5	2003-2008	544	13	6	21		
BBS England	13	1995-2008	352	56	40	72		
	10	1998-2008	392	43	28	56		
	5	2003-2008	464	19	10	26		
BBS Wales	13	1995-2008	67	23	0	51		
	10	1998-2008	74	3	-14	21		
	5	2003-2008	79	-7	-18	9		

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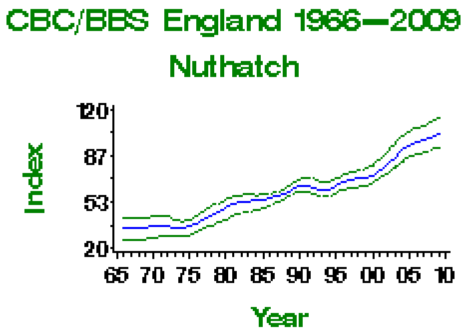
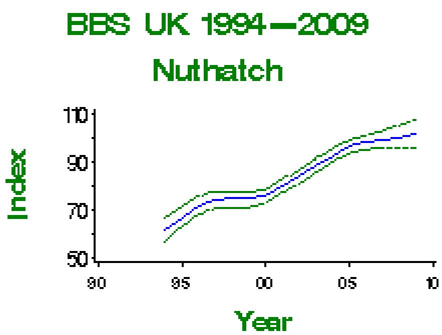
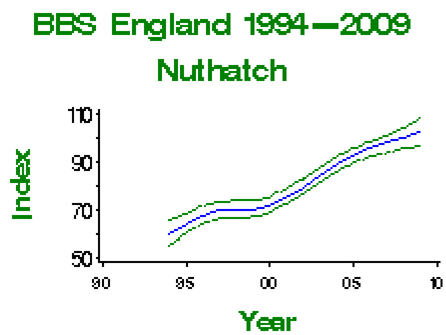
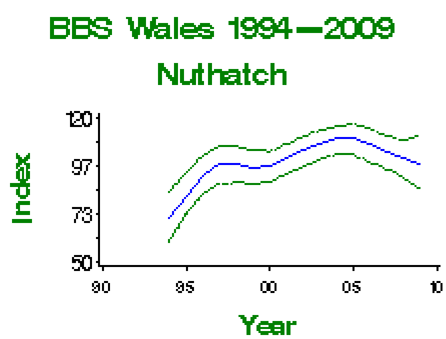
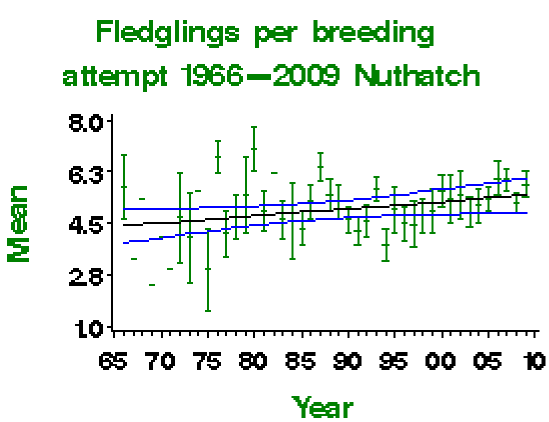


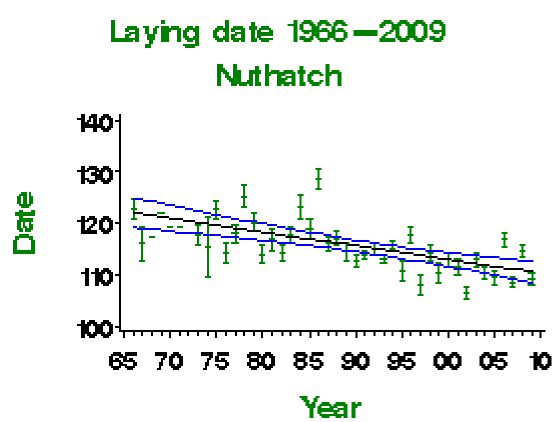






Demographic trends



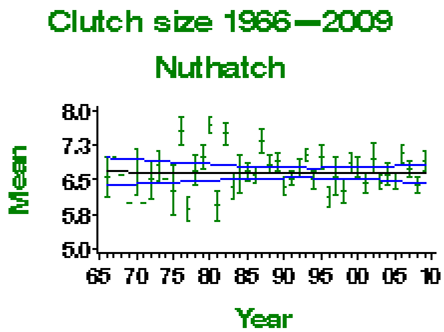


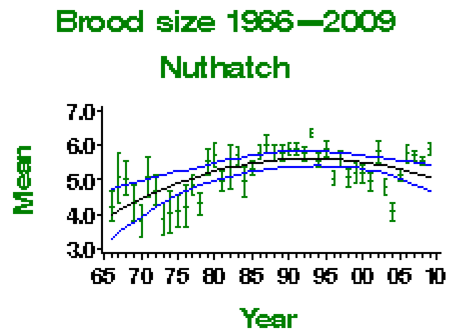
More on demographic trends

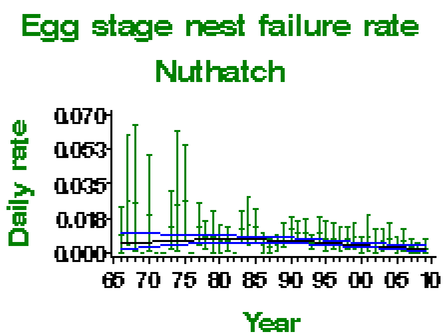
Table of demographic changes for Nuthatch

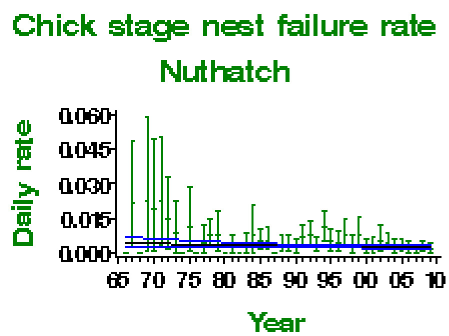
Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment
Fledglings per breeding	40	1968-	21	Linear	4.47	5.42	21.4%	

attempt		2008		increase	fledglings	fledglings		
Clutch size	40	1968-2008	28	None				Small sample
Brood size	40	1968-2008	67	Curvilinear	4.24 chicks	5.14 chicks	21.3%	
Daily failure rate (eggs)	40	1968-2008	50	Curvilinear	0.52% nests/day	0.24% nests/day	-53.8%	
Daily failure rate (chicks)	40	1968-2008	56	None				
Laying date	40	1968-2008	28	Linear decline	May 2	Apr 21	-11 days	Small sample









Additional information

- Maps and statistics from British and Irish atlases
- BirdFacts page on species biology
- BirdTrack results
- Garden BirdWatch results

TREECREEPER
Certhia familiaris

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe)
UK: green (species level); amber (race *britannica*, >20% of European breeders)

Long-term trend

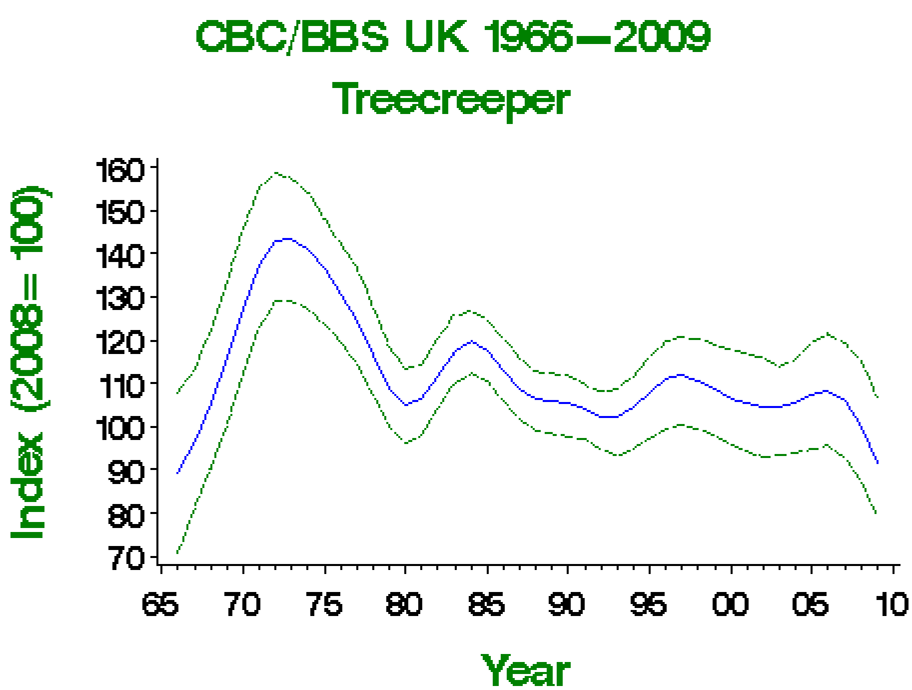
UK, England: fluctuating, with no long-term trend

UK population size

214,000 territories in 2000 (1988–91 Atlas estimate updated using CBC/BBS trend: **BiE04**, **APEP06**)

Status summary

The UK Treecreeper population peaked in the mid 1970s, but has been roughly stable since about 1980. Intensive study has shown that Treecreeper numbers and survival rates are reduced by wet winter weather (**Peach *et al*. 1995b**). The influence of cold weather is also evident in the low start to the index, following the severe winter of 1962/63, and the trough around 1980. Census data suggest a minor decline has occurred since the early 1980s, but CES adult captures have increased for much of this period. Productivity, calculated using CES data, shows fluctuations around a long-term shallow increase but a sharp downturn in recent years. There has been a significant fall in nest failure rates at the egg stage (18 days, comprising 14 days incubation and 4 days laying). The trend towards earlier laying can be partly explained by recent climate change (**Crick & Sparks 1999**).



1967-2008: 4% (confidence interval -20% to 45%)

Population changes in detail

Table of population changes for Treecreeper

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS UK	41	1967-2008	189	4	-20	45		
	25	1983-2008	248	-15	-29	3		
	10	1998-2008	364	-10	-21	5		
	5	2003-2008	370	-4	-15	10		
CBC/BBS England	41	1967-2008	149	-1	-27	30		
	25	1983-2008	193	-19	-34	-4		
	10	1998-2008	274	-13	-22	-2		
	5	2003-2008	280	-7	-16	3		
CES adults	24	1984-2008	38	17	-24	79		
	10	1998-2008	44	-13	-31	7		
	5	2003-2008	42	0	-18	30		
CES juveniles	24	1984-2008	60	31	-8	81		
	10	1998-2008	69	9	-6	30		
	5	2003-2008	66	-18	-31	-4		
BBS UK	13	1995-2008	320	-5	-17	10		
	10	1998-2008	339	-12	-22	3		
	5	2003-2008	370	-4	-14	9		
BBS England	13	1995-2008	238	-13	-24	-2		
	10	1998-2008	251	-16	-24	-6		
	5	2003-2008	276	-7	-15	2		

BBS Scotland	**13**	**1995-2008**	**36**	**-2**	**-33**	**40**		
	10	**1998-2008**	**38**	**4**	**-35**	**64**		
	5	**2003-2008**	**47**	**5**	**-26**	**41**		
BBS Wales	**13**	**1995-2008**	**40**	**4**	**-33**	**38**		
	10	**1998-2008**	**44**	**-28**	**-50**	**-4**	**>25**	
	5	**2003-2008**	**42**	**-21**	**-41**	**1**		

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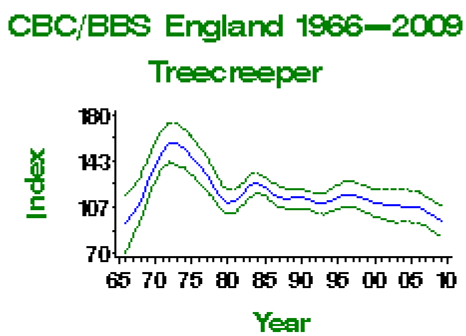
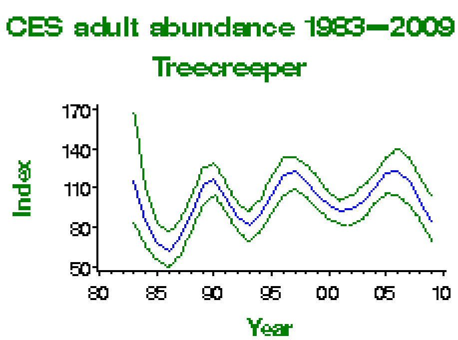
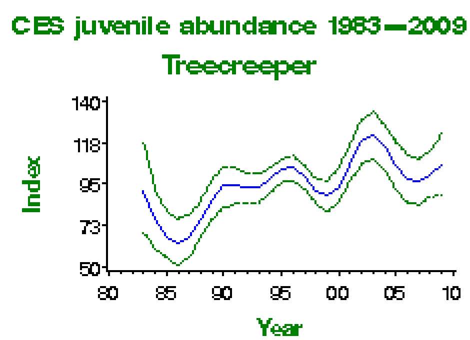
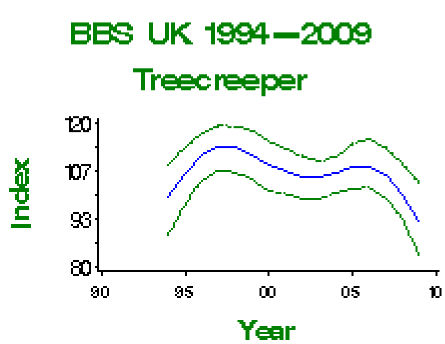
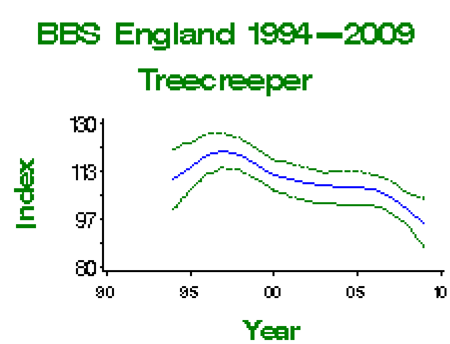
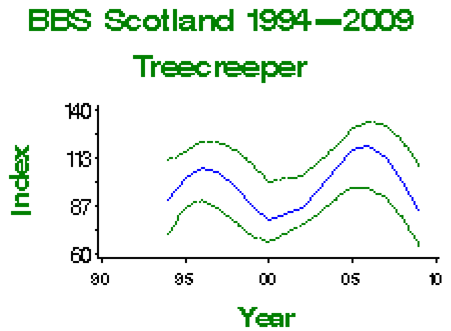


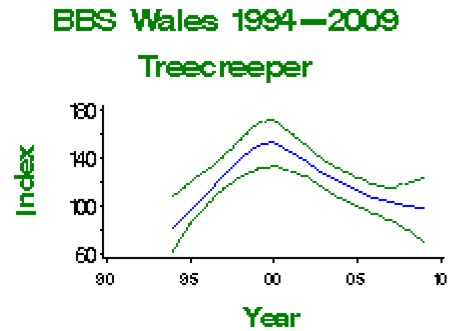










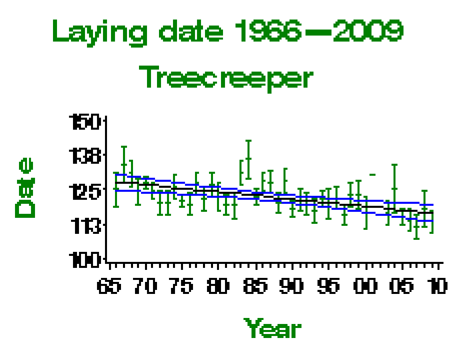


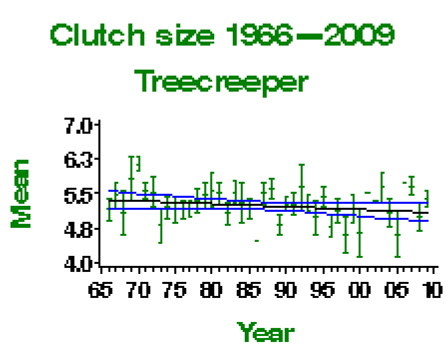
Demographic trends

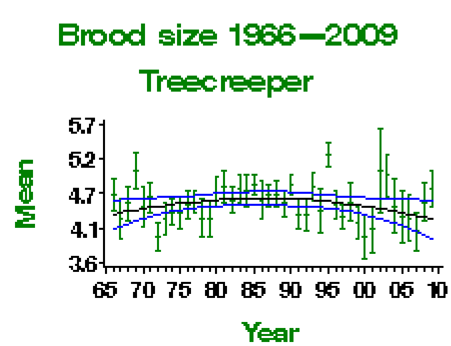
Table of demographic changes for Treecreeper

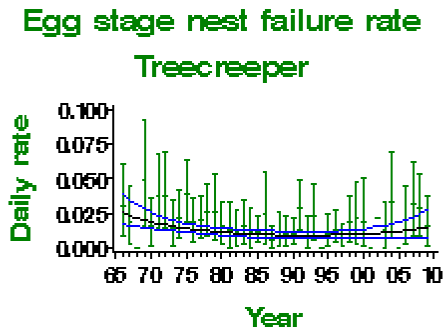
Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment
Clutch size	40	1968-2008	13	None				Small sample
Brood size	40	1968-2008	27	Curvilinear	4.38 chicks	4.3 chicks	-1.9%	Small sample
Daily failure rate (eggs)	40	1968-2008	22	Curvilinear	2.22% nests/day	1.41% nests/day	-36.5%	Small sample
Daily failure rate (chicks)	40	1968-2008	22	None				Small sample
Laying date	40	1968-2008	13	Linear decline	May 7	Apr 27	-10 days	Small sample
Juvenile to Adult ratio (CES)	24	1984-2008	67	Smoothed trend	93 Index value	100 Index value	7%	
Juvenile to Adult ratio (CES)	10	1998-2008	77	Smoothed trend	86 Index value	100 Index value	17%	
Juvenile to Adult ratio (CES)	5	2003-2008	74	Smoothed trend	133 Index value	100 Index value	-25%	

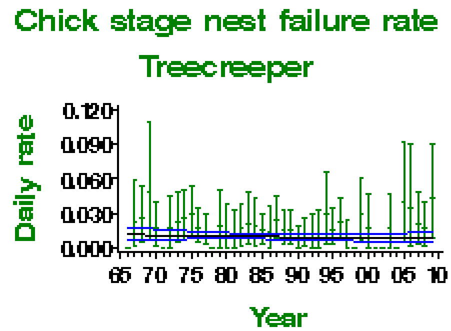
Insufficient data on fledglings per breeding attempt available for this species

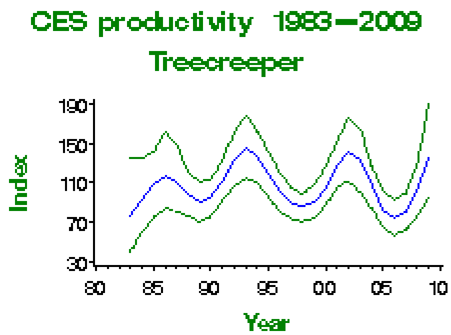












Additional information

- **Maps and statistics from British and Irish atlases**
- **BirdFacts page on species biology**
- **BirdTrack results**
- **Garden BirdWatch results**

JAY
Garrulus glandarius

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe)
UK: green (species level); amber (races *hibernicus* and *rufitergum*, >20% of European breeders)

Long-term trend

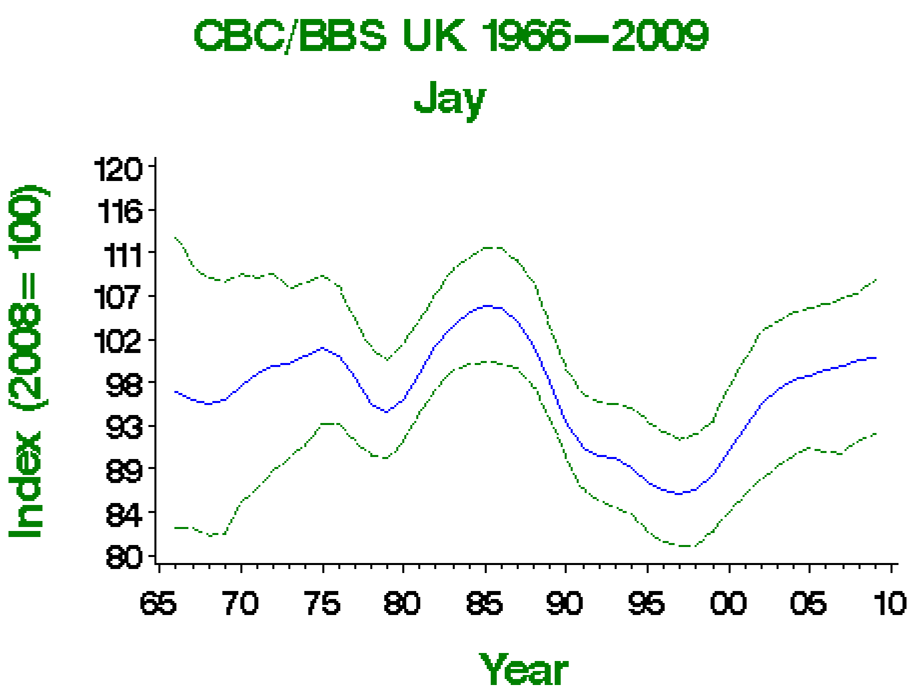
UK, England: fluctuating, with no long-term trend

UK population size

160,000 territories in 2000 (1988–91 Atlas estimate updated using CBC/BBS trend: **BiE04**, **APEP06**)

Status summary

The UK Jay population remained stable in the species' preferred woodland habitat until the late 1980s, after which the population began to decline. This decrease followed an earlier decline on farmland CBC plots (**Gregory & Marchant 1996**). Long-term trends are stable overall, and the CBC/BBS index has recorded some increase in the recent ten-year period. No trends are known in breeding performance. There has been widespread shallow increase across Europe since 1980 (**PECBMS 2010**).



1967-2008: 4% (confidence interval -16% to 32%)

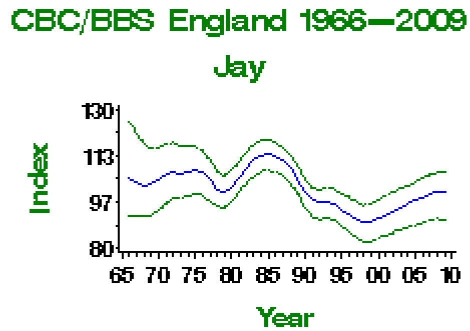
Population changes in detail

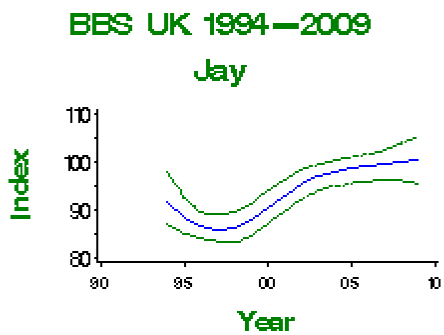
Table of population changes for Jay

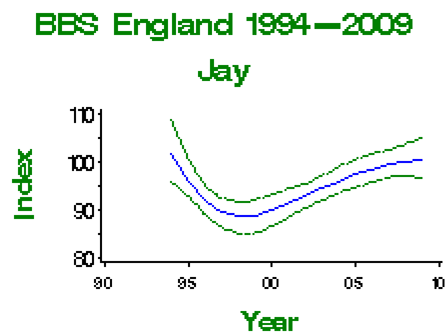
Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS UK	41	1967-	319	4	-16	32		

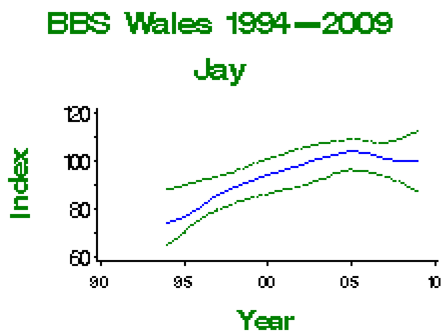
		2008						
	25	1983-2008	455	-3	-16	8		
	10	1998-2008	783	15	8	24		
	5	2003-2008	854	3	-3	11		
CBC/BBS England	41	1967-2008	283	-4	-25	15		
	25	1983-2008	400	-11	-22	1		
	10	1998-2008	680	12	3	21		
	5	2003-2008	744	6	0	13		
BBS UK	13	1995-2008	685	13	5	22		
	10	1998-2008	753	16	7	24		
	5	2003-2008	854	3	-3	10		
BBS England	13	1995-2008	594	4	-3	12		
	10	1998-2008	650	13	7	22		
	5	2003-2008	739	6	1	11		
BBS Wales	13	1995-2008	68	31	3	51		
	10	1998-2008	77	13	-4	32		
	5	2003-2008	84	0	-14	19		

The Breeding Bird Survey is jointly funded by the BTO, JNCC & RSPB







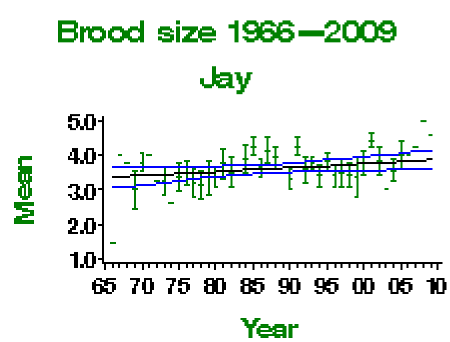


Demographic trends

Insufficient data on fledglings per breeding attempt available for this species

Insufficient data on laying date available for this species

Insufficient data on clutch size available for this species



Insufficient data on egg stage failure available for this species

Insufficient data on nestling failure available for this species

Additional information

- Maps and statistics from British and Irish atlases
- BirdFacts page on species biology
- BirdTrack results
- Garden BirdWatch results

MAGPIE
Pica pica

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe)
UK: green

Long-term trend

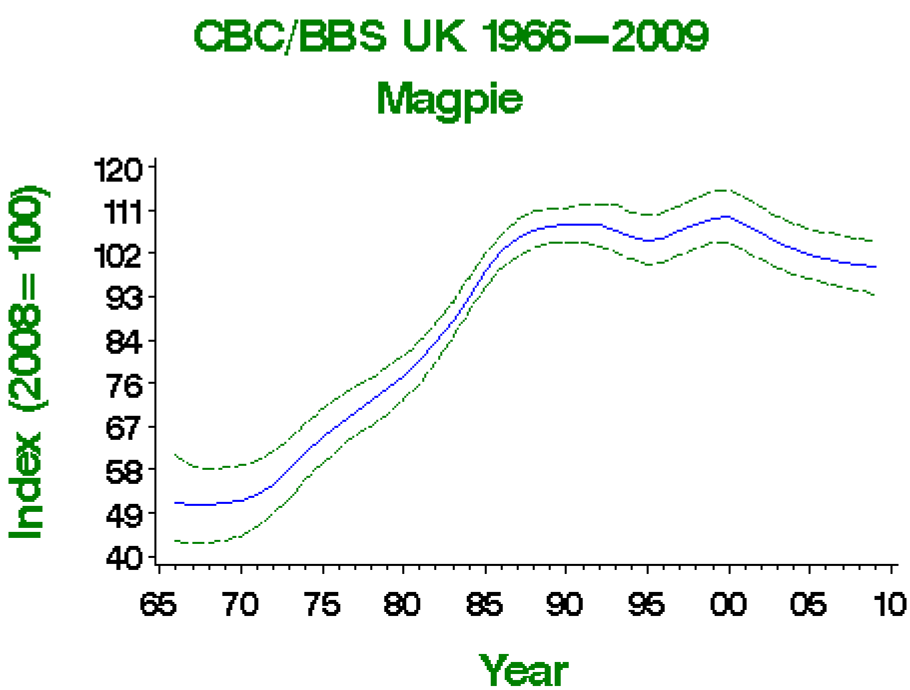
UK: moderate increase
England: rapid increase

UK population size

650,000 territories in 2000 (1988–91 Atlas estimate updated using CBC/BBS trend: **BiE04**, **APEP06**)

Status summary

The remarkable adaptability of Magpies has enabled them to colonise many new urban and suburban localities since the 1960s. Magpies increased steadily until the late 1980s, when abundance stabilised (**Gregory & Marchant 1996**). Minor decrease has been recorded in the UK during the last five years. Since 1990, the widespread adoption of the Larsen trap for predator control has been responsible for a large increase in Magpie numbers killed on shooting estates (**GWCT figures**), and possibly it is this that has now driven the population back into decline. Recent stability or decline is also associated, however, with parallel trends in fledglings per breeding attempt. A strong trend towards earlier laying has also been identified and may be partly explained by recent climate change (**Crick & Sparks 1999**).



1967-2008: 98% (confidence interval 57% to 152%)

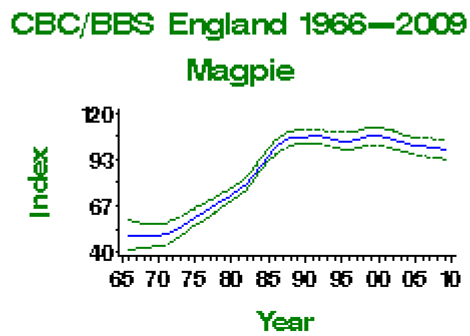
Population changes in detail

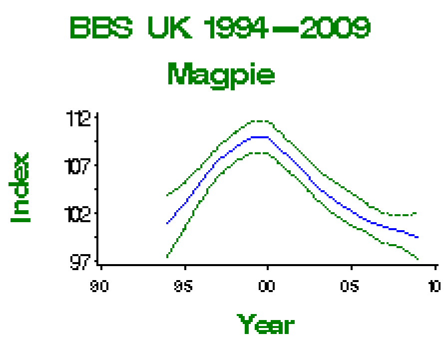
Table of population changes for Magpie

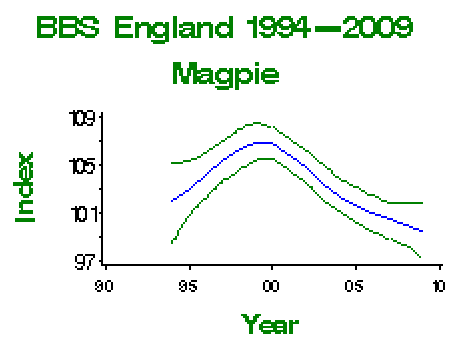
Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS UK	41	1967-2008	712	98	57	152		
	25	1983-2008	1074	13	2	24		
	10	1998-2008	1947	-8	-11	-5		
	5	2003-2008	2084	-4	-7	-2		
CBC/BBS England	41	1967-2008	605	104	61	154		
	25	1983-2008	909	18	7	28		
	10	1998-2008	1625	-6	-9	-2		
	5	2003-2008	1747	-3	-6	-1		
BBS UK	13	1995-2008	1765	-3	-6	2		
	10	1998-2008	1904	-8	-11	-5		
	5	2003-2008	2084	-4	-7	-2		
BBS England	13	1995-2008	1474	-3	-7	1		
	10	1998-2008	1579	-6	-9	-3		
	5	2003-2008	1736	-3	-6	-1		
BBS Scotland	13	1995-2008	42	5	-20	45		
	10	1998-2008	46	-14	-32	13		
	5	2003-2008	52	-16	-31	4		
BBS Wales	13	1995-2008	158	-12	-21	-1		
	10	1998-2008	176	-16	-25	-6		
	5	2003-2008	183	2	-6	9		

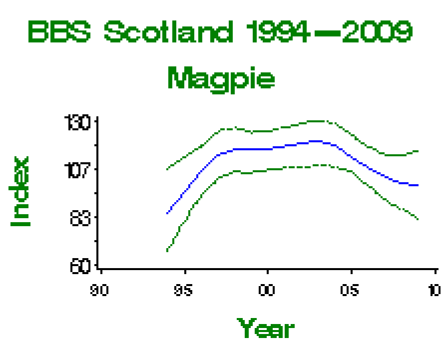
BBS N.Ireland	**13**	**1995-2008**	**79**	**21**	**-8**	**44**		
	10	**1998-2008**	**89**	**-7**	**-18**	**0**		
	5	**2003-2008**	**99**	**-8**	**-18**	**2**		

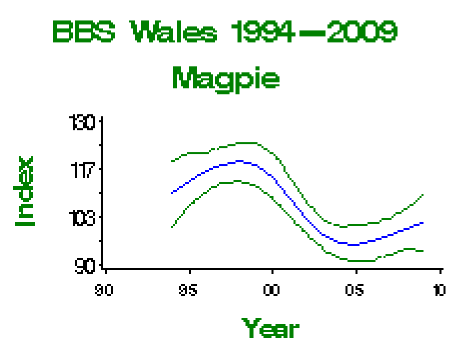
The Breeding Bird Survey is jointly funded by the BTO, JNCC & RSPB

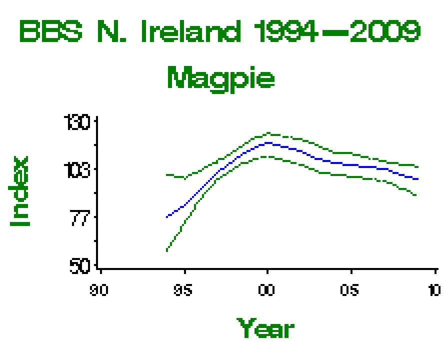




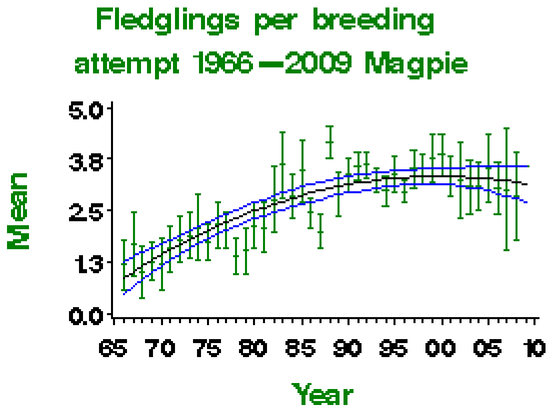


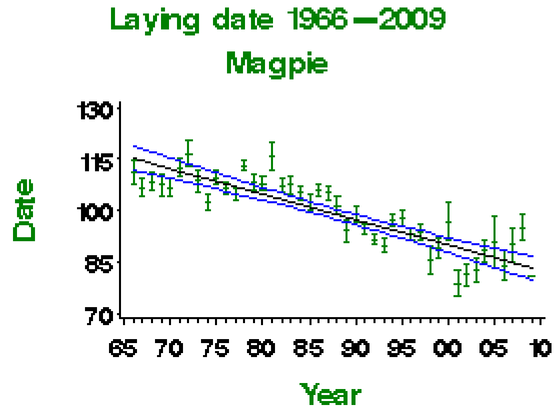






Demographic trends

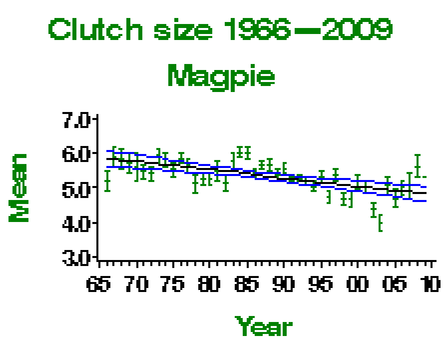


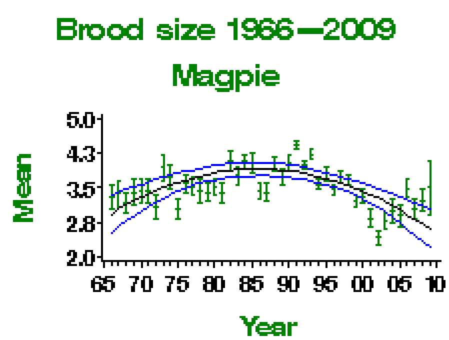


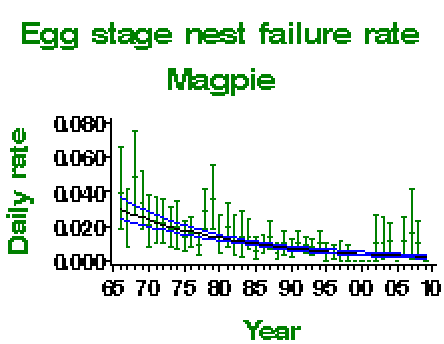
More on demographic trends

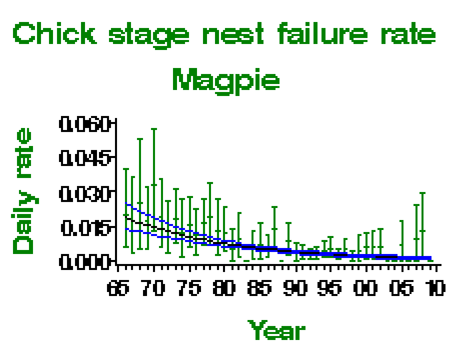
Table of demographic changes for Magpie

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment
Fledglings per breeding attempt	40	1968-2008	32	Curvilinear	1.16 fledglings	3.19 fledglings	175.6%	
Clutch size	40	1968-2008	44	Linear decline	5.81 eggs	4.86 eggs	-16.4%	
Brood size	40	1968-2008	76	Curvilinear	3.12 chicks	2.73 chicks	-12.5%	
Daily failure rate (eggs)	40	1968-2008	50	Linear decline	2.69% nests/day	0.26% nests/day	-90.3%	
Daily failure rate (chicks)	40	1968-2008	49	Linear decline	1.67% nests/day	0.13% nests/day	-92.2%	
Laying date	40	1968-2008	34	Linear decline	Apr 24	Mar 25	-30 days	









Additional information

- Maps and statistics from British and Irish atlases
- BirdFacts page on species biology
- BirdTrack results
- Garden BirdWatch results

JACKDAW
Corvus monedula

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: no SPEC category (concentrated in Europe, conservation status favourable)
UK: green

Long-term trend

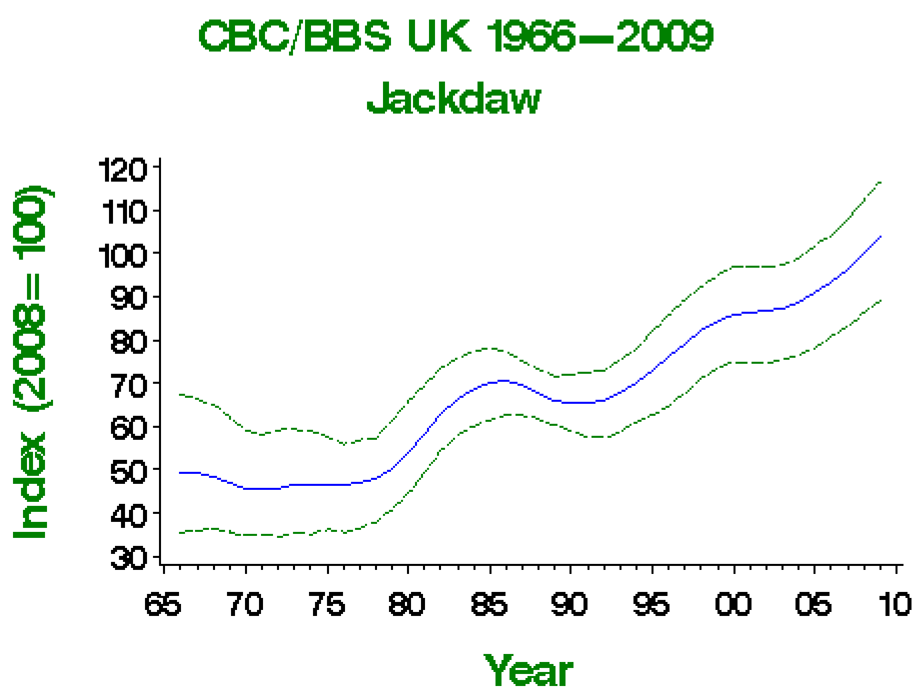
UK: rapid increase
England: moderate increase

UK population size

555,000 territories in 2000 (1988–91 Atlas estimate updated using CBC/BBS trend: **BiE04**, **APEP06**)

Status summary

Jackdaws have increased in abundance since the 1960s (**Gregory & Marchant 1996**), and more recent BBS data suggest that the increase is continuing in all UK countries. As with **Magpie**, **Rook** and **Carrion Crow**, the increase has been associated with improvements in breeding performance and probably reflects the species' generalist feeding habits, which allow it to exploit diverse and ephemeral food resources. A minor decrease in average brood size has been countered by substantial declines in nest failure rates during the egg and chick stages, and the number of fledglings per breeding attempt has improved steadily. Typically in this species, the younger chicks of a brood perish quickly if food becomes limited. Increases in fledging success are therefore likely to be due to improved provisioning by the parents (**Henderson & Hart 1993**).



1967-2008: 103% (confidence interval 23% to 228%)

Population changes in detail

Table of population changes for Jackdaw

Source	Period	Years	Plots	Change	Lower	Upper	Alert	Comment

	(yrs)		(n)	(%)	limit	limit		
CBC/BBS UK	41	1967-2008	573	103	23	228		
	25	1983-2008	897	50	10	96		
	10	1998-2008	1705	22	15	30		
	5	2003-2008	1882	15	9	21		
CBC/BBS England	41	1967-2008	460	91	15	204		
	25	1983-2008	719	46	4	96		
	10	1998-2008	1365	26	20	33		
	5	2003-2008	1523	18	12	23		
BBS UK	13	1995-2008	1545	36	26	49		
	10	1998-2008	1681	22	16	31		
	5	2003-2008	1882	15	10	20		
BBS England	13	1995-2008	1227	43	33	54		
	10	1998-2008	1332	28	20	37		
	5	2003-2008	1502	20	14	26		
BBS Scotland	13	1995-2008	106	19	-6	55		
	10	1998-2008	111	9	-14	35		
	5	2003-2008	123	14	-5	34		
BBS Wales	13	1995-2008	136	23	-13	79		
	10	1998-2008	152	11	-8	38		
	5	2003-2008	162	-5	-16	10		

BBS N.Ireland	13	1995-2008	71	67	16	112		
	10	1998-2008	81	29	8	48		
	5	2003-2008	89	11	-2	26		

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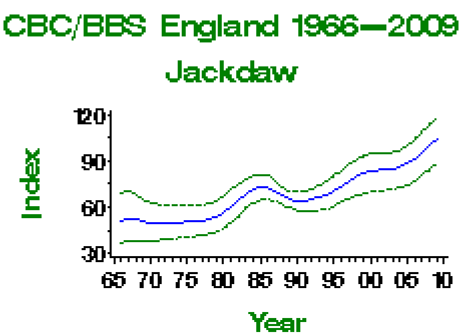
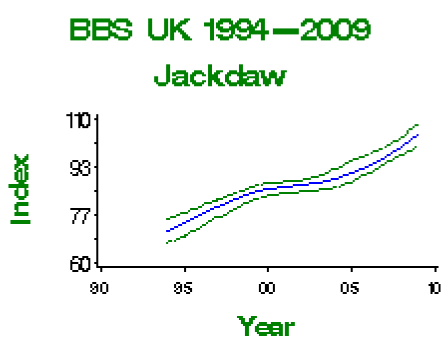
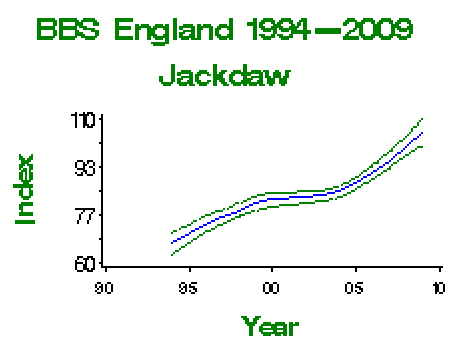
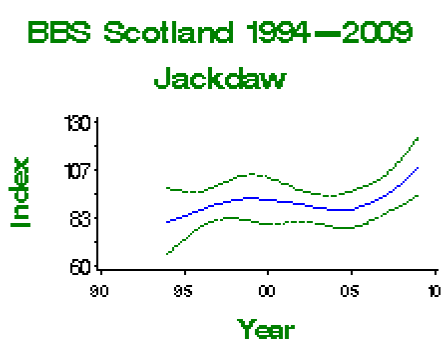
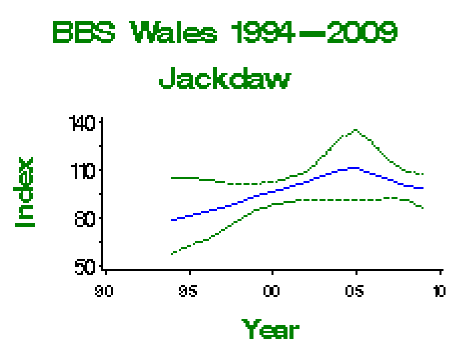
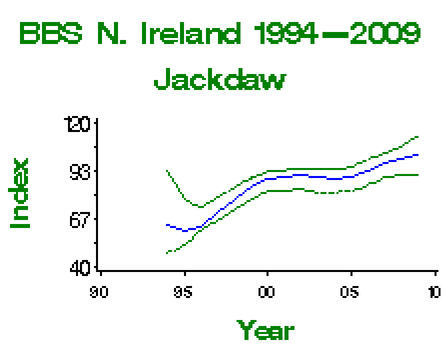




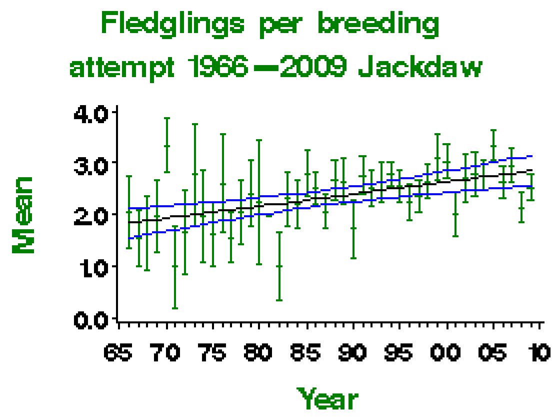


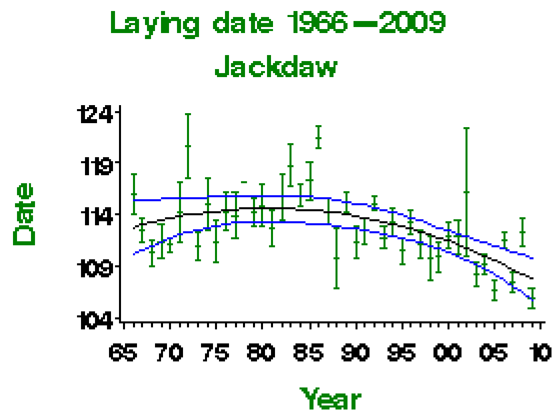






Demographic trends

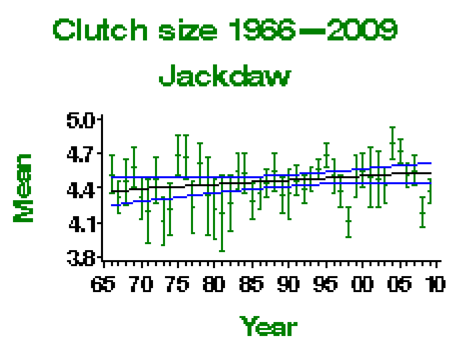


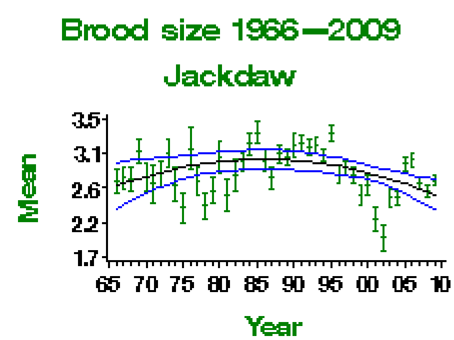


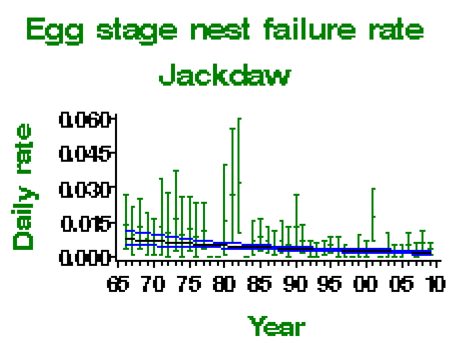
More on demographic trends

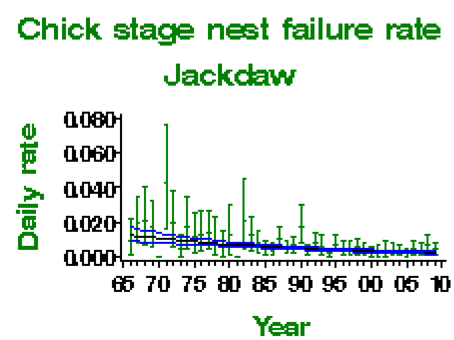
Table of demographic changes for Jackdaw

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment
Fledglings per breeding attempt	40	1968-2008	34	Linear increase	1.89 fledglings	2.83 fledglings	50%	
Clutch size	40	1968-2008	45	None				
Brood size	40	1968-2008	99	Curvilinear	2.69 chicks	2.56 chicks	-5%	
Daily failure rate (eggs)	40	1968-2008	57	Linear decline	0.74% nests/day	0.2% nests/day	-73%	
Daily failure rate (chicks)	40	1968-2008	54	Linear decline	1.17% nests/day	0.25% nests/day	-78.6%	
Laying date	40	1968-2008	24	Curvilinear	Apr 23	Apr 18	-5 days	Small sample









Additional information

- Maps and statistics from British and Irish atlases
- BirdFacts page on species biology
- BirdTrack results
- Garden BirdWatch results

ROOK
Corvus frugilegus

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe)
UK: green

Long-term trend

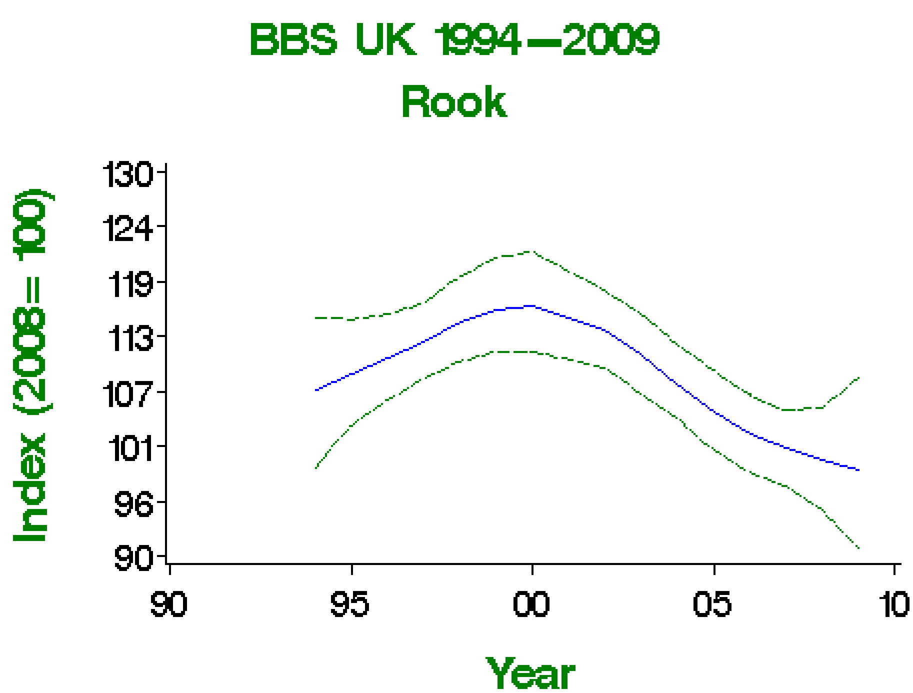
UK: increase

UK population size

1,120,000–1,430,000 pairs in 1996 (**Marchant & Gregory 1999**: **BiE04**); 1,130,000–1,440,000 pairs in 2000 (1996 estimate updated using BBS trend: **APEP06**)

Status summary

Relatively few rookeries fell within CBC plots, but an index calculated from the available nest counts showed a shallow, long-term increase (**Wilson *et al.* 1998**). The trend is confirmed by the results of the most recent BTO rookeries survey, which identified a 40% increase in abundance between 1975 and 1996 (**Marchant & Gregory 1999**). This increase probably reflects the species' considerable adaptability in the face of agricultural change. BBS indices, which are drawn from sightings during transect walks and not from the BBS's nest counts, suggest that some decrease has occurred subsequently, especially in Scotland and Northern Ireland since around 2000. There has been little change in breeding productivity since the 1960s but a minor decrease in brood size is now becoming evident. There has been widespread shallow increase across Europe since 1980 (**PECBMS 2010**).



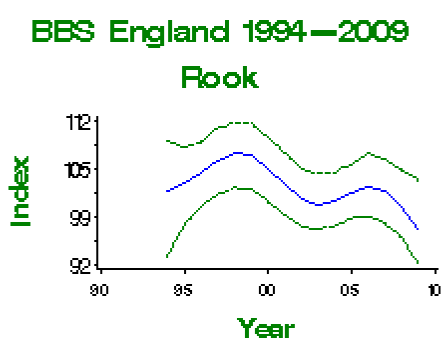
1995-2008: -8% (confidence interval -16% to 1%)

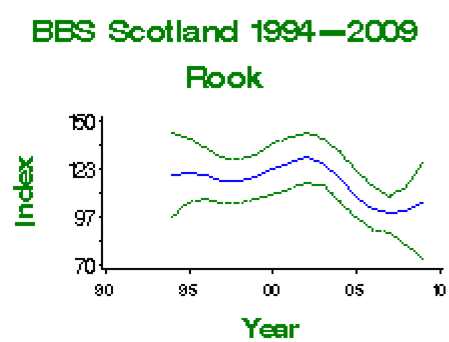
Population changes in detail

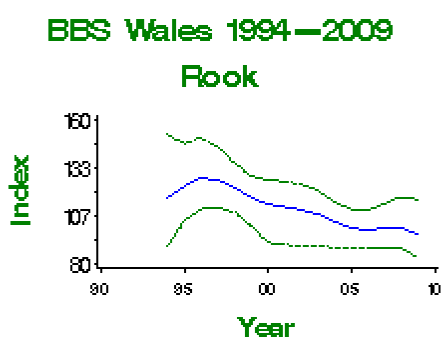
Table of population changes for Rook

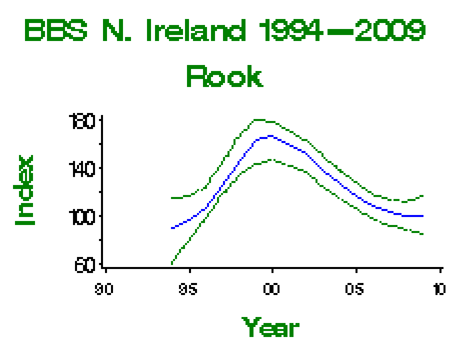
Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
BBS UK	13	1995-2008	1216	-8	-16	1		
	10	1998-2008	1290	-12	-21	-4		
	5	2003-2008	1397	-10	-17	-3		
BBS England	13	1995-2008	958	-3	-11	6		
	10	1998-2008	1012	-7	-15	3		
	5	2003-2008	1103	0	-8	7		
BBS Scotland	13	1995-2008	107	-17	-41	6		
	10	1998-2008	108	-14	-38	10		
	5	2003-2008	114	-21	-41	0		
BBS Wales	13	1995-2008	77	-19	-37	10		
	10	1998-2008	85	-18	-35	7		
	5	2003-2008	87	-7	-21	22		
BBS N.Ireland	13	1995-2008	71	4	-22	42		
	10	1998-2008	83	-32	-47	-15	>25	
	5	2003-2008	91	-27	-38	-13	>25	

The Breeding Bird Survey is jointly funded by the BTO, JNCC & RSPB







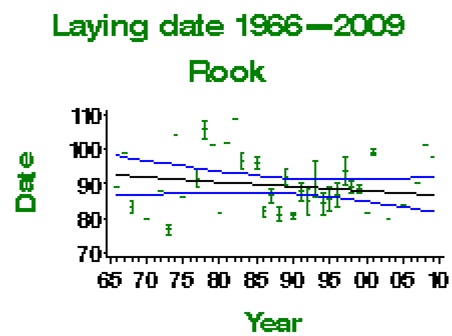


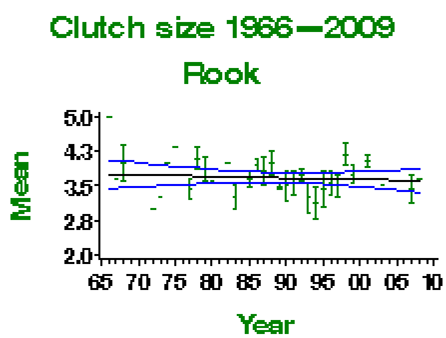
Demographic trends

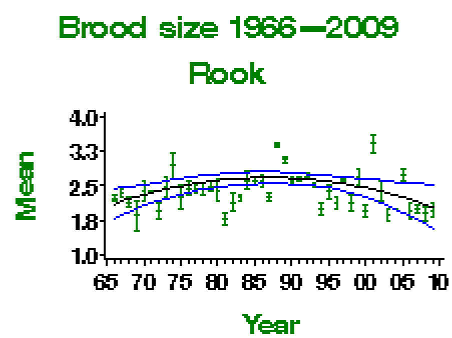
Table of demographic changes for Rook

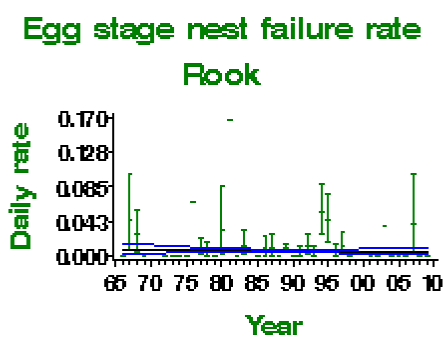
Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment
Clutch size	40	1968-2008	13	None				Small sample
Brood size	40	1968-2008	82	Curvilinear	2.21 chicks	2.11 chicks	-4.7%	
Daily failure rate (eggs)	40	1968-2008	31	None				
Daily failure rate (chicks)	40	1968-2008	49	None				
Laying date	40	1968-2008	12	None				Small sample

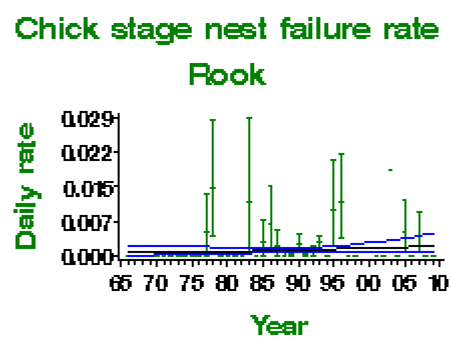
Insufficient data on fledglings per breeding attempt available for this species











Additional information

- Maps and statistics from British and Irish atlases
- BirdFacts page on species biology
- BirdTrack results
- Garden BirdWatch results

CARRION CROW
Corvus corone

- Population changes
- Productivity trends
- Additional information

Conservation listings

Europe (*C. corone/cornix*): no SPEC category (favourable conservation status in Europe, not concentrated in Europe)
UK (*C. corone/cornix*): green

Long-term trend

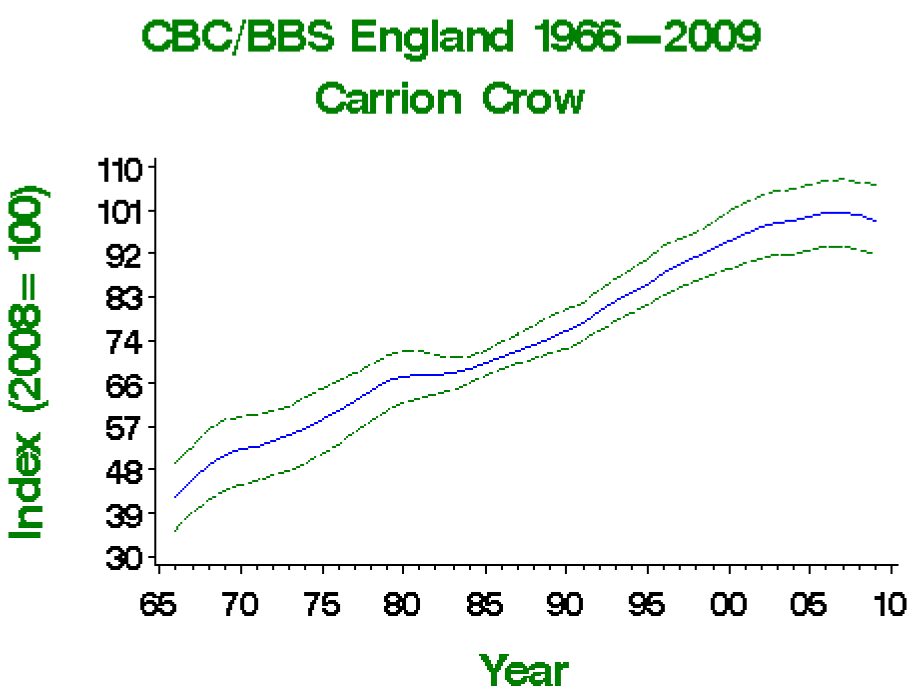
England: rapid increase

UK population size

790,000 territories in 1990 (1988–91 Atlas: **APEP06**);
987,500 pairs in 2000 (updated using CBC/BBS trend)

Status summary

Carrion Crows have increased steadily since the 1960s (**Gregory & Marchant 1996**) and only now are there signs of the UK population size stabilising. This trend has been associated with increases in nesting success and with earlier laying (perhaps an effect of climate change: **Crick *et al.* 1997**) and probably reflects the species' adaptability to changing habitats and the exploitation of ephemeral food resources in intensive agriculture. Unlike that of **Magpie**, the increase was unaffected by the introduction of Larsen traps around 1990. Also unlike Magpie, Carrion Crows have shown no levelling off of the long-term increase in fledglings per breeding attempt. **Bag returns** show little change in the numbers of crows killed by gamekeepers since 1960, suggesting that control on shooting estates may be stabilising numbers there and that the increases are occurring on unkeepered farmland and in other habitats.



1967-2008: 119% (confidence interval 74% to 176%)

Population changes in detail

Table of population changes for Carrion Crow

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS England	41	1967-2008	713	119	74	176		Includes Hooded Crow
	25	1983-2008	1080	48	30	67		Includes Hooded Crow
	10	1998-2008	1978	9	3	15		Includes Hooded Crow
	5	2003-2008	2169	2	-3	6		
BBS UK	13	1995-2008	2166	10	3	16		
	10	1998-2008	2332	-2	-7	4		
	5	2003-2008	2581	-3	-7	1		
BBS England	13	1995-2008	1780	18	10	25		
	10	1998-2008	1914	8	3	14		
	5	2003-2008	2131	2	-2	6		
BBS Scotland	13	1995-2008	176	-11	-27	8		
	10	1998-2008	183	-21	-35	-4		
	5	2003-2008	201	-14	-26	2		
BBS Wales	13	1995-2008	197	4	-13	20		
	10	1998-2008	220	-11	-22	1		
	5	2003-2008	233	-8	-17	1		

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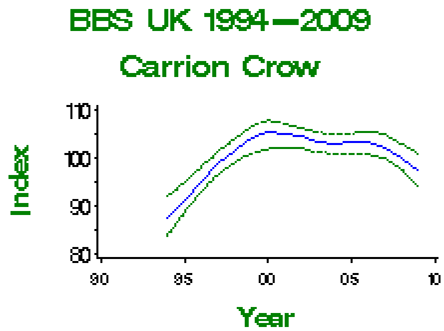
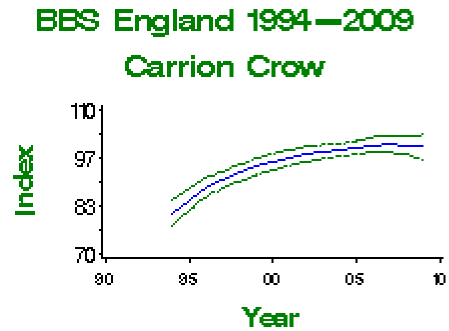
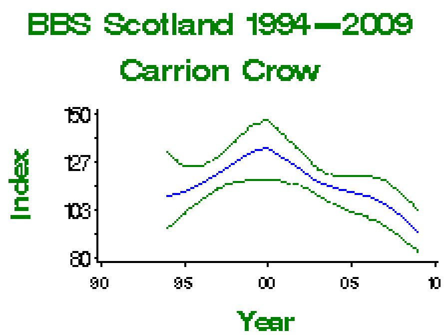
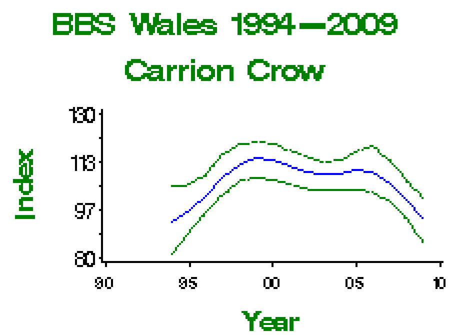
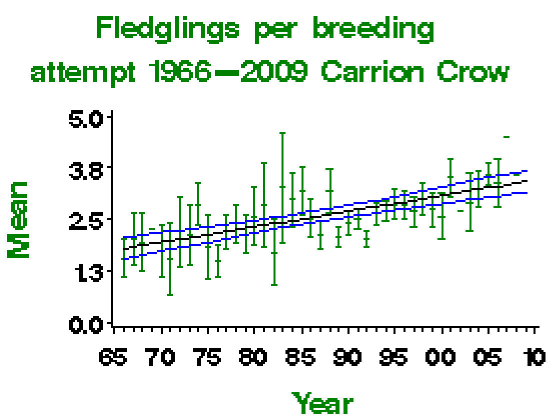


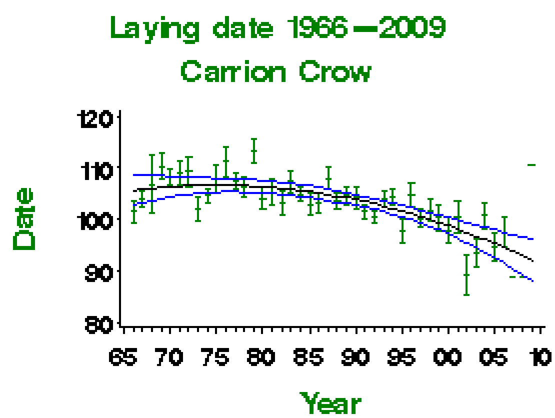






Demographic trends

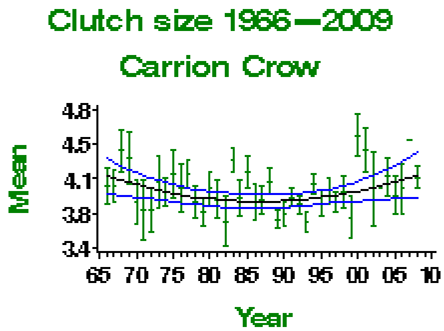


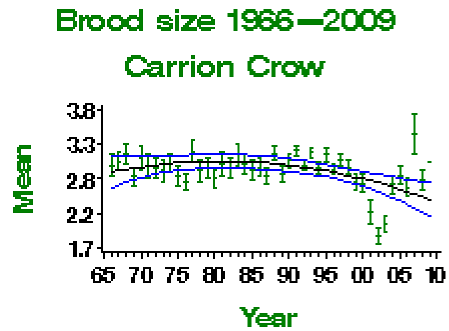


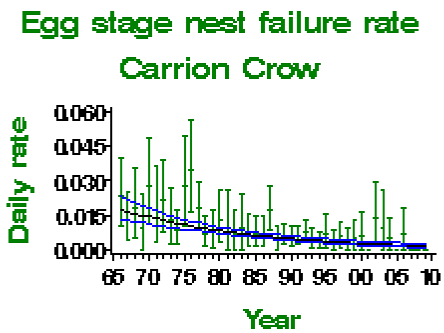
More on demographic trends

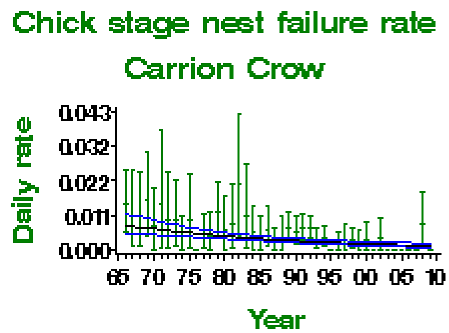
Table of demographic changes for Carrion Crow

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment
Fledglings per breeding attempt	40	1968-2008	24	Linear increase	1.87 fledglings	3.39 fledglings	81%	
Clutch size	40	1968-2008	33	Curvilinear	4.08 eggs	4.14 eggs	1.4%	
Brood size	40	1968-2008	77	Curvilinear	2.9 chicks	2.48 chicks	-14.3%	
Daily failure rate (eggs)	40	1968-2008	49	Linear decline	1.6% nests/day	0.19% nests/day	-88.1%	
Daily failure rate (chicks)	40	1968-2008	42	Linear decline	0.72% nests/day	0.14% nests/day	-80.6%	
Laying date	40	1968-2008	30	Curvilinear	Apr 16	Apr 3	-13 days	









Additional information

- **Maps and statistics from British and Irish atlases**
- **BirdFacts page on species biology**
- **BirdTrack results**
- **Garden BirdWatch results**

HOODED CROW
Corvus cornix

- Population changes
- Productivity trends
- Additional information

Conservation listings

Europe (*C. corone/cornix*): no SPEC category (favourable conservation status in Europe, not concentrated in Europe)
UK: green

Long-term trend

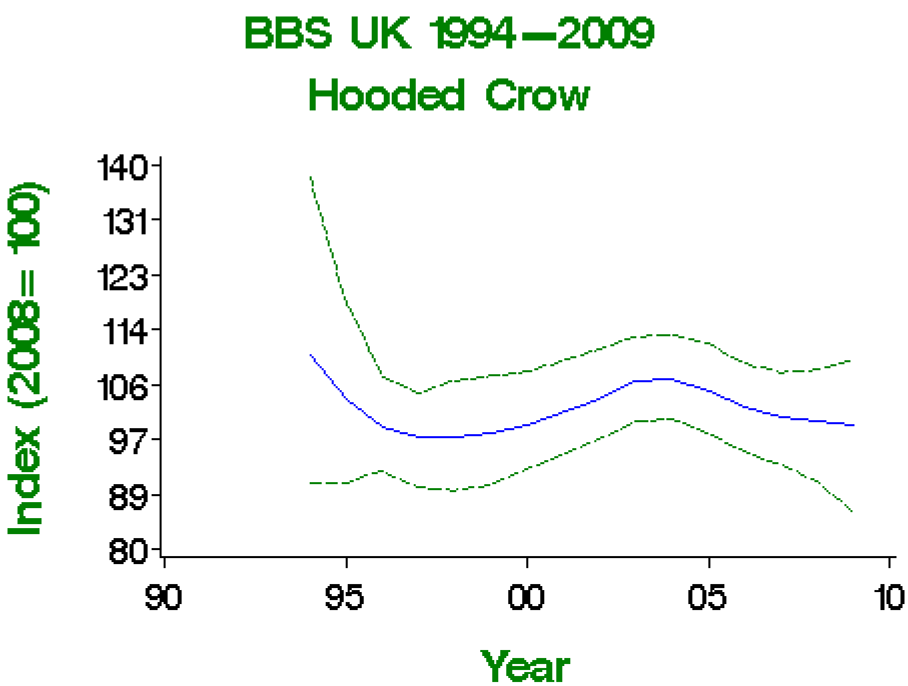
UK: uncertain

UK population size

213,900 territories in 1990 (1988–91 Atlas: **APEP06**)

Status summary

The BOU Records Committee took the decision in 2002 to treat Hooded Crow and **Carrion Crow** as separate species (**Parkin *et al.* 2003**). This split is not yet recognised in European conservation listings. In the UK, Hooded Crows occur in Northern Ireland, the Isle of Man, and in Scotland, mainly west and north of the Great Glen. Retrospective analysis of BBS trends is simple because observers record Hooded Crows (coded HC) separately from Carrion Crows and from intermediates (coded HB). Intermediate forms between Carrion and Hooded, which predominate in a band across western Scotland and occur less frequently elsewhere in the UK, are not included in either BBS index. BBS data suggest that some decrease in Hooded Crows may have occurred in Scotland, but that this has been countered by increase in Northern Ireland. Hooded Crows have increased markedly in Ireland since 1924 (**Hutchinson 1989**).



1995-2008: -3% (confidence interval -24% to 16%)

Population changes in detail

Table of population changes for Hooded Crow

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment

BBS UK	13	1995-2008	132	-3	-24	16		
	10	1998-2008	141	2	-12	18		
	5	2003-2008	154	-6	-18	6		
BBS Scotland	13	1995-2008	51	-31	-48	-11	>25	
	10	1998-2008	49	-9	-31	10		
	5	2003-2008	53	0	-24	25		
BBS N.Ireland	13	1995-2008	76	113	51	166		
	10	1998-2008	87	22	1	39		
	5	2003-2008	98	-9	-19	3		

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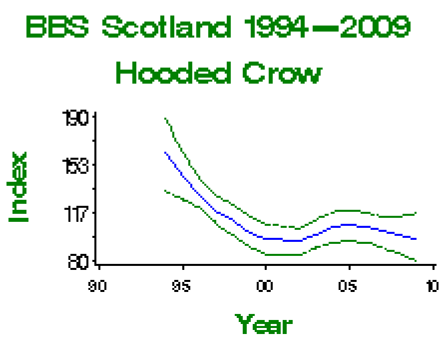
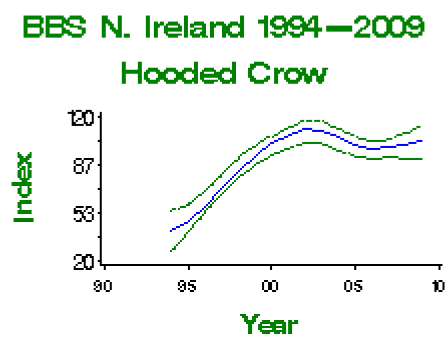




Demographic trends

Demographic information is not currently available for this species

Additional information

- Maps and statistics from British and Irish atlases
- BirdFacts page on species biology
- BirdTrack results

RAVEN
Corvus corax

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe)
UK: green

Long-term trend

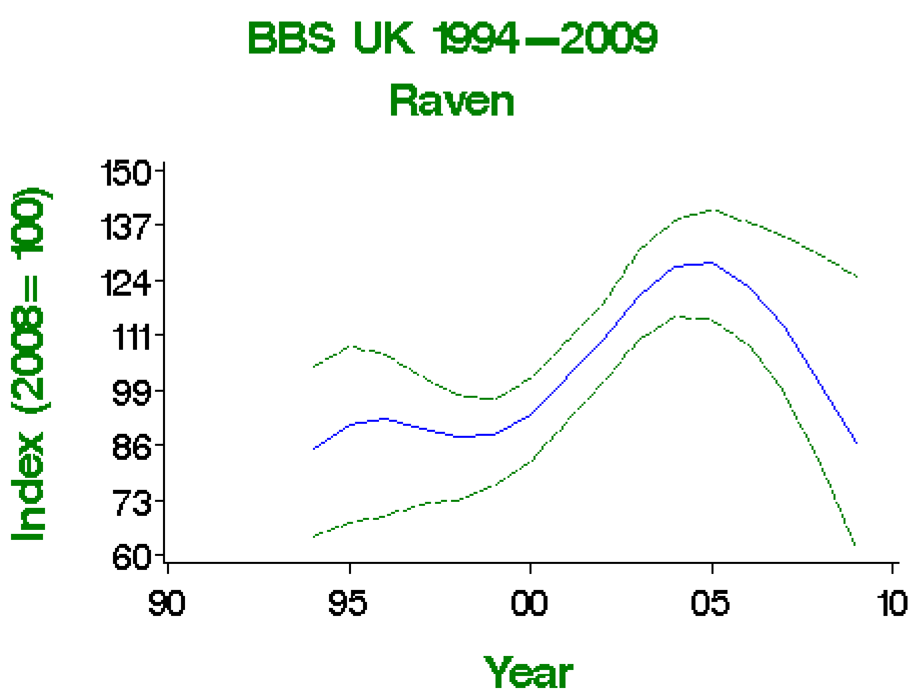
UK: increase

UK population size

12,900 pairs in 2000 (1988–91 Atlas estimate updated using BBS trend: **BiE04**, **APEP06**)

Status summary

Between the 1968–72 and 1988–91 atlas periods, the Raven's range contracted from some areas of Scotland and northern England. Declines in southern Scotland and northern England were associated with large-scale afforestation (**Marquiss *et al.* 1978**), while closer sheep husbandry and conversion of pasture to arable were also implicated (**Mearns 1983**). A thorough survey of northwest Wales during 1998 to 2005 found at least 69% more nesting pairs than a previous survey of the same area during 1978–85 and evidence of an increase of 173% since around 1950, at a rate that accelerated after 1990 (**Driver 2006**). Ravens have also increased along the English–Welsh border and colonised new parts of lowland England, helping to balance the local declines in northern Britain (**Cross 2002**). BBS indicates steep increase in England, Scotland and Wales since 1994. Nesting success appears to have improved, but brood size has fallen. No trend is evident in the number of fledglings per breeding attempt. Ravens are estimated to have more than doubled across Europe during 1980–2008 (**PECBMS 2010**): increases are evident in all regions but are weakest in the south and west, including UK (**PECBMS 2009**).



1995-2008: 10% (confidence interval -25% to 95%)

Population changes in detail

Table of population changes for Raven

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
BBS UK	13	1995-2008	241	10	-25	95		
	10	1998-2008	270	14	-19	82		
	5	2003-2008	317	-17	-36	17		
BBS England	13	1995-2008	95	-26	-65	205		
	10	1998-2008	112	-9	-47	169		
	5	2003-2008	148	-45	-64	35		
BBS Scotland	13	1995-2008	42	52	-2	128		
	10	1998-2008	43	65	-2	160		
	5	2003-2008	47	23	-21	92		
BBS Wales	13	1995-2008	86	28	-18	95		
	10	1998-2008	97	7	-22	43		
	5	2003-2008	106	-21	-38	0		

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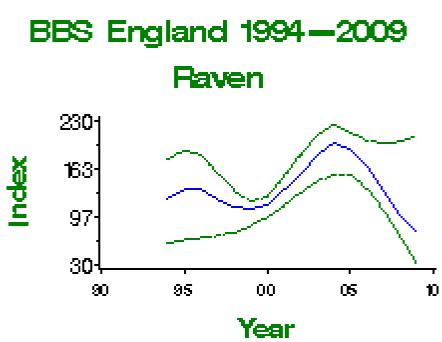
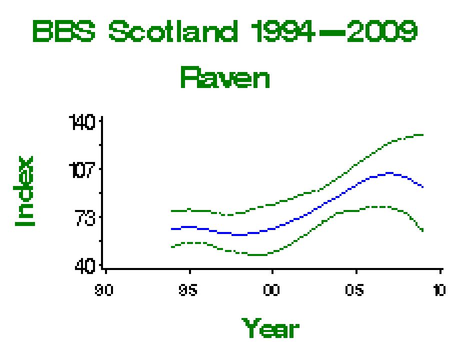
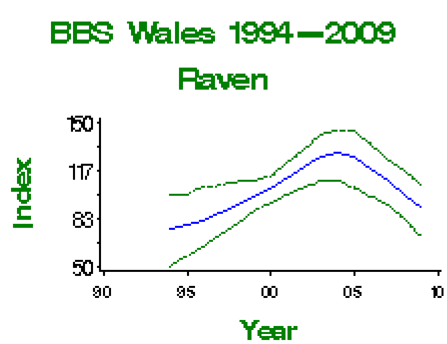
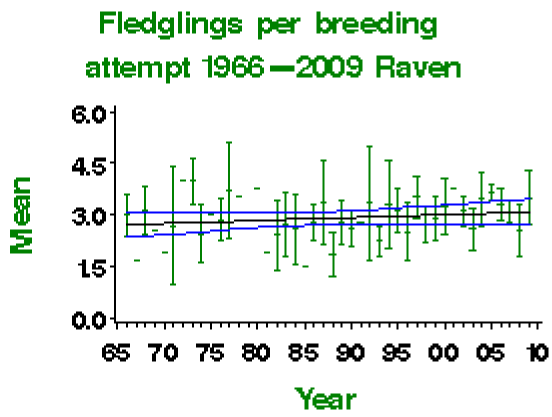
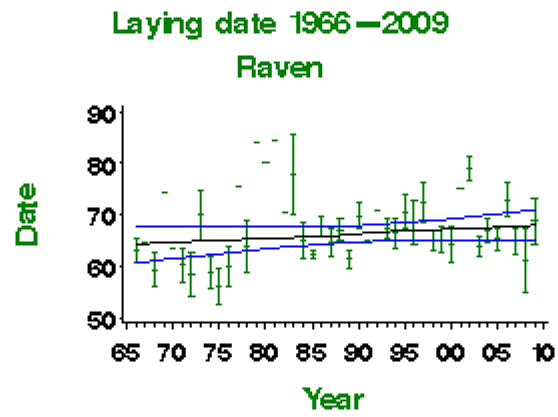






Demographic trends

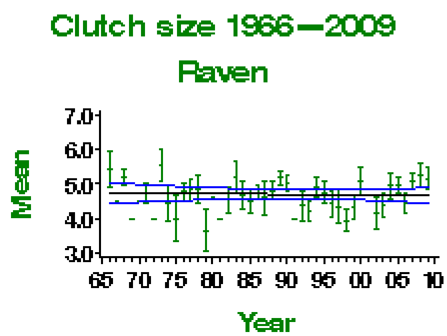


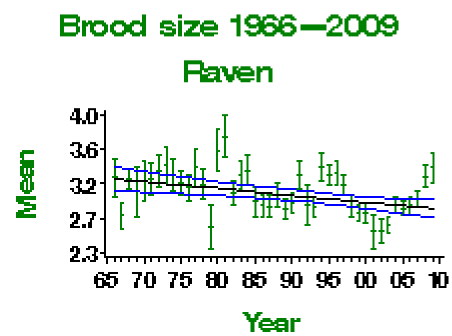


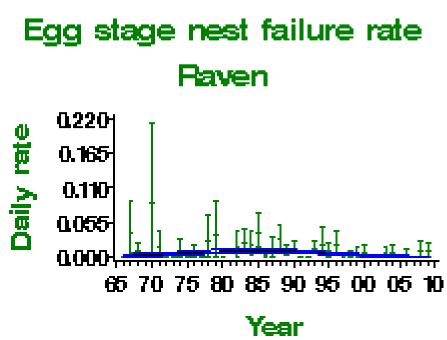
More on demographic trends

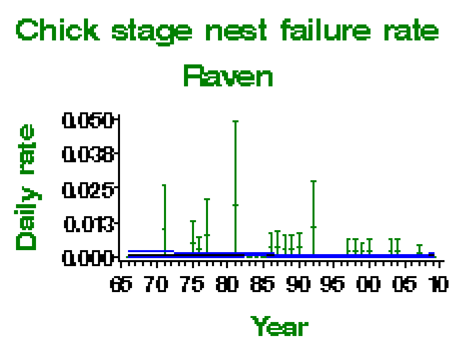
Table of demographic changes for Raven

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment
Fledglings per breeding attempt	40	1968-2008	11	None				
Clutch size	40	1968-2008	13	None				Small sample
Brood size	40	1968-2008	66	Linear decline	3.2 chicks	2.86 chicks	-10.5%	
Daily failure rate (eggs)	40	1968-2008	22	Curvilinear	0.22% nests/day	0.06% nests/day	-72.7%	Small sample
Daily failure rate (chicks)	40	1968-2008	29	None				Small sample
Laying date	40	1968-2008	11	None				Small sample









Additional information

- **Maps and statistics from British and Irish atlases**
- **BirdFacts page on species biology**
- **BirdTrack results**

STARLING
Sturnus vulgaris

- Population changes
- Productivity trends
- Additional information

Conservation listings

Europe: SPEC category 3 (declining)
UK: red (species level, race *vulgaris*); amber (race *zetlandicus*, >20% of European breeders)
UK Biodiversity Action Plan: **priority species**

Long-term trend

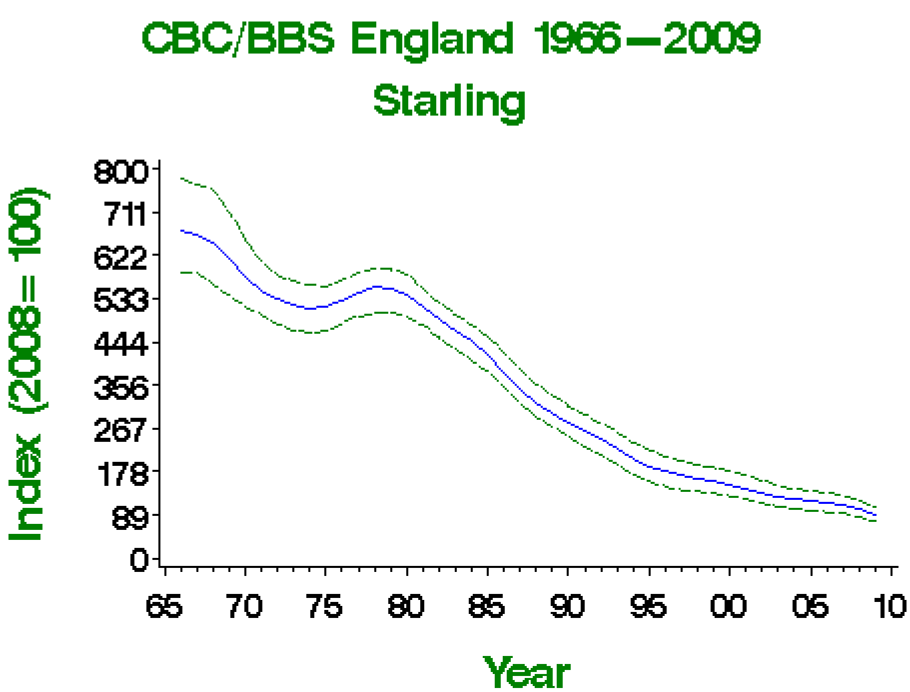
England: rapid decline

UK population size

804,000 territories in 2000 (1988–91 Atlas estimate updated using CBC/BBS trend: **BiE04**, **APEP06**); 8,500,000 birds in Britain in 1994–2000 (**Robinson *et al.* 2005a**)

Status summary

The abundance of breeding Starlings in the UK has fallen rapidly, particularly since the early 1980s, and especially in woodland (**Robinson *et al.* 2002**, **2005a**) and continues to be strongly downward. The declines have been greatest in the south and west of Britain; recent BBS data suggest that populations are also decreasing in Scotland and Northern Ireland, where the trends were initially upward. The species' UK conservation listing has been upgraded from amber to red as the decline has become more severe. Strong improvements have occurred in breeding performance, suggesting that decreasing survival rates, particularly of young birds, may be responsible for the observed decline (**Freeman *et al.* 2002**, **2007b**). Loss of permanent pasture, which is the species' preferred feeding habitat, and general intensification of livestock rearing are likely to be having adverse effects on rural populations, but other causes should be sought in urban areas (**Robinson *et al.* 2002**, **2005a**). As the population has dropped, the numbers of fledglings per breeding attempt has increased markedly; clutches are now larger, and rates of nest loss have fallen. Widespread declines in northern Europe during the 1990s outweighed increases in the south, and the European status of this species is no longer considered 'secure' (**BirdLife International 2004**). Overall, there has been widespread rapid decrease across Europe since 1980 (**PECBMS 2010**).



1967-2008: -85% (confidence interval -89% to -80%)

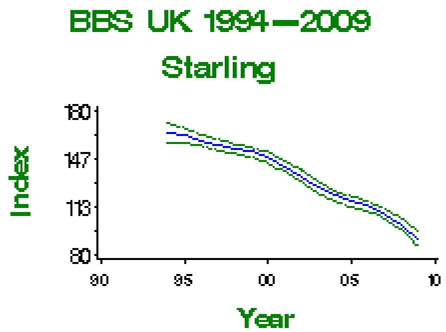
Population changes in detail

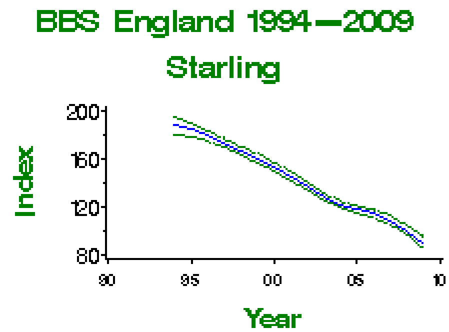
Table of population changes for Starling

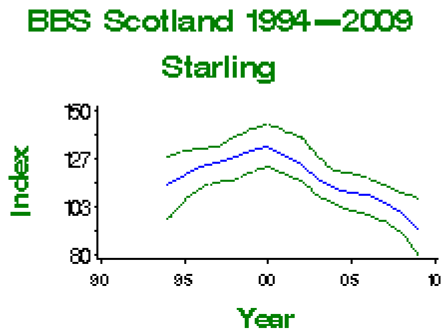
Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS England	41	1967-2008	557	-85	-89	-80	>50	
	25	1983-2008	837	-79	-82	-74	>50	
	10	1998-2008	1497	-39	-42	-35	>25	
	5	2003-2008	1570	-21	-25	-16		
BBS UK	13	1995-2008	1713	-38	-42	-34	>25	
	10	1998-2008	1803	-35	-38	-30	>25	
	5	2003-2008	1911	-21	-25	-16		
BBS England	13	1995-2008	1404	-46	-49	-42	>25	
	10	1998-2008	1470	-40	-43	-36	>25	
	5	2003-2008	1556	-22	-26	-17		
BBS Scotland	13	1995-2008	142	-16	-30	1		
	10	1998-2008	148	-21	-33	-5		
	5	2003-2008	161	-14	-28	-2		
BBS Wales	13	1995-2008	82	-58	-69	-38	>50	
	10	1998-2008	89	-46	-56	-30	>25	
	5	2003-2008	85	-25	-37	-10	>25	
BBS N.Ireland	13	1995-2008	74	32	0	75		
	10	1998-	85	-16	-34	4		

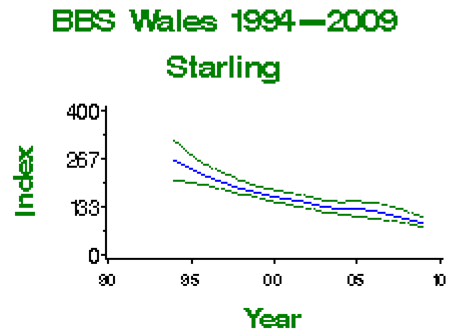
		2008						
	5	2003-2008	95	-37	-48	-24	>25	

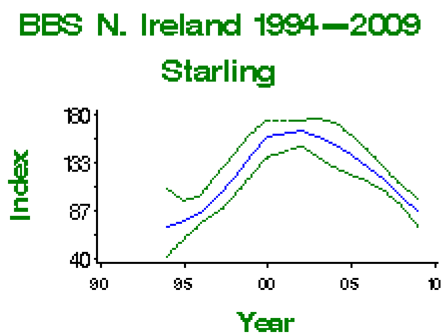
The Breeding Bird Survey is jointly funded by the BTO, JNCC & RSPB



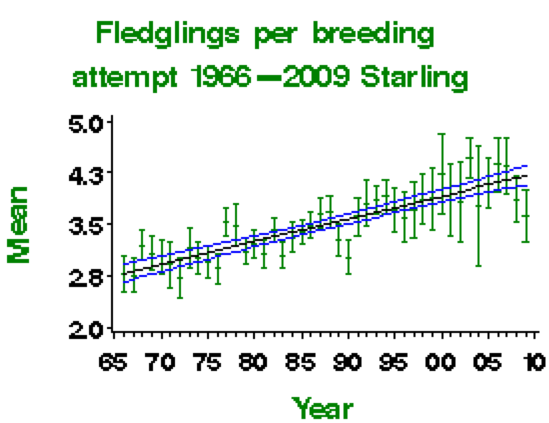


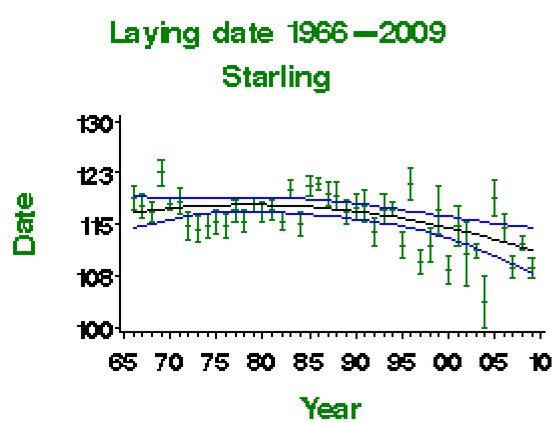






Demographic trends





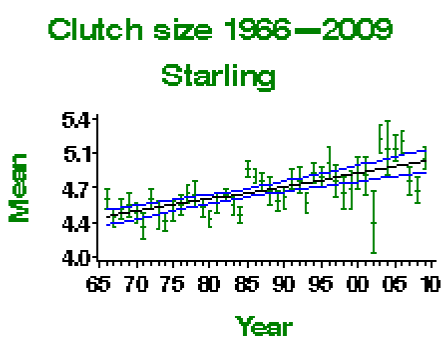
1968-2008 increase from 2.86 to 4.17 fledglings per attempt

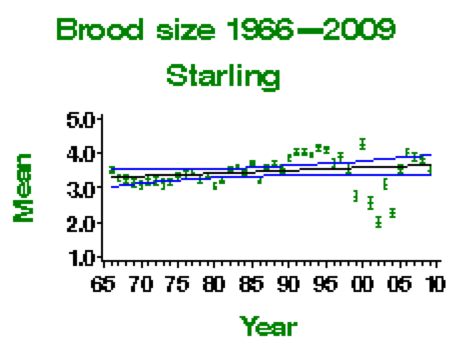
1968-2008 mean laying date advanced from 27 April to 22 April

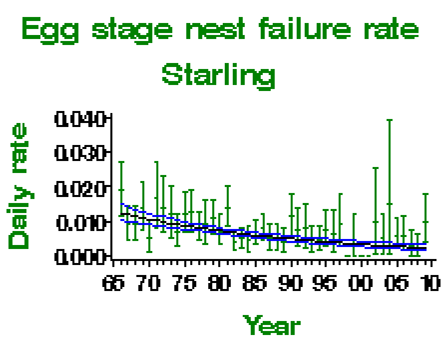
More on demographic trends

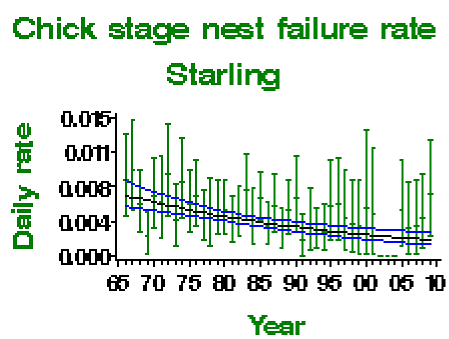
Table of demographic changes for Starling

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment
Fledglings per breeding attempt	40	1968-2008	62	Linear increase	2.86 fledglings	4.17 fledglings	46.1%	
Clutch size	40	1968-2008	75	Linear increase	4.43 eggs	4.96 eggs	11.8%	
Brood size	40	1968-2008	204	None				
Daily failure rate (eggs)	40	1968-2008	117	Linear decline	1.15% nests/day	0.26% nests/day	-77.4%	
Daily failure rate (chicks)	40	1968-2008	134	Linear decline	0.62% nests/day	0.18% nests/day	-71%	
Laying date	40	1968-2008	81	Curvilinear	Apr 27	Apr 22	-5 days	









Additional information

- Maps and statistics from British and Irish atlases
- BirdFacts page on species biology
- BirdTrack results
- Garden BirdWatch results

HOUSE SPARROW
Passer domesticus

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: SPEC category 3, declining
UK: red (>50% population decline)
UK Biodiversity Action Plan: **priority species**

Long-term trend

England: rapid decline

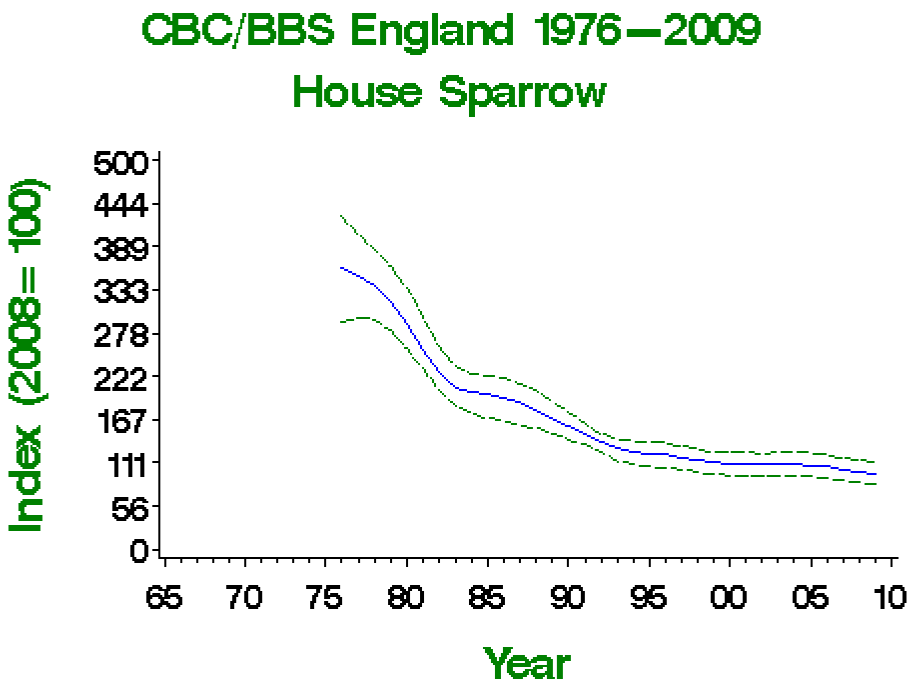
UK population size

2,100,000–3,675,000 pairs in 2000 (1988–91 Atlas estimate updated using CBC/BBS trend: **BiE04**, **APEP06**); about 6 million pairs in Britain (**Robinson *et al.* 2005b**)

Status summary

CBC sample sizes did not allow monitoring of House Sparrows until 1976; previously, there had been many farmland plots with high populations that could not be properly quantified without better access to farm buildings and housing. CBC/BBS data indicate a rapid decline in abundance over the last 25 years, as does the BTO's Garden Bird Feeding Survey (**Siriwardena *et al.* 2002**, **Robinson *et al.* 2005b**). These results are supported by many other studies and anecdotal reports, and have generated great conservation concern (see **Summers-Smith 2003**). A change in the listing criteria resulted in the admission of the species, green-listed until 2002, to the red list. A temporary drop in first-year survival coincided with the steepest decline, but changes in breeding performance, especially nest failure rates at the chick stage, have also helped drive population change (**Freeman & Crick 2002**). Possible explanations include a general reduction in food supply, less grain being spilt during agricultural operations, tighter hygiene regulations, increases in predation, and toxic additives to unleaded petrol (**Siriwardena *et al.* 2002**, **Robinson *et al.* 2005b**, **Vincent 2005**, **Summers-Smith 2007**, **Peach *et al.* 2008**).

The overall national decline since the 1970s masks much heterogeneity by region and habitat, and population processes may be relatively fine-grained: overall, populations in rural areas had declined by 47% by 2000, and those in urban and suburban areas by about 60% (CBC data: **Robinson *et al.* 2005b**). Within urban areas, House Sparrows may have disappeared predominantly from more affluent areas, where changes are more likely to have occurred to habitat structure (**Shaw *et al.* 2008**). The continued availability of allotments, gardens and other green spaces in urban areas is crucial to preventing further decline (**Chamberlain *et al.* 2007**). BBS suggests increases recently in Wales, Northern Ireland and Scotland. Overall, brood size has decreased, raising NRS concern (**Leech & Barimore 2008**), but the number of fledglings per breeding attempt has improved markedly. The European status of this species is no longer considered 'secure' (**BirdLife International 2004**), following widespread rapid decline across Europe since 1980 (**PECBMS 2010**).



1977-2008: -71% (confidence interval -78% to -61%)

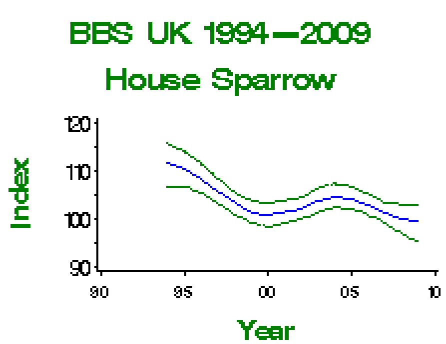
Population changes in detail

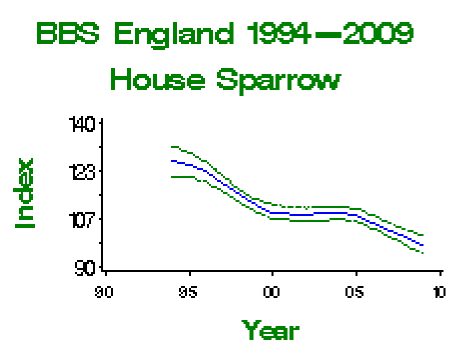
Table of population changes for House Sparrow

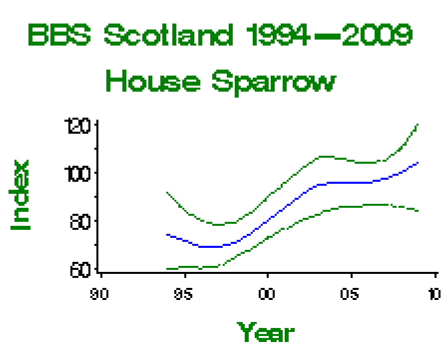
Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS England	31	1977-2008	585	-71	-78	-61	>50	
	25	1983-2008	717	-52	-63	-39	>50	
	10	1998-2008	1332	-12	-17	-8		
	5	2003-2008	1436	-8	-11	-5		
BBS UK	13	1995-2008	1503	-9	-14	-4		
	10	1998-2008	1602	-3	-8	2		
	5	2003-2008	1746	-3	-8	1		
BBS England	13	1995-2008	1241	-20	-25	-15		
	10	1998-2008	1312	-13	-17	-8		

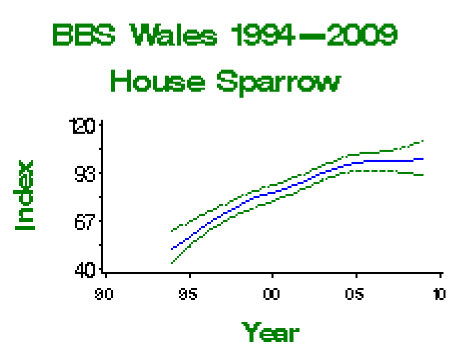
	5	2003-2008	1427	-8	-11	-4		
BBS Scotland	13	1995-2008	86	40	-2	80		
	10	1998-2008	90	41	8	69		
	5	2003-2008	99	6	-17	35		
BBS Wales	13	1995-2008	117	74	40	108		
	10	1998-2008	132	33	15	53		
	5	2003-2008	144	8	-4	18		
BBS N.Ireland	13	1995-2008	48	46	-9	111		
	10	1998-2008	56	39	3	78		
	5	2003-2008	62	12	-7	36		

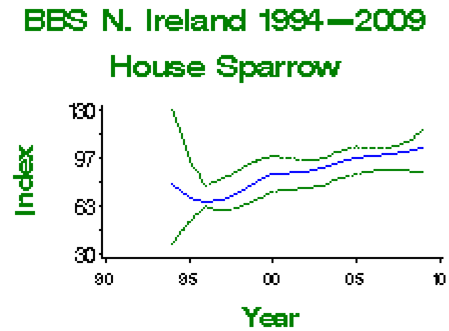
The Breeding Bird Survey is jointly funded by the BTO, JNCC & RSPB



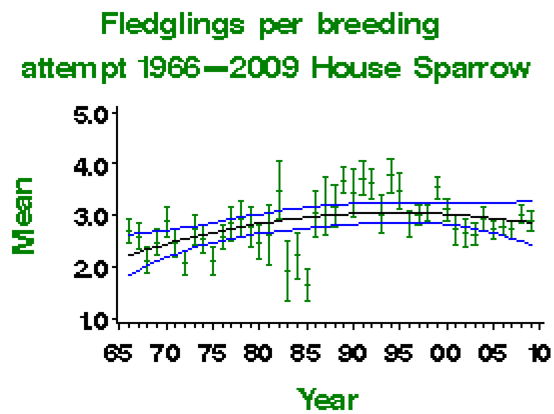


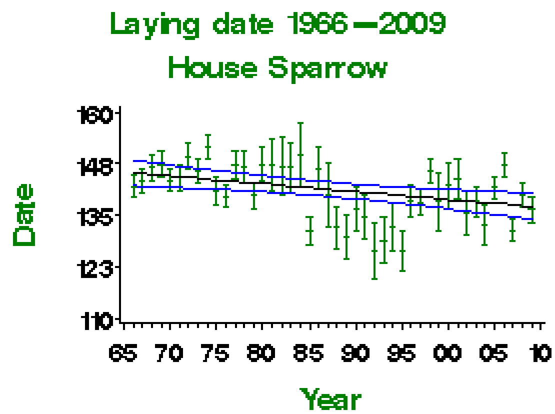






Demographic trends

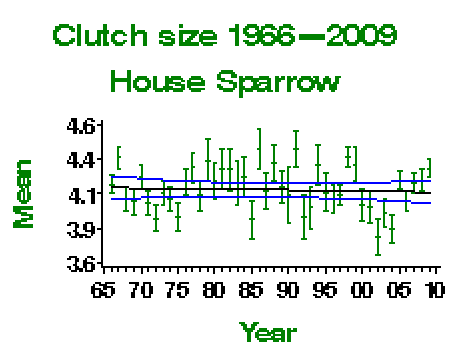


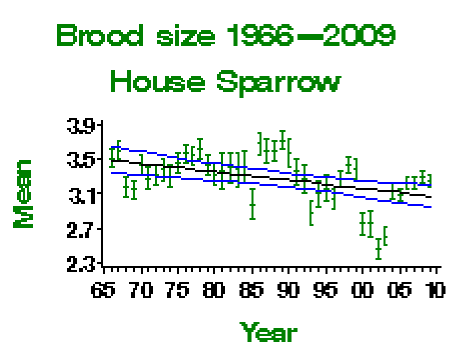


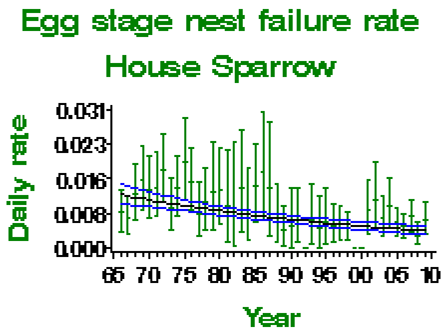
More on demographic trends

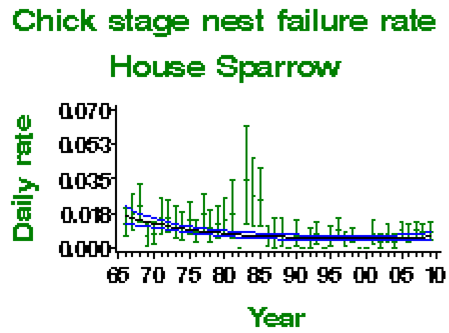
Table of demographic changes for House Sparrow

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment
Fledglings per breeding attempt	40	1968-2008	50	Curvilinear	2.34 fledglings	2.88 fledglings	22.9%	
Clutch size	40	1968-2008	69	None				
Brood size	40	1968-2008	118	Linear decline	3.47 chicks	3.09 chicks	-11.1%	
Daily failure rate (eggs)	40	1968-2008	97	Linear decline	1.14% nests/day	0.4% nests/day	-64.9%	
Daily failure rate (chicks)	40	1968-2008	92	Curvilinear	1.43% nests/day	0.57% nests/day	-60.1%	
Laying date	40	1968-2008	54	Linear decline	May 25	May 17	-8 days	









Additional information

- Maps and statistics from British and Irish atlases
- BirdFacts page on species biology
- BirdTrack results
- Garden BirdWatch results
- Atlas 2007–11 latest results

TREE SPARROW
Passer montanus

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: SPEC category 3 (declining)
UK: red (>50% population decline)
UK Biodiversity Action Plan: click here, priority species

Long-term trend

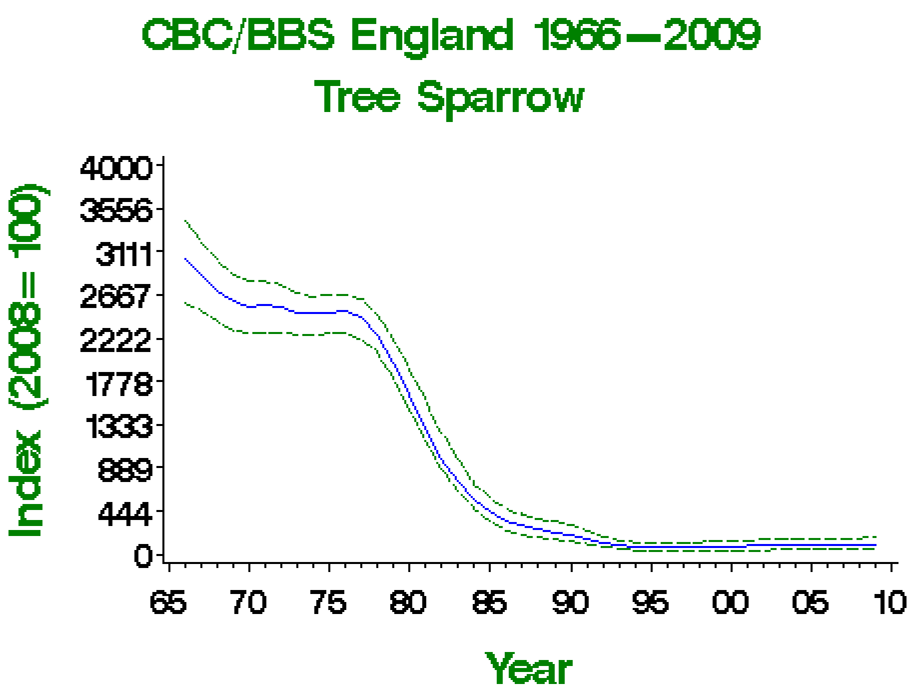
England: rapid decline

UK population size

68,000 territories in 2000 (1988–91 Atlas estimate updated using CBC/BBS trend: **BiE04**, **APEP06**)

Status summary

Tree Sparrow abundance crashed spectacularly in the UK between the late 1970s and the early 1990s. BBS data indicate significant increase since 1994, but it should be remembered that, for every Tree Sparrow today there were perhaps around 30 in the 1970s, and any recovery therefore has a very long way to go. Clear range contractions occurred between the two breeding atlas periods (**Gibbons *et al.* 1993**), and have continued subsequently, with many local extinctions occurring during the 1990s. Components of agricultural intensification, such as reductions in winter stubble, are likely to be implicated in the decline. The number of fledglings per breeding attempt has improved substantially as population sizes have decreased, suggesting that decreases in productivity were not responsible for the decline. It is more likely that survival was the critical demographic measure, although ring-recovery analyses have produced equivocal results because of small sample sizes (**Siriwardena *et al.* 1998b**, **2000b**). Following declines across western and northwestern Europe during the 1990s, the European status of this species is no longer considered 'secure' (**BirdLife International 2004**). There has been widespread rapid decrease across Europe since 1980 (**PECBMS 2010**).



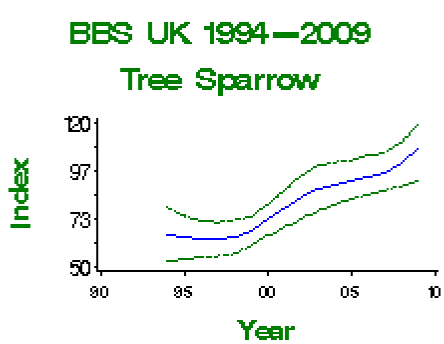
1967-2008: -97% (confidence interval -99% to -93%)

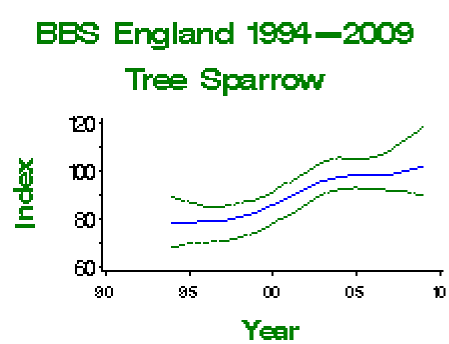
Population changes in detail

Table of population changes for Tree Sparrow

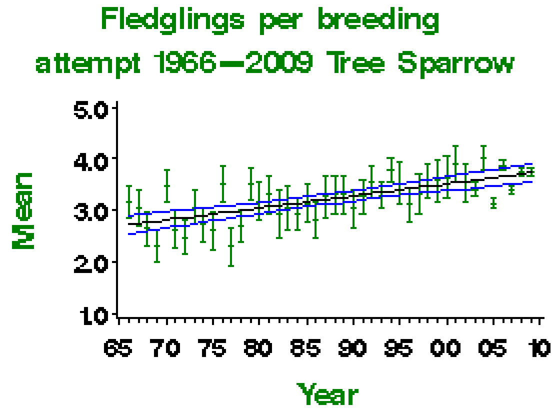
Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS England	41	1967-2008	87	-97	-99	-93	>50	
	25	1983-2008	88	-87	-95	-77	>50	
	10	1998-2008	133	32	11	71		
	5	2003-2008	144	7	-9	29		
BBS UK	13	1995-2008	157	55	25	102		
	10	1998-2008	162	56	26	98		
	5	2003-2008	179	15	-10	43		
BBS England	13	1995-2008	128	28	2	64		
	10	1998-2008	131	25	5	59		
	5	2003-2008	144	5	-12	25		

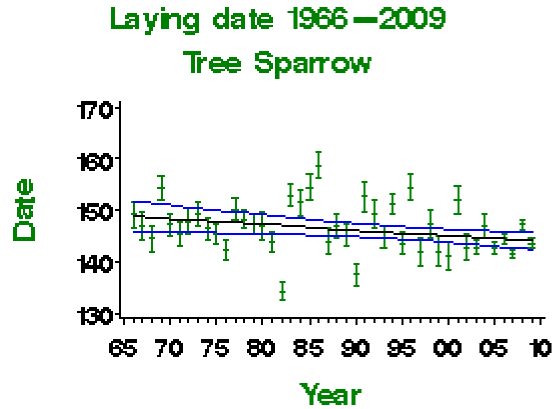
The Breeding Bird Survey is jointly funded by the BTO, JNCC & RSPB





Demographic trends

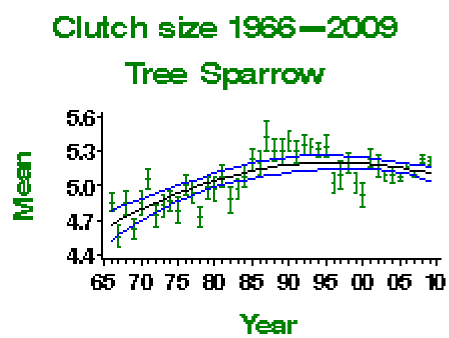


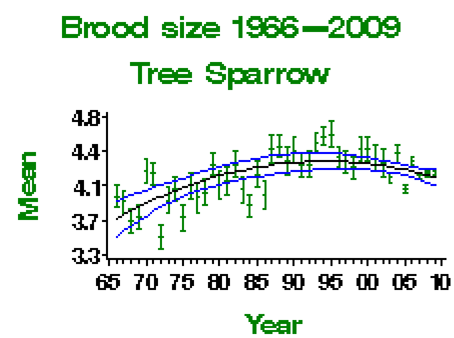


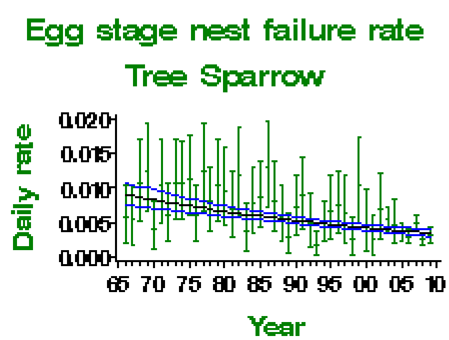
More on demographic trends

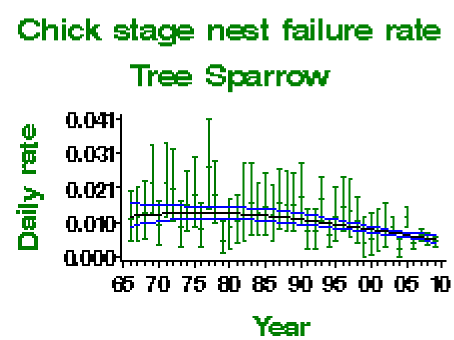
Table of demographic changes for Tree Sparrow

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment
Fledglings per breeding attempt	40	1968-2008	137	Linear increase	2.77 fledglings	3.7 fledglings	33.8%	
Clutch size	40	1968-2008	190	Curvilinear	4.73 eggs	5.12 eggs	8.4%	
Brood size	40	1968-2008	249	Curvilinear	3.78 chicks	4.16 chicks	10%	
Daily failure rate (eggs)	40	1968-2008	255	Linear decline	0.87% nests/day	0.36% nests/day	-58.6%	
Daily failure rate (chicks)	40	1968-2008	185	Curvilinear	1.25% nests/day	0.57% nests/day	-54.4%	
Laying date	40	1968-2008	201	Linear decline	May 29	May 24	-5 days	









Additional information

- Maps and statistics from British and Irish atlases
- BirdFacts page on species biology
- BirdTrack results
- Garden BirdWatch results

CHAFFINCH
Fringilla coelebs

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: no SPEC category (concentrated in Europe, conservation status favourable)
UK: green (species level); amber (race *gengleri*, >20% of European breeders)

Long-term trend

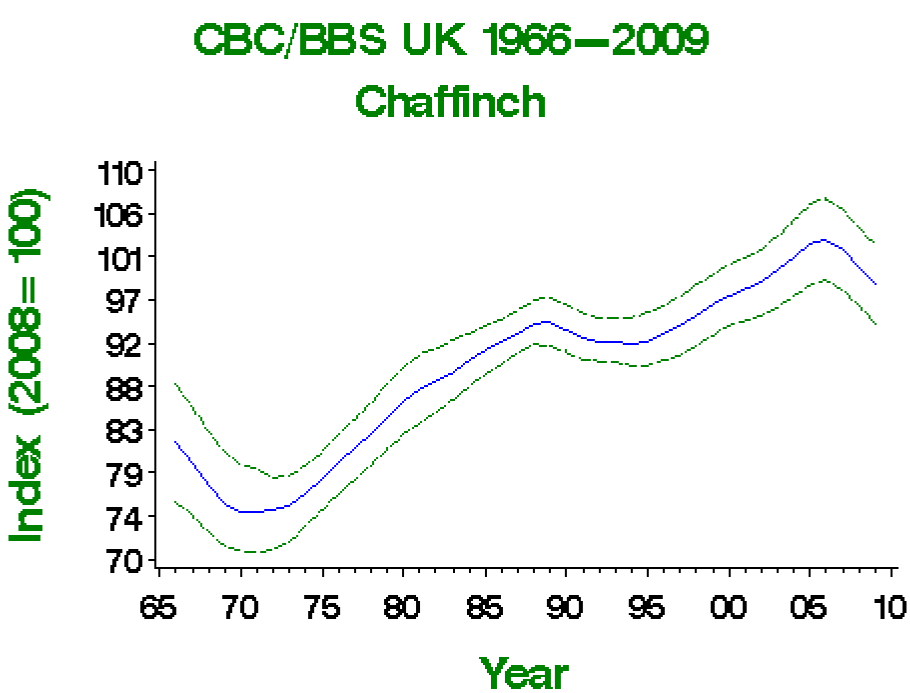
UK, England: shallow increase

UK population size

5,974,000 territories in 2000 (1988–91 Atlas estimate updated using CBC/BBS trend: **BiE04**, **APEP06**)

Status summary

Chaffinch abundance has increased rapidly since the early 1970s, according to CBC/BBS and CES, but numbers seemed to stabilise for a period during the 1990s. This relative stability was associated with a reduction in annual survival, which could be density-dependent (**Siriwardena *et al.* 1999**). There was also some evidence of improved breeding performance during the early years of population increase, with larger brood sizes, fewer egg-stage nest failures, and more fledglings per breeding attempt, but these trends are now reversed. The downturn in numbers since 2006 is linked to the widespread and severe outbreak of trichomonosis that began in 2005, being greatest in areas with a high incidence of the disease (**Robinson *et al.* 2010**). The trend towards earlier laying may be partly explained by recent climate change (**Crick & Sparks 1999**). Chaffinches are well adapted to suburban and garden habitats, as well as to highly fragmented woodland and hedgerows, occurring less in the open-field, arable habitats that have been affected most by agricultural intensification, so it is possible that they have benefited by environmental changes from which other seed-eating passerines have suffered.



1967-2008: 25% (confidence interval 12% to 41%)

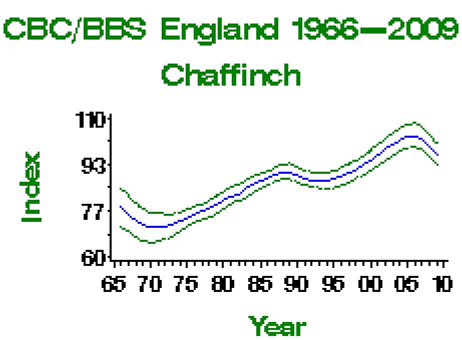
Population changes in detail

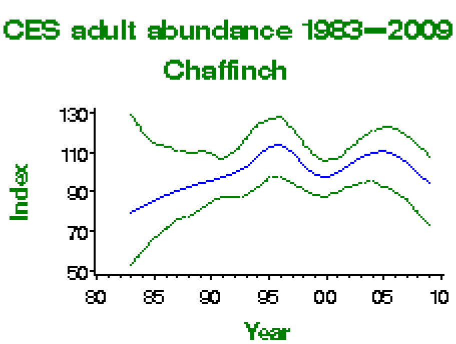
Table of population changes for Chaffinch

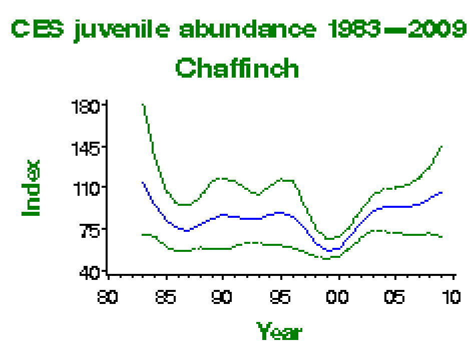
Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS UK	41	1967-2008	934	25	12	41		
	25	1983-2008	1394	12	4	19		
	10	1998-2008	2515	5	2	8		
	5	2003-2008	2717	0	-2	3		
CBC/BBS England	41	1967-2008	746	32	18	52		
	25	1983-2008	1105	19	10	26		
	10	1998-2008	1983	9	6	13		
	5	2003-2008	2160	0	-2	2		
CES adults	24	1984-2008	78	22	-34	97		
	10	1998-2008	90	-4	-29	20		
	5	2003-2008	88	-7	-25	6		
CES juveniles	24	1984-2008	60	5	-43	75		
	10	1998-2008	70	58	-5	133		
	5	2003-2008	68	11	-17	40		
BBS UK	13	1995-2008	2284	9	5	14		
	10	1998-2008	2458	5	2	8		
	5	2003-2008	2717	0	-2	3		
BBS England	13	1995-2008	1779	14	10	18		
	10	1998-2008	1914	9	5	12		

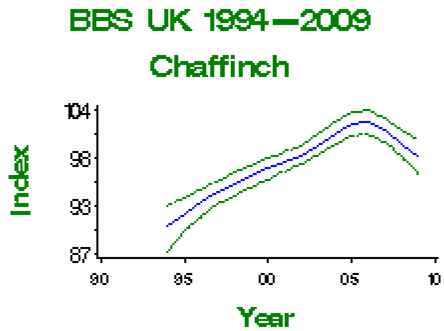
	5	2003-2008	2127	-1	-3	1		
BBS Scotland	13	1995-2008	228	10	0	22		
	10	1998-2008	235	8	-1	18		
	5	2003-2008	263	7	1	15		
BBS Wales	13	1995-2008	192	-10	-21	2		
	10	1998-2008	215	-3	-9	5		
	5	2003-2008	230	-4	-8	3		
BBS N.Ireland	13	1995-2008	85	34	1	58		
	10	1998-2008	96	-7	-21	9		
	5	2003-2008	106	-7	-15	-1		

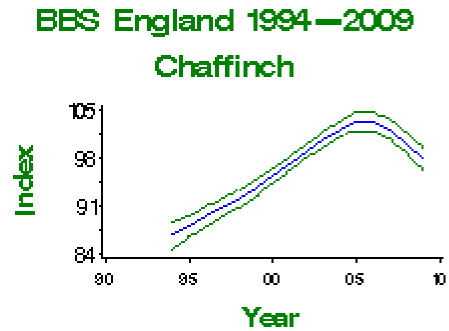
The Breeding Bird Survey is jointly funded by the BTO, JNCC & RSPB

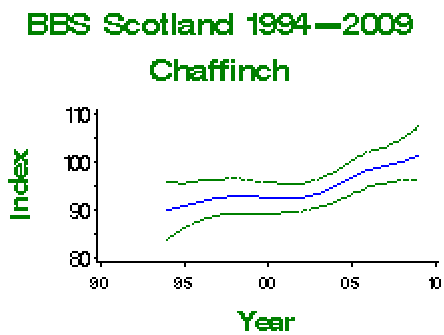


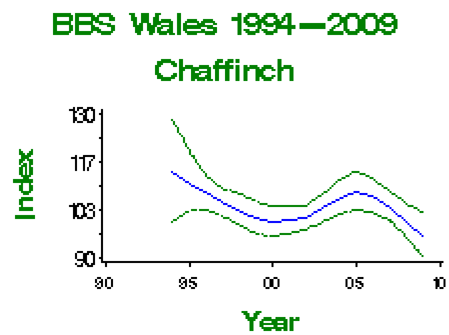


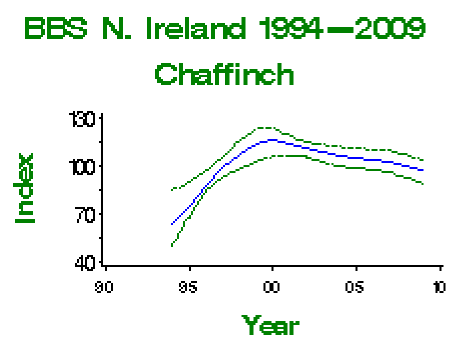




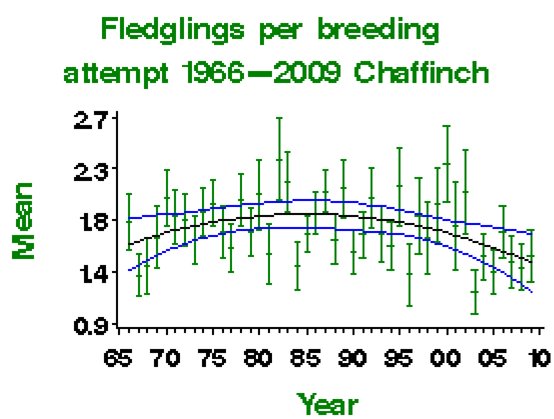


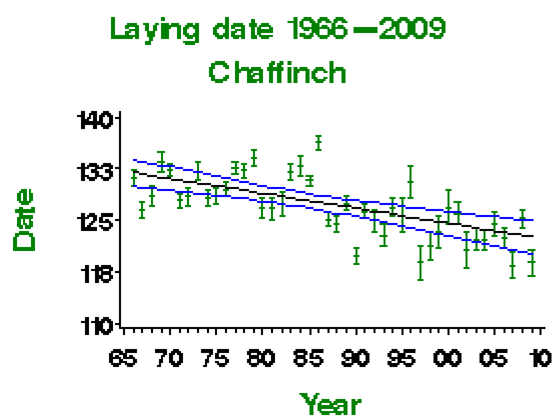






Demographic trends



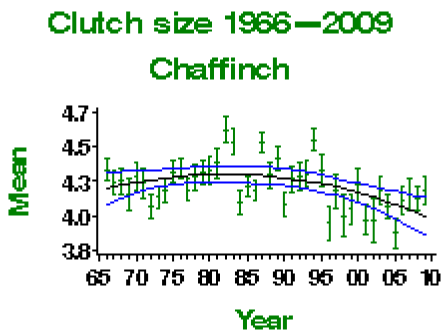


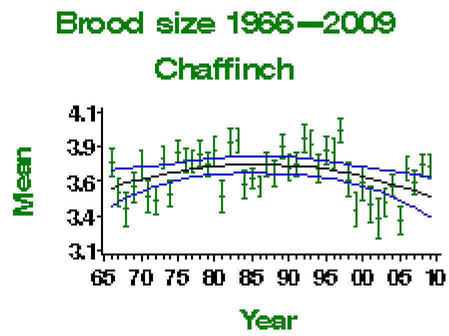
More on demographic trends

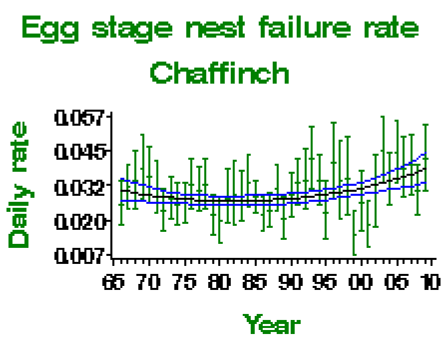
Table of demographic changes for Chaffinch

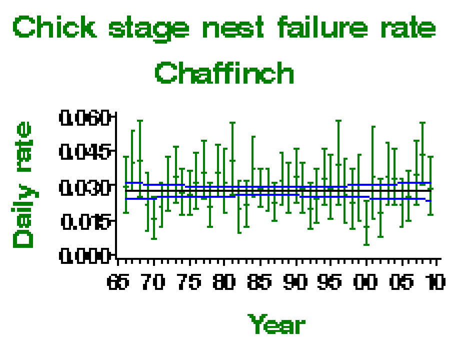
Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment

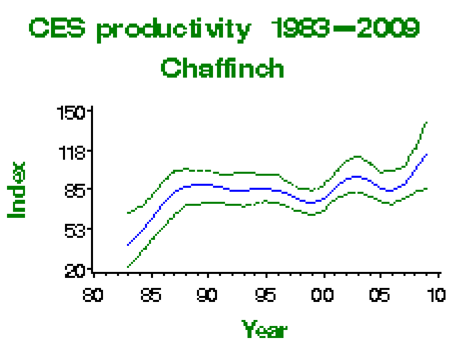
Fledglings per breeding attempt	40	1968-2008	57	Curvilinear	1.64 fledglings	1.46 fledglings	-10.8%	
Clutch size	40	1968-2008	86	Curvilinear	4.23 eggs	4.05 eggs	-4.2%	
Brood size	40	1968-2008	136	Curvilinear	3.59 chicks	3.52 chicks	-2%	
Daily failure rate (eggs)	40	1968-2008	165	Curvilinear	2.94% nests/day	3.69% nests/day	25.5%	
Daily failure rate (chicks)	40	1968-2008	116	None				
Laying date	40	1968-2008	106	Linear decline	May 12	May 3	-9 days	
Juvenile to Adult ratio (CES)	24	1984-2008	84	Smoothed trend	50 Index value	100 Index value	101%	
Juvenile to Adult ratio (CES)	10	1998-2008	98	Smoothed trend	76 Index value	100 Index value	32%	
Juvenile to Adult ratio (CES)	5	2003-2008	96	Smoothed trend	96 Index value	100 Index value	4%	

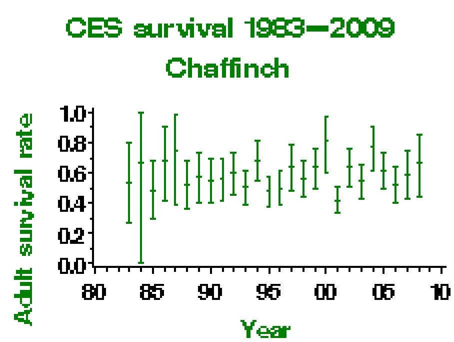












Additional information

- Maps and statistics from British and Irish atlases
- BirdFacts page on species biology

- BirdTrack results
- Garden BirdWatch results

GREENFINCH
Carduelis chloris

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: no SPEC category (concentrated in Europe, conservation status favourable)
UK: green (species level, race *chloris*); amber (race *harrisoni*, >20% of European breeders)

Long-term trend

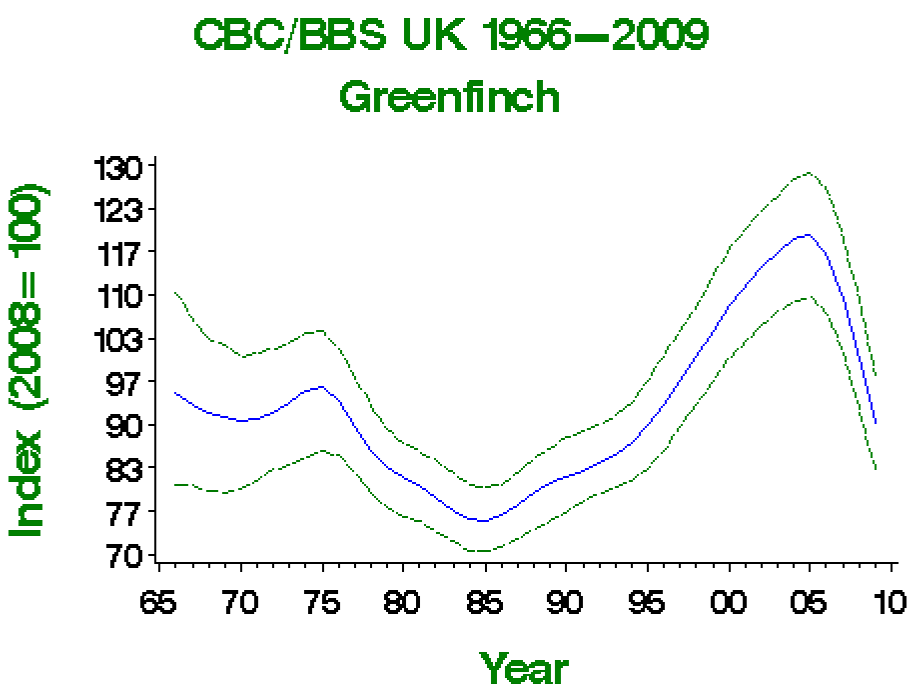
UK: stable
England: probable shallow increase

UK population size

734,000 territories in 2000 (1988–91 Atlas estimate updated using CBC/BBS trend: **BiE04**, **APEP06**)

Status summary

Greenfinch abundance varied little up to the mid 1990s, and there was little change in either survival or breeding performance during this period (**Siriwardena *et al.* 1998b**, **2000b**). More recent CBC/BBS data indicate population increases widely across the UK, followed by a sudden sharp fall induced by a widespread and severe outbreak of trichomonosis that began in 2005 (**Robinson *et al.* 2010**). Productivity data are complex, with a substantial reduction in brood size and increased nest survival at the egg stage. Overall, however, there has been no change in the number of fledglings per breeding attempt. The trend towards earlier laying may be explained by recent climate change (**Crick & Sparks 1999**). There has been widespread shallow increase across Europe since 1980 (**PECBMS 2010**).



1967-2008: 7% (confidence interval -14% to 36%)

Population changes in detail

Table of population changes for Greenfinch

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS UK	41	1967-2008	682	7	-14	36		
	25	1983-2008	1020	30	12	51		
	10	1998-2008	1897	0	-4	5		
	5	2003-2008	2091	-14	-16	-10		
CBC/BBS England	41	1967-2008	579	15	-13	54		
	25	1983-2008	864	32	13	56		
	10	1998-2008	1596	1	-3	7		
	5	2003-2008	1763	-15	-17	-11		
CES adults	24	1984-2008	41	56	-35	278		
	10	1998-2008	50	-11	-32	9		
	5	2003-2008	53	-25	-42	-12	>25	
CES juveniles	24	1984-2008	29	149	-7	903		
	10	1998-2008	38	145	23	338		
	5	2003-2008	42	37	-29	96		
BBS UK	13	1995-2008	1711	12	8	21		
	10	1998-2008	1862	-1	-5	5		
	5	2003-2008	2091	-14	-16	-10		
BBS England	13	1995-2008	1438	13	7	20		
	10	1998-2008	1557	1	-3	5		
	5	2003-2008	1750	-15	-17	-12		

BBS Scotland	13	1995-2008	101	5	-15	32		
	10	1998-2008	107	-4	-21	19		
	5	2003-2008	120	-2	-14	17		
BBS Wales	13	1995-2008	111	13	-6	41		
	10	1998-2008	126	-9	-22	7		
	5	2003-2008	137	-17	-25	-8		
BBS N.Ireland	13	1995-2008	50	45	-1	129		
	10	1998-2008	58	0	-19	25		
	5	2003-2008	68	-29	-38	-10	>25	

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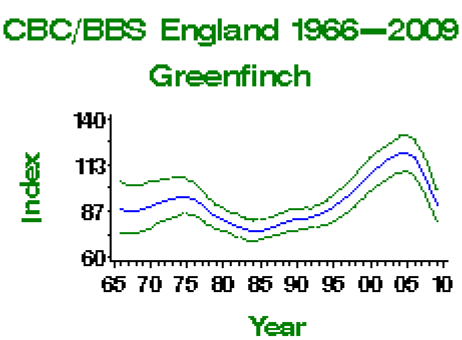
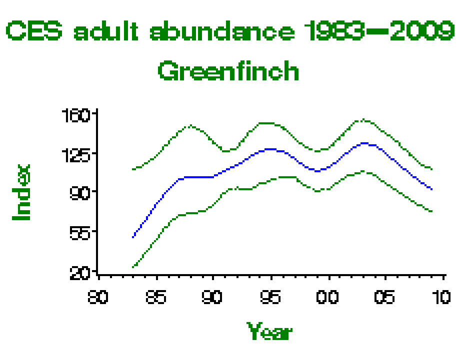
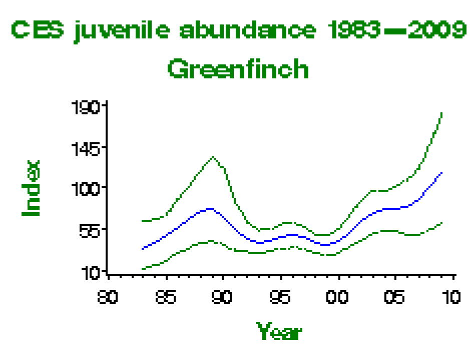
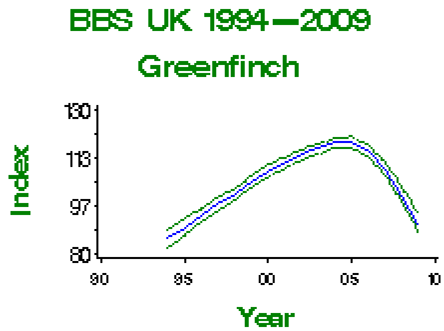
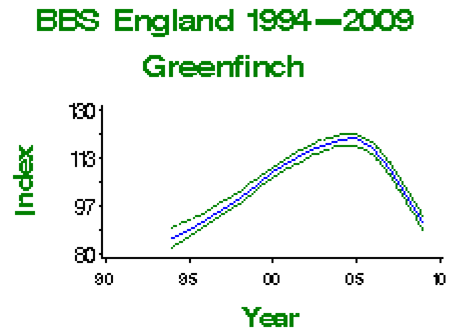
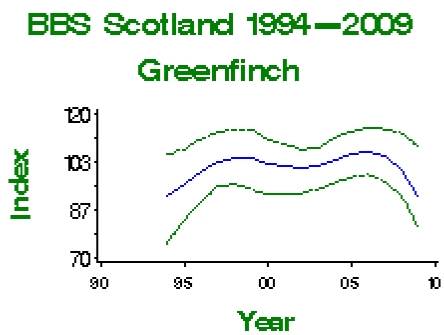


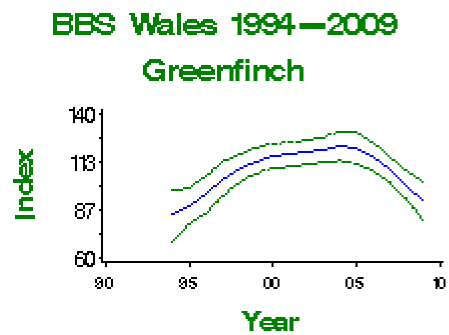


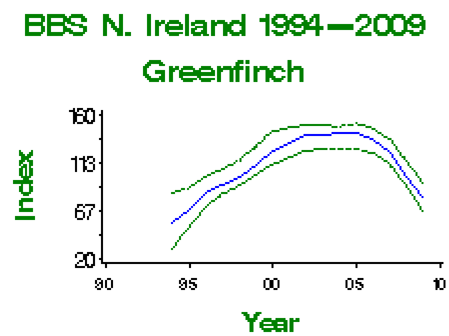




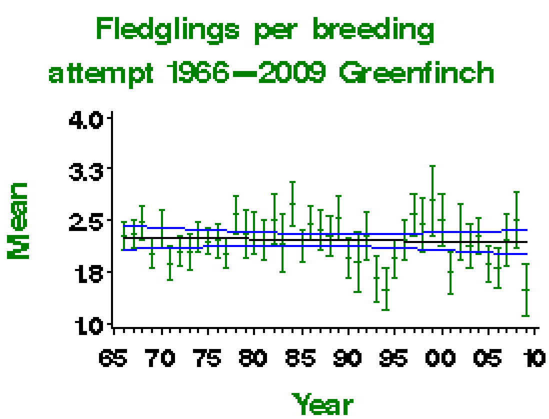


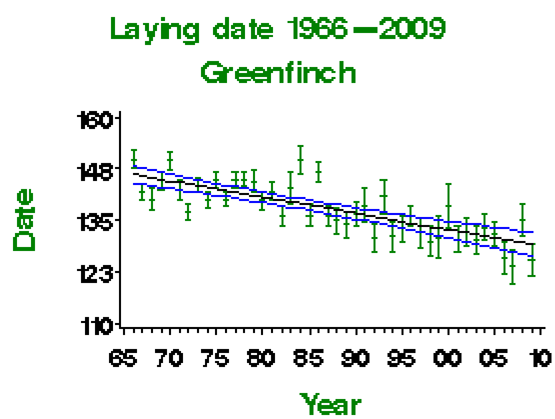






Demographic trends



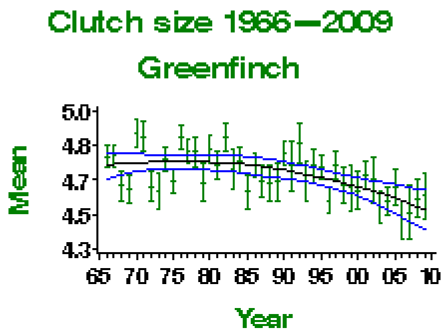


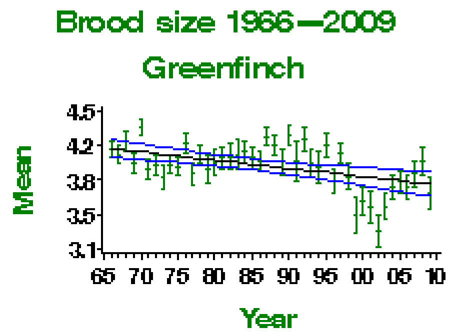
More on demographic trends

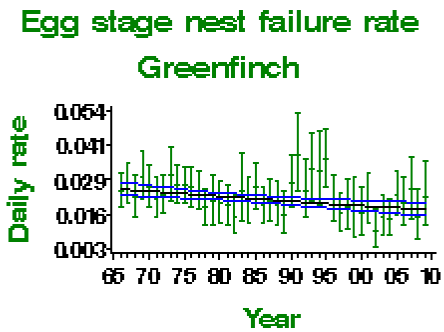
Table of demographic changes for Greenfinch

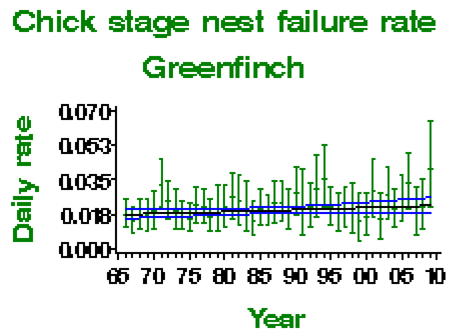
Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment
Fledglings per breeding	40	1968-	60	None				

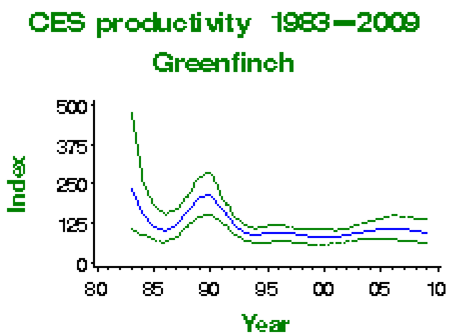
attempt		2008						
Clutch size	40	1968-2008	92	Curvilinear	4.73 eggs	4.51 eggs	-4.6%	
Brood size	40	1968-2008	113	Linear decline	4.1 chicks	3.77 chicks	-8.1%	
Daily failure rate (eggs)	40	1968-2008	130	Linear decline	2.48% nests/day	1.78% nests/day	-28.2%	
Daily failure rate (chicks)	40	1968-2008	97	None				
Laying date	40	1968-2008	93	Linear decline	May 25	May 10	-15 days	
Juvenile to Adult ratio (CES)	24	1984-2008	46	Smoothed trend	155 Index value	100 Index value	-36%	
Juvenile to Adult ratio (CES)	10	1998-2008	56	Smoothed trend	86 Index value	100 Index value	16%	
Juvenile to Adult ratio (CES)	5	2003-2008	60	Smoothed trend	95 Index value	100 Index value	5%	











Additional information

- Maps and statistics from British and Irish atlases
- BirdFacts page on species biology
- BirdTrack results
- Garden BirdWatch results

GOLDFINCH
Carduelis carduelis

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe)
UK: green (species level); amber (race *britannica*, >20% of European breeders)

Long-term trend

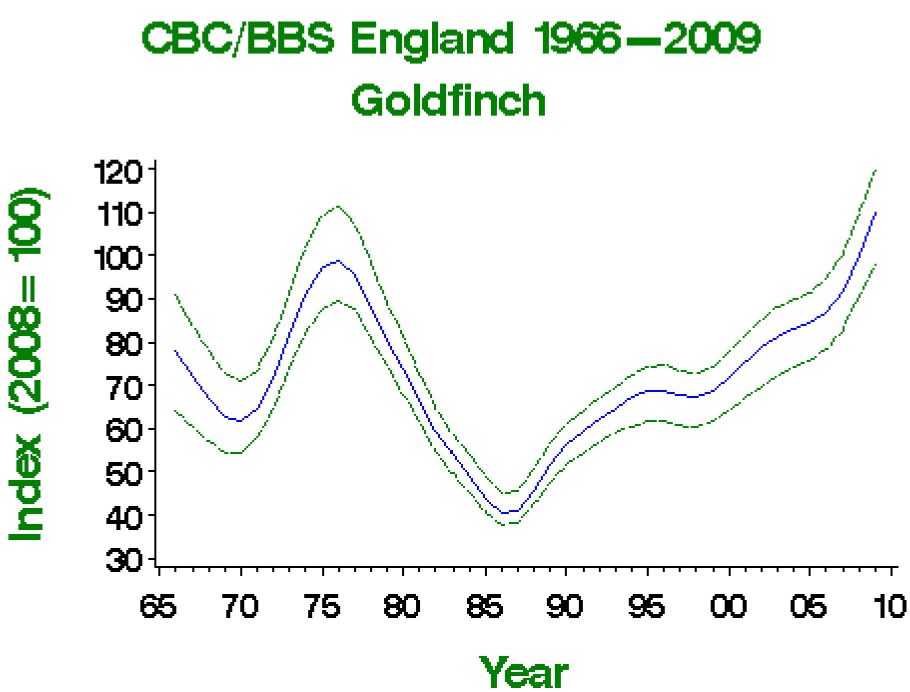
England: shallow increase

UK population size

313,000 territories in 2000 (1988–91 Atlas estimate updated using CBC/BBS trend: **BiE04**, **APEP06**)

Status summary

Goldfinch abundance fell sharply from the mid 1970s until the mid 1980s, but the decline was both preceded and followed by significant population increases. The recent upturn has lifted the species from the amber list of conservation concern into the green category, and has been accompanied by an increase in its use of gardens for winter feeding. These population changes can be explained almost entirely by changes in annual survival rates, which may have resulted from a reduction in the availability of weed seeds, due to agricultural intensification, and subsequent increased use of other food sources such as garden bird tables. Alternatively, the effects of environmental change or increased hunting pressure in France and Iberia, where the migrant majority of the population wintered, may have temporarily reduced survival rates (**Siriwardena *et al.* 1999**). There has been some long-term reduction in productivity as measured by CES, but no change in the number of fledglings per breeding attempt. A strong increase has been recorded in the Republic of Ireland since 1998 (**Crowe *et al.* 2010**).



1967-2008: 39% (confidence interval 9% to 85%)

Population changes in detail

Table of population changes for Goldfinch

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS England	41	1967-2008	451	39	9	85		
	25	1983-2008	680	85	53	118		
	10	1998-2008	1277	48	42	57		
	5	2003-2008	1449	23	19	29		
CES adults	24	1984-2008	29	34	-32	128		
	10	1998-2008	36	8	-21	43		
	5	2003-2008	38	10	-15	40		
CES juveniles	24	1984-2008	20	-32	-73	287		
	10	1998-2008	25	34	-17	124		
	5	2003-2008	25	36	-8	127		
BBS UK	13	1995-2008	1396	56	46	68		
	10	1998-2008	1529	52	45	63		
	5	2003-2008	1751	23	18	30		
BBS England	13	1995-2008	1146	46	38	57		
	10	1998-2008	1247	49	42	59		
	5	2003-2008	1433	24	20	31		
BBS Scotland	13	1995-2008	80	97	41	157		
	10	1998-2008	87	67	28	123		
	5	2003-2008	99	32	6	60		
BBS Wales	13	1995-	121	52	22	91		

		2008						
	10	1998-2008	137	21	3	42		
	5	2003-2008	148	-11	-18	-1		
BBS N.Ireland	13	1995-2008	40	674	.	.		
	10	1998-2008	49	303	.	.		
	5	2003-2008	61	74	.	.		

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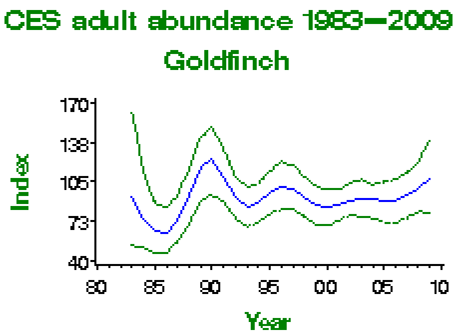
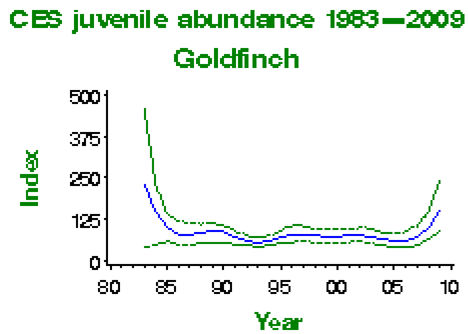
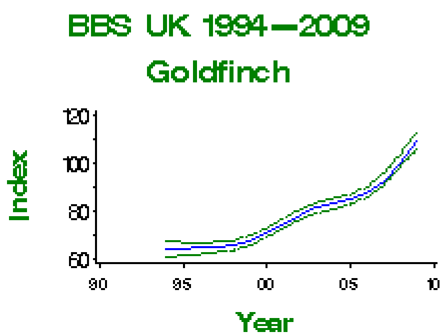
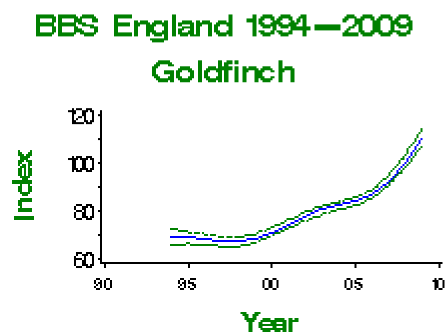
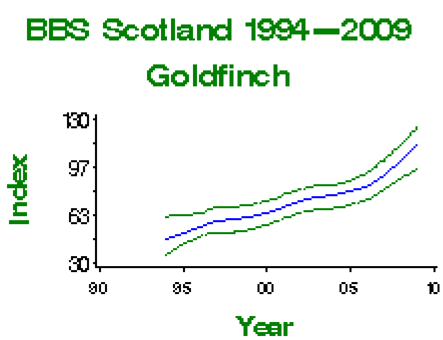
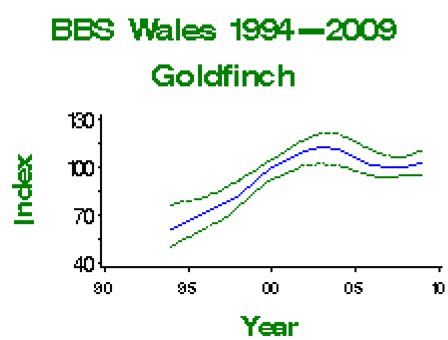


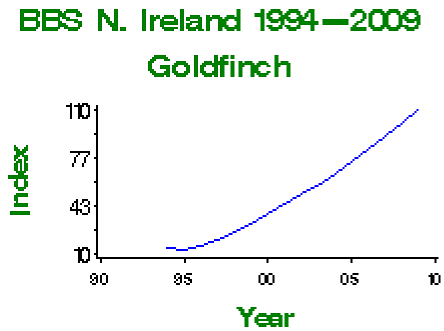




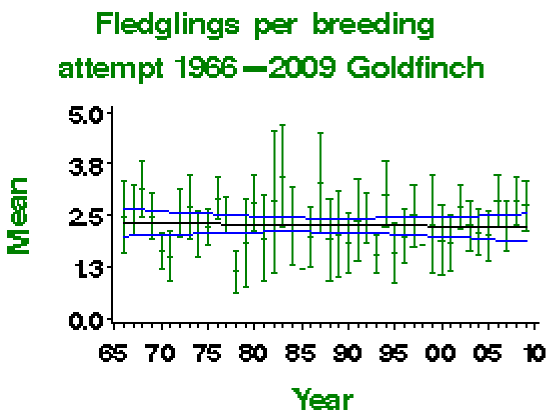


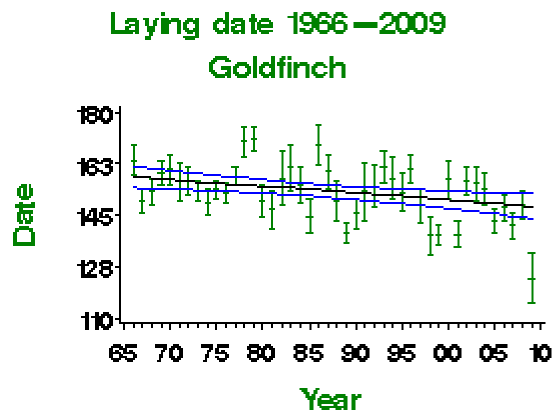






Demographic trends

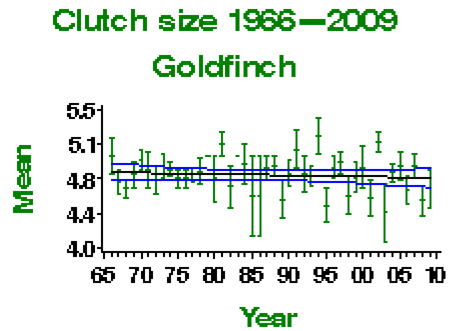


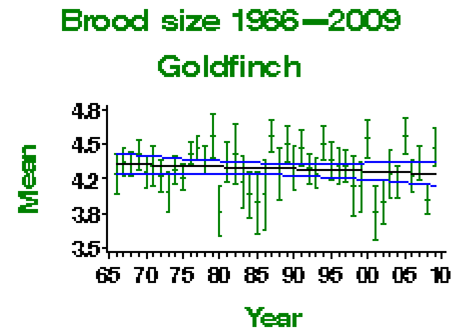


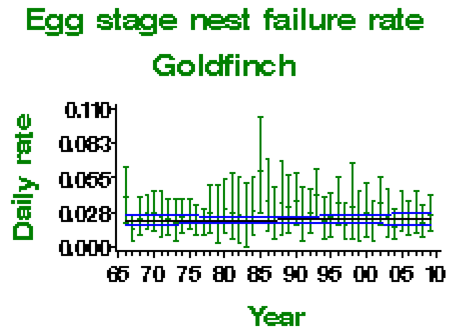
More on demographic trends

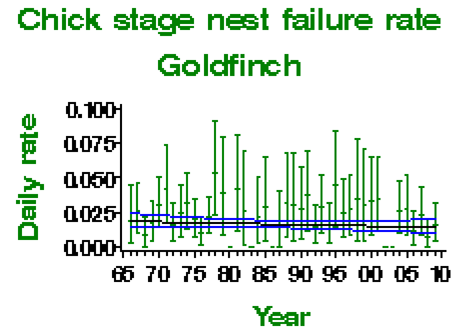
Table of demographic changes for Goldfinch

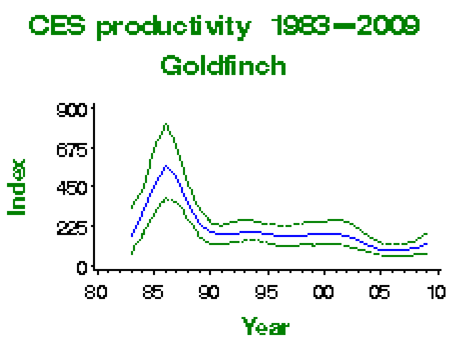
Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment
Fledglings per breeding attempt	40	1968-2008	14	None				
Clutch size	40	1968-2008	20	None				Small sample
Brood size	40	1968-2008	33	None				
Daily failure rate (eggs)	40	1968-2008	35	None				
Daily failure rate (chicks)	40	1968-2008	29	None				Small sample
Laying date	40	1968-2008	22	Linear decline	Jun 7	May 28	-10 days	Small sample
Juvenile to Adult ratio (CES)	24	1984-2008	35	Smoothed trend	293 Index value	100 Index value	-66% >50	
Juvenile to Adult ratio (CES)	10	1998-2008	43	Smoothed trend	173 Index value	100 Index value	-42% >25	
Juvenile to Adult ratio (CES)	5	2003-2008	43	Smoothed trend	144 Index value	100 Index value	-30%	











Additional information

- **Maps and statistics from British and Irish atlases**
- **BirdFacts page on species biology**
- **BirdTrack results**
- **Garden BirdWatch results**

SISKIN
Carduelis spinus

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: no SPEC category (concentrated in Europe, conservation status favourable)
UK: green

Long-term trend

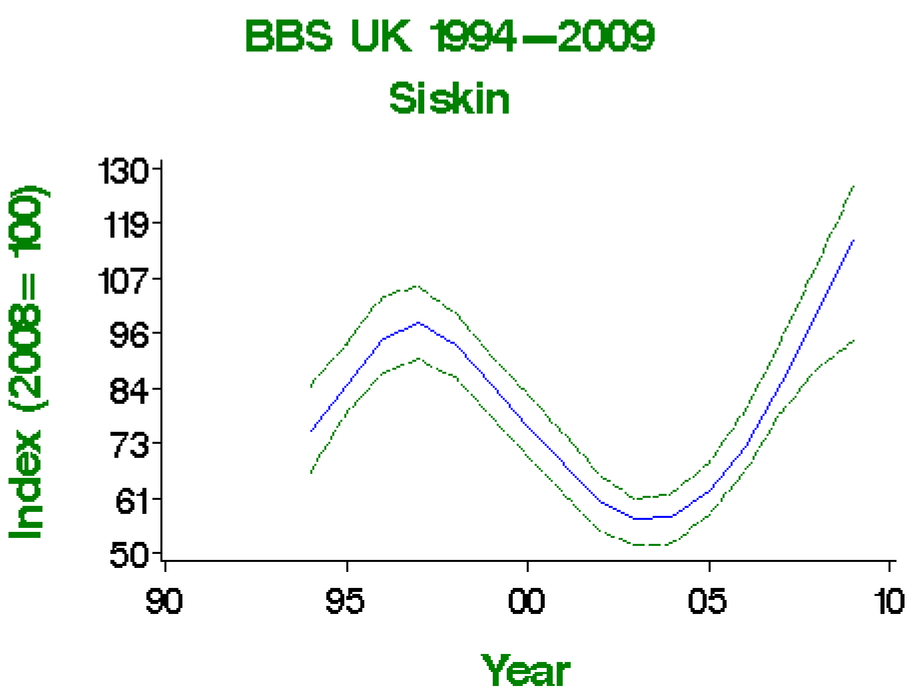
UK: increase

UK population size

369,000 pairs in 2000 (1988–91 Atlas estimate updated using BBS trend: **BiE04**, **APEP06**)

Status summary

The maturing of new conifer plantations has aided the spread of breeding Siskins throughout the UK, from their previous stronghold in the Scottish Highlands, since about 1950. Its habit of using garden feeders, especially in late winter, has developed since the 1960s and, despite many of the birds involved migrating to the Baltic region to breed, may also have helped to boost the UK breeding population. The 1988–91 Breeding Atlas identified a considerable expansion of the breeding range into southern Britain (**Gibbons *et al.* 1993**). More CBC plots became occupied during the 1970s and 1980s, but samples were still insufficient for annual monitoring until BBS began in 1994. Results since then show extraordinary fluctuations, in both England and Scotland, which have been largely in parallel. To some extent, this may reflect the occasional large continental influxes affecting numbers on a broad UK scale.



1995-2008: 18% (confidence interval -7% to 42%)

Population changes in detail

Table of population changes for Siskin

Source	Period	Years	Plots	Change	Lower	Upper	Alert	Comment

	(yrs)		(n)	(%)	limit	limit		
BBS UK	13	1995-2008	129	18	-7	42		
	10	1998-2008	134	7	-13	29		
	5	2003-2008	142	75	45	115		
BBS England	13	1995-2008	46	34	-26	137		
	10	1998-2008	50	9	-28	89		
	5	2003-2008	57	102	50	183		
BBS Scotland	13	1995-2008	66	20	-11	51		
	10	1998-2008	68	0	-22	28		
	5	2003-2008	77	54	31	98		

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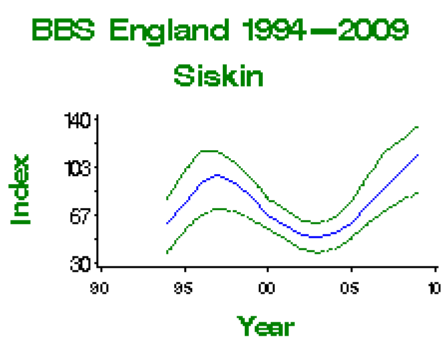
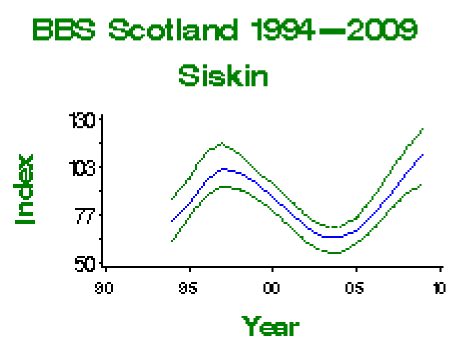




Demographic trends

Demographic information is not currently available for this species

Additional information

- Maps and statistics from British and Irish atlases
- BirdFacts page on species biology
- BirdTrack results
- Garden BirdWatch results

LINNET
Carduelis cannabina

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: SPEC category 2, declining
UK: red (species level, race *cannabina*); amber (race *autochthona*, >20% of European breeders, European status)
UK Biodiversity Action Plan: click here, priority species

Long-term trend

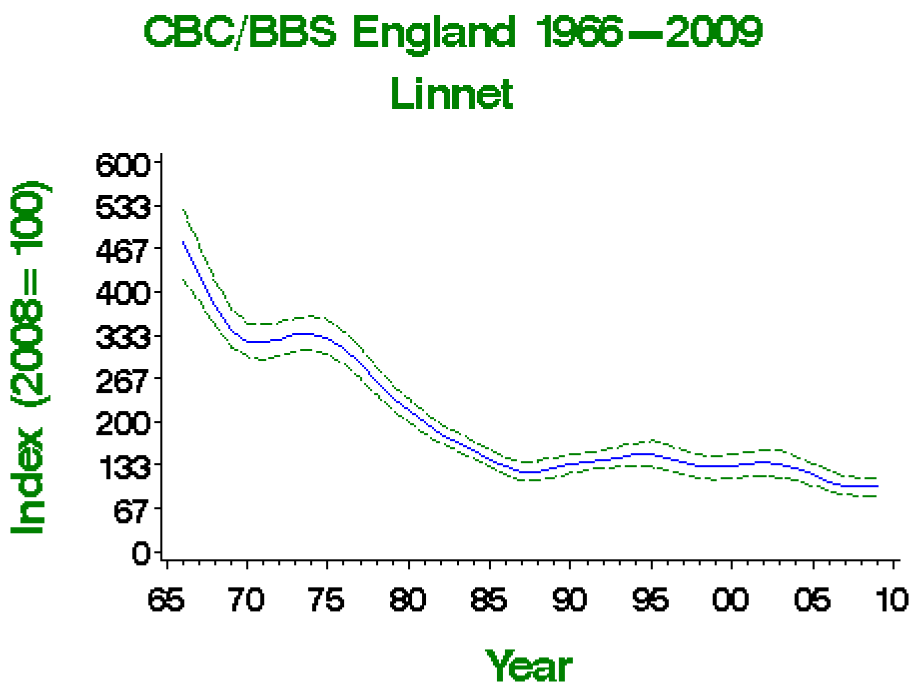
England: rapid decline

UK population size

556,000 territories in 2000 (1988–91 Atlas estimate updated using CBC/BBS trend: **BiE04**, **APEP06**)

Status summary

Linnet abundance fell rapidly in the UK between the mid 1970s and mid 1980s. Numbers have subsequently changed little overall, although with further decrease in England and Wales and possibly some increase in Northern Ireland. CES has shown declines continuing strongly in recent years. Nest failure rates rose during the principal period of population decline, and this represents the most likely demographic mechanism driving the observed decreases in abundance (**Siriwardena *et al.* 1999**, **2000b**). Low productivity is an ongoing problem for the species, possibly due to reductions in hedgerow quality leaving nests more exposed and therefore at greater risk of predation. Recent decreases in clutch and brood sizes, and in nest survival at the chick stage, raise NRS concern (**Leech & Barimore 2008**), and the number of fledglings per breeding attempt shows a linear decrease. Nestling diet incorporates a high proportion of oilseed rape seeds, suggesting that the inclusion of this crop in arable rotations may be important in maintaining Linnet populations (**Moorcroft *et al.* 2006**). A rapid decline is evident widely across Europe since 1980 (**PECBMS 2010**), and the European status of this species is no longer considered 'secure' (**BirdLife International 2004**).



1967-2008: -76% (confidence interval -82% to -70%)

Population changes in detail

Table of population changes for Linnet

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS England	41	1967-2008	401	-76	-82	-70	>50	
	25	1983-2008	576	-41	-53	-28	>25	
	10	1998-2008	989	-24	-29	-19		
	5	2003-2008	1011	-26	-31	-20	>25	
CES adults	24	1984-2008	17	-95	-99	-86	>50	Small sample
	10	1998-2008	16	-68	-88	-43	>50	Small sample
	5	2003-2008	16	-44	-74	-18	>25	Small sample
CES juveniles	24	1984-2008	14	-90	-97	-43	>50	Small sample
	10	1998-2008	13	-55	-79	-4	>50	Small sample
	5	2003-2008	13	11	-46	92		Small sample
BBS UK	13	1995-2008	1148	-23	-30	-17		
	10	1998-2008	1195	-16	-23	-7		
	5	2003-2008	1248	-16	-23	-9		
BBS England	13	1995-2008	928	-34	-39	-29	>25	
	10	1998-2008	959	-23	-29	-17		
	5	2003-2008	999	-24	-29	-19		
BBS Scotland	13	1995-2008	88	16	-12	49		
	10	1998-2008	91	10	-22	35		

	5	2003-2008	95	12	-11	43		
BBS Wales	13	1995-2008	91	-32	-50	-13	>25	
	10	1998-2008	100	-37	-54	-18	>25	
	5	2003-2008	103	-41	-53	-30	>25	
BBS N.Ireland	13	1995-2008	33	99	29	195		
	10	1998-2008	38	63	19	140		
	5	2003-2008	41	38	1	107		

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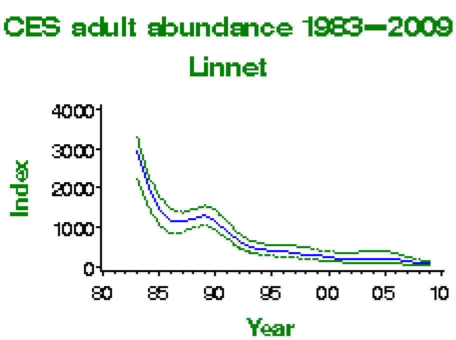
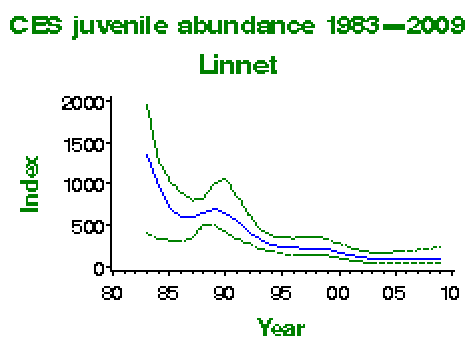
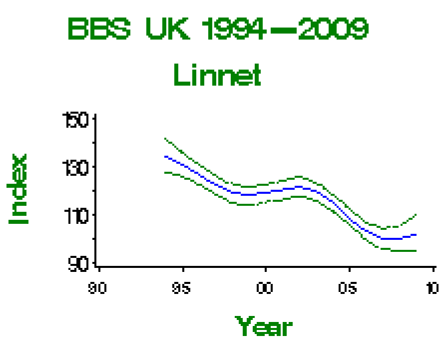
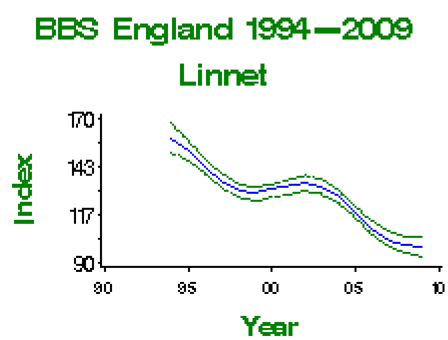
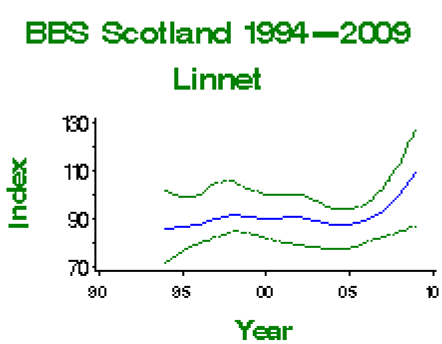
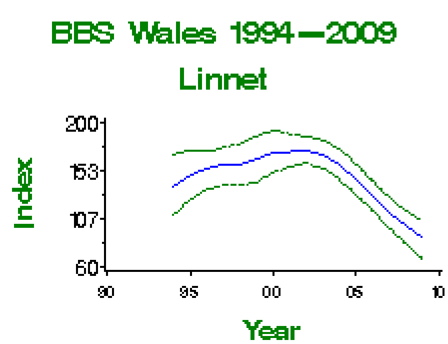


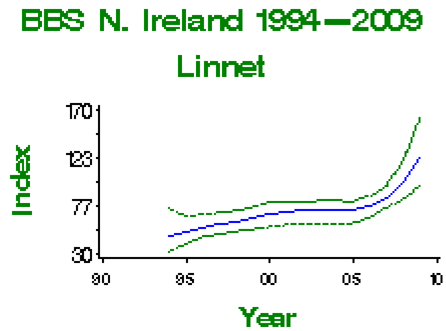




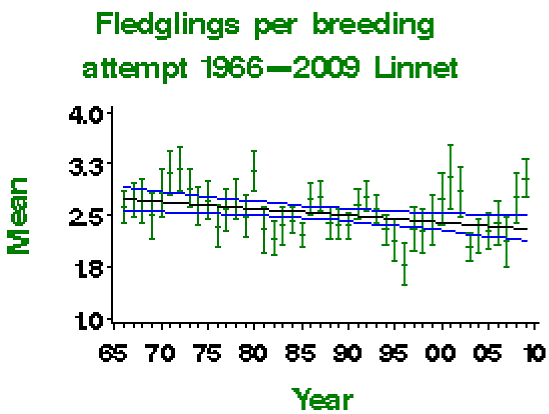


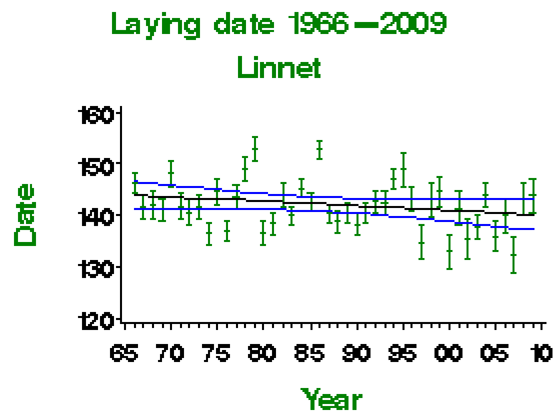






Demographic trends

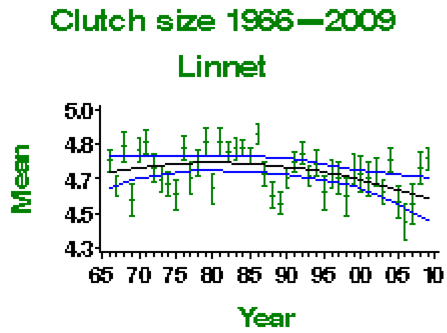


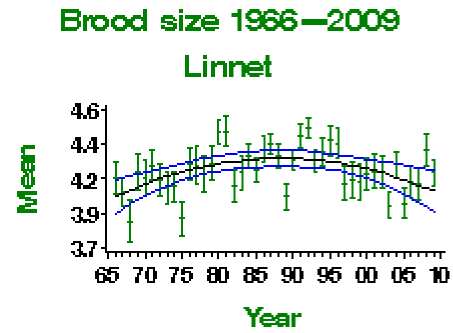


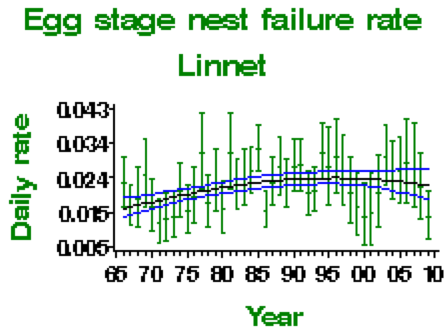
More on demographic trends

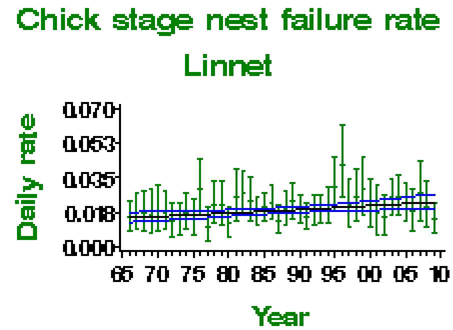
Table of demographic changes for Linnet

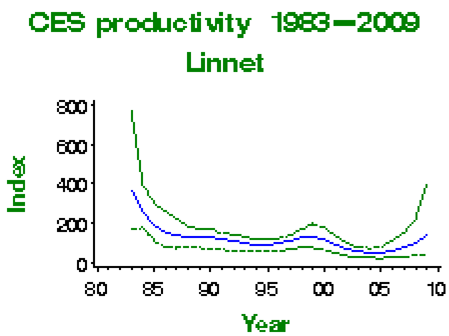
Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment
Fledglings per breeding attempt	40	1968-2008	70	Linear decline	2.73 fledglings	2.33 fledglings	-14.7%	
Clutch size	40	1968-2008	107	Curvilinear	4.7 eggs	4.57 eggs	-2.8%	
Brood size	40	1968-2008	122	Curvilinear	4.08 chicks	4.09 chicks	0.3%	
Daily failure rate (eggs)	40	1968-2008	152	Curvilinear	1.65% nests/day	2.23% nests/day	35.2%	
Daily failure rate (chicks)	40	1968-2008	110	Linear increase	1.53% nests/day	2.26% nests/day	47.7%	
Laying date	40	1968-2008	108	None				
Juvenile to Adult ratio (CES)	24	1984-2008	20	Smoothed trend	258 Index value	100 Index value	-61%	
Juvenile to Adult ratio (CES)	10	1998-2008	20	Smoothed trend	129 Index value	100 Index value	-23%	
Juvenile to Adult ratio (CES)	5	2003-2008	19	Smoothed trend	53 Index value	100 Index value	88%	











Additional information

- **Maps and statistics from British and Irish atlases**
- **BirdFacts page on species biology**
- **BirdTrack results**

LESSER REDPOLL
Carduelis cabaret

• Population changes • Productivity trends • Additional information

Conservation listings

Europe (*C. cabaret/flammea*): no SPEC category (favourable conservation status in Europe, not concentrated in Europe)
UK: red
UK Biodiversity Action Plan: priority species

Long-term trend

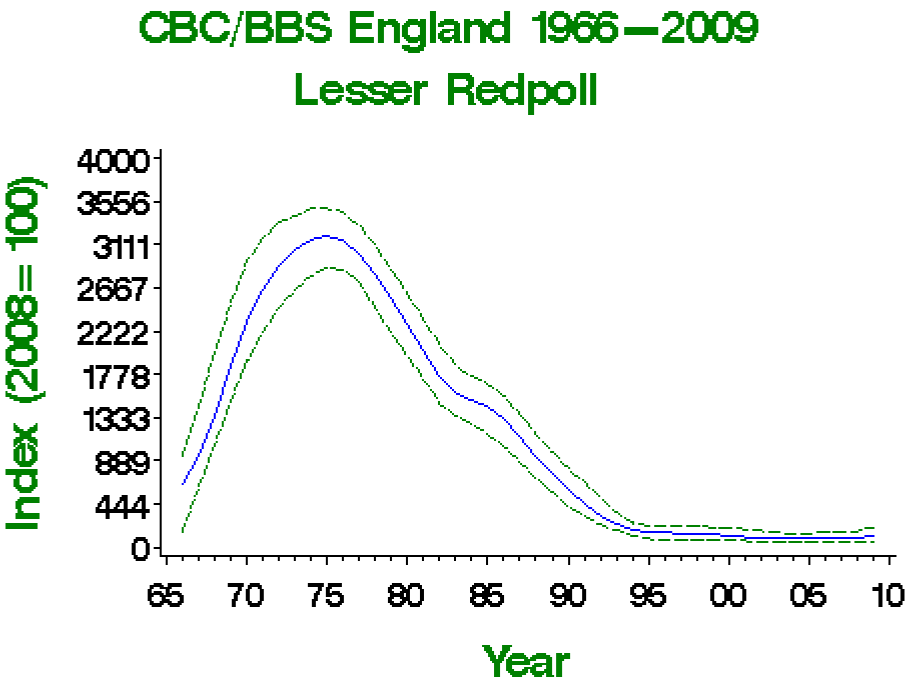
England: rapid decline

UK population size

26,900 pairs in 2000 (1988–91 Atlas estimate updated using CBC trend: **BiE04**, **APEP06**)

Status summary

Lesser Redpolls were abundant and widespread in lowland Britain in the 1970s, and frequent on CBC and CES plots, but are largely absent now as breeding birds after a sustained period of severe decline. Uncertainty about the representativeness of the monitoring data prior to the establishment of BBS once denied the species a place on the red list, since it was thought possible that the population may have withdrawn from the lowlands to northern and western UK regions, where monitoring prior to 1994 was less effective. No evidence for such a shift exists, however: the species was moved from green to amber in 2002 and now to red. The 1988–91 Atlas showed a range contraction of 11% since 1968–72, which is evident in all parts of the UK (**Gibbons *et al.* 1993**). In southern Britain, at least, decrease may be attributable to a reduction in the amount of suitable young forest growth (**Fuller *et al.* 2005**). Though samples are too small to continue presenting a trend, CES data indicated a rapid long-term decline in productivity, and there is evidence that survival rates have also fallen (**Siriwardena *et al.* 1998a**). Since *C. cabaret* is now widely treated as a separate species from the Common Redpoll *C. flammea*, and has a restricted range that lies wholly within western Europe, it is likely to gain a European conservation listing at the next review. A strong increase has been recorded in the Republic of Ireland since 1998, however (**Crowe *et al.* 2010**).



1967-2008: -89% (confidence interval -96% to -75%)

Population changes in detail

Table of population changes for Lesser Redpoll

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS England	41	1967-2008	44	-89	-96	-75	>50	
	25	1983-2008	41	-94	-97	-88	>50	Small CBC sample
	10	1998-2008	59	-25	-50	25		
	5	2003-2008	64	7	-25	52		
BBS UK	13	1995-2008	137	3	-22	36		
	10	1998-2008	143	-8	-32	17		
	5	2003-2008	150	-3	-22	15		
BBS England	13	1995-2008	56	-30	-54	11		
	10	1998-2008	58	-27	-54	11		
	5	2003-2008	64	7	-23	55		
BBS Scotland	13	1995-2008	43	-6	-46	45		
	10	1998-2008	44	-24	-53	7		
	5	2003-2008	50	-22	-46	4		

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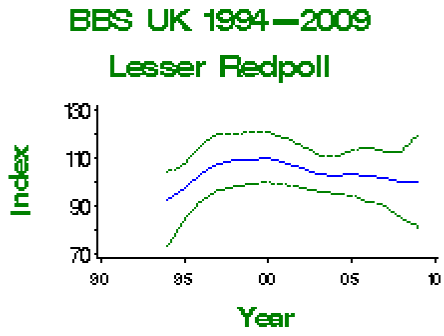
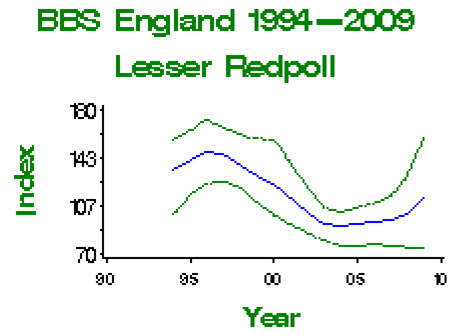
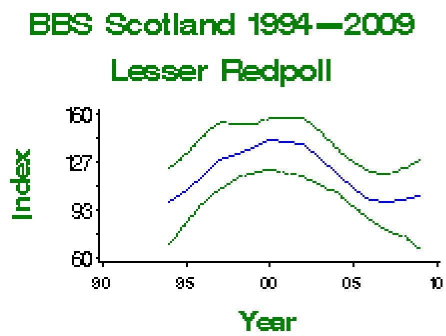




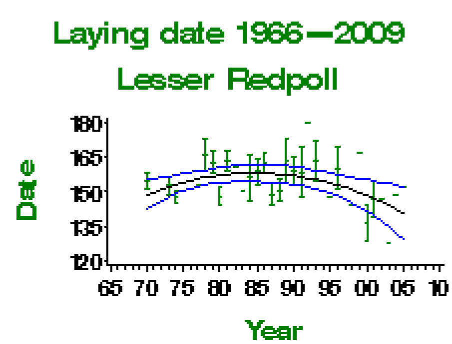


Demographic trends

Table of demographic changes for Lesser Redpoll

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment
Daily failure rate (eggs)	40	1968-2008	10	None				Small sample
Laying date	40	1968-2008	11	Curvilinear	May 26	May 16	-10 days	Small sample

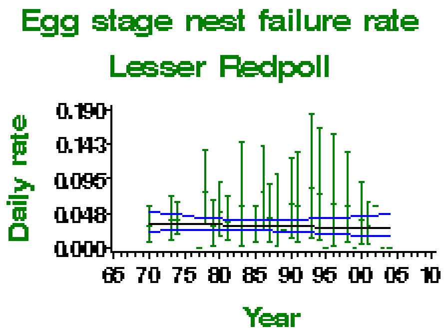
Insufficient data on fledglings per breeding attempt available for this species



Insufficient data on clutch size available for this species

Insufficient data on brood size available for this species

Insufficient data on nestling failure available for this species



Additional information

- **Maps and statistics from British and Irish atlases**
- **BirdFacts page on species biology**
- **BirdTrack results**

COMMON CROSSBILL

Loxia curvirostra

• **Population changes** • **Productivity trends** • **Additional information**

Conservation listings

Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe)
UK: green

Long-term trend

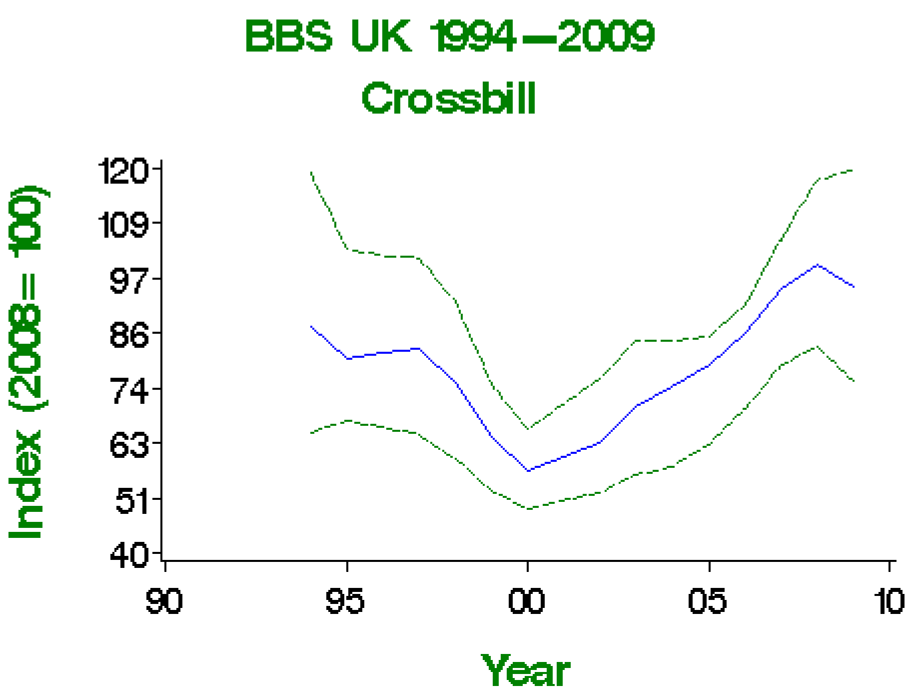
UK: fluctuating, with no long-term trend

UK population size

1,000–20,000 pairs during 1968–90 (**BiE04**, **APEP06**); 14,700–38,400 birds in northern Scotland in January–April 2008 (**Summers & Buckland 2010**)

Status summary

The UK breeding population of Crossbills is difficult to assess in any one season, except by special survey, and is exceptionally variable between years. The core of the population lies in the taiga forests across Eurasia, from where birds periodically erupt westwards and southwards in search of better feeding conditions. After arrivals in Britain, many thousands of birds may stay to breed, perhaps for a few years, before survivors and their offspring return to the Continent (**Newton 2006**). The spur to movements is a failure of the cone crop, especially in Norway spruce *Picea abies*, which is this species' main food (**Summers 1999**). Crossbills begin breeding in January, sometimes even earlier, and by the start of the BBS period in April most sightings are of highly mobile family parties. In irruption years, BBS sightings may include many birds from the Continent, which often begin to arrive in late May or during June. The BBS trend therefore reflects post-breeding rather than breeding numbers, and on a wider geographical scale than just the UK.



1995-2008: 24% (confidence interval -19% to 76%)

Population changes in detail

Table of population changes for Crossbill

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
BBS UK	13	1995-2008	44	24	-19	76		
	10	1998-2008	45	33	-8	103		
	5	2003-2008	53	42	9	88		

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Demographic trends

Demographic information is not currently available for this species

Additional information

- Maps and statistics from British and Irish atlases
- BirdFacts page on species biology
- BirdTrack results

BULLFINCH
Pyrrhula pyrrhula

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe)
UK: amber (25–50% population decline)
UK Biodiversity Action Plan: **click here**, **priority species**

Long-term trend

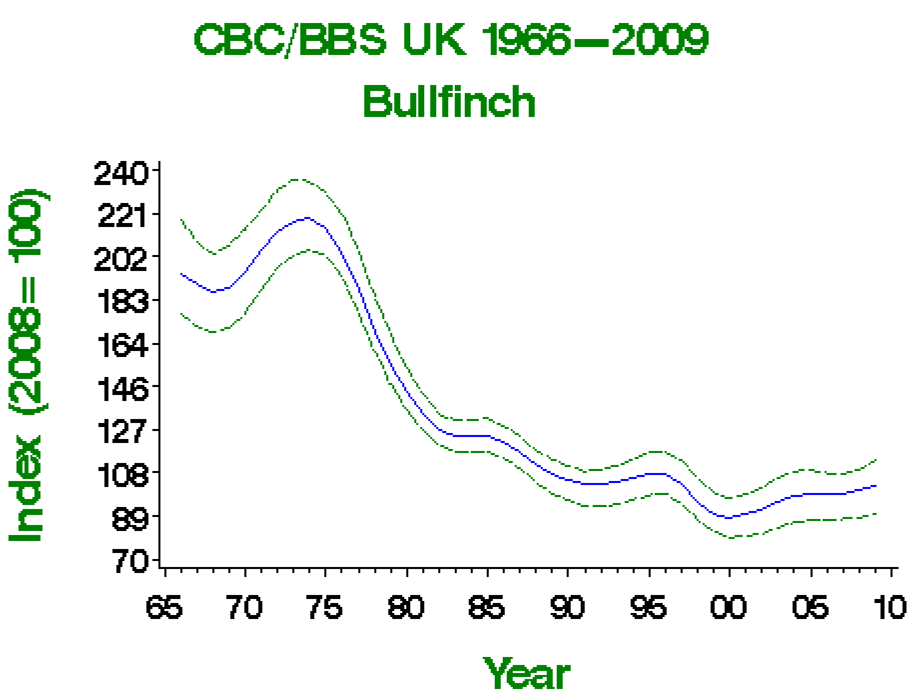
UK: moderate decline
England: rapid decline

UK population size

166,000 territories in 2000 (1988–91 Atlas estimate updated using CBC/BBS trend: **BiE04**, **APEP06**)

Status summary

The UK Bullfinch population entered a long period of decline in the mid 1970s, following a period of relative stability. The decline was initially very steep, and more so in farmland than in wooded habitats, but has been shallower since the early 1980s. CES and CBC/BBS both suggest there are large fluctuations around the overall downward trend. The demographic mechanism of decline remains unclear (**Siriwardena *et al.* 1999**, **2000b**, **2001**), although agricultural intensification and a reduction in the structural and floristic diversity of woodland are suspected to have played a part through losses of food resources and nesting cover (**Fuller *et al.* 2005**). Alongside these factors, **Proffitt *et al.* (2004)** and **Marquiss (2007)** mention the constraints on survival outside the breeding season and the possible role of higher **Sparrowhawk** numbers on the ability of Bullfinches to exploit resources in some habitats. Recent decreases in brood size and in nest survival have raised NRS concern (**Leech & Barimore 2008**), and the trend in fledglings per breeding attempt is downward. Numbers have shown widespread rapid decrease across Europe since 1980 (**PECBMS 2010**). The UK conservation listing was downgraded from red to amber in 2009, but the scale of decline still places the species near the borderline between these categories.



1967-2008: -47% (confidence interval -58% to -36%)

Population changes in detail

Table of population changes for Bullfinch

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS UK	41	1967-2008	292	-47	-58	-36	>25	
	25	1983-2008	382	-19	-31	-8		
	10	1998-2008	599	5	-4	11		
	5	2003-2008	643	5	-2	15		
CBC/BBS England	41	1967-2008	238	-51	-62	-39	>50	
	25	1983-2008	304	-25	-36	-14		
	10	1998-2008	467	3	-6	10		
	5	2003-2008	500	-3	-11	4		
CES adults	24	1984-2008	80	-19	-40	4		
	10	1998-2008	87	-5	-24	13		
	5	2003-2008	84	-6	-21	10		
CES juveniles	24	1984-2008	65	-29	-57	9		
	10	1998-2008	70	-10	-31	10		
	5	2003-2008	68	-9	-26	9		
BBS UK	13	1995-2008	542	-8	-16	0		
	10	1998-2008	570	6	-4	12		
	5	2003-2008	643	6	-2	15		
BBS England	13	1995-	419	-11	-19	-3		

		2008						
	10	1998-2008	439	4	-6	12		
	5	2003-2008	495	-2	-9	5		
BBS Scotland	13	1995-2008	37	23	-18	56		
	10	1998-2008	39	1	-25	27		
	5	2003-2008	44	30	-3	77		
BBS Wales	13	1995-2008	61	-14	-33	7		
	10	1998-2008	67	14	-4	37		
	5	2003-2008	75	-9	-24	6		

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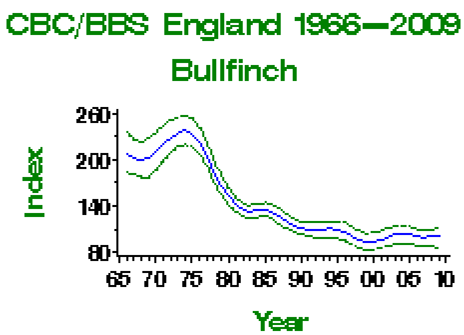
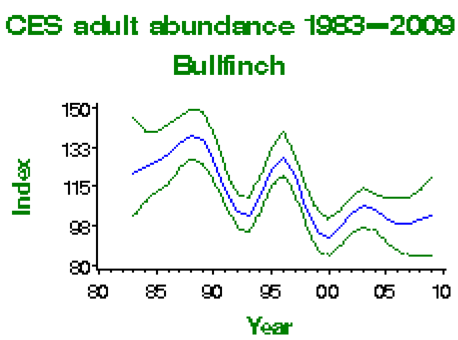
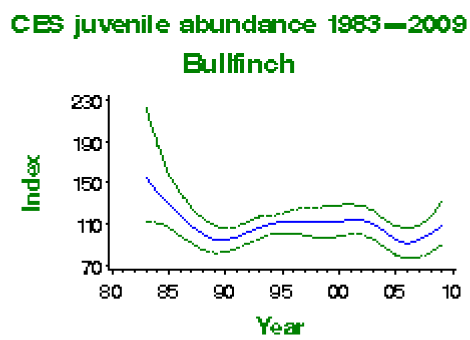
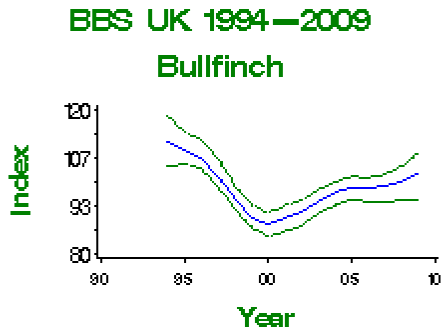
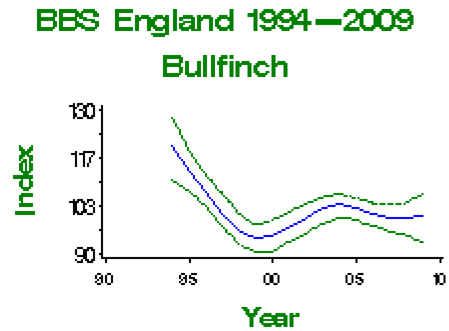
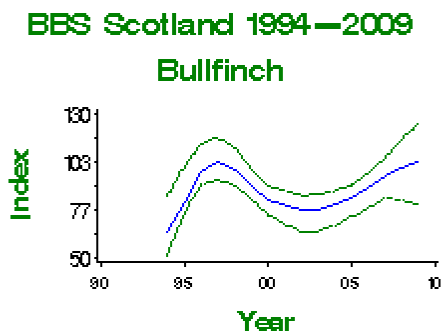


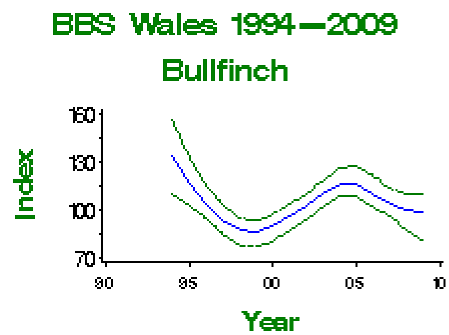




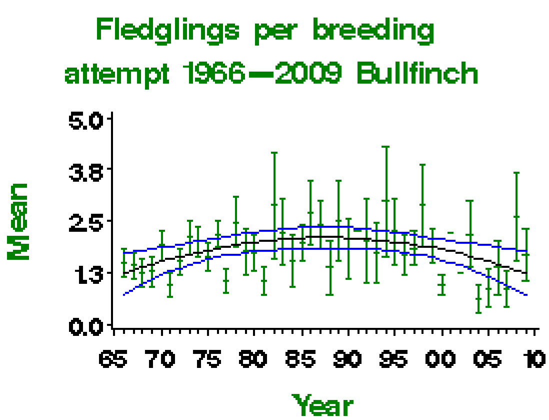


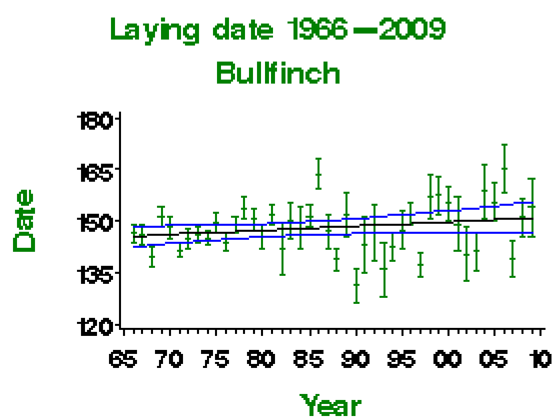






Demographic trends



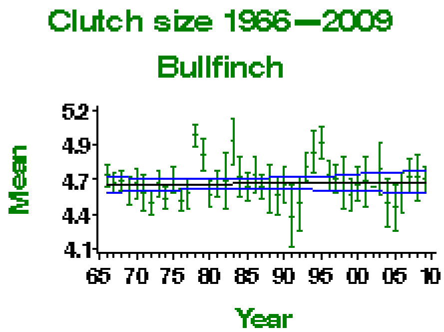


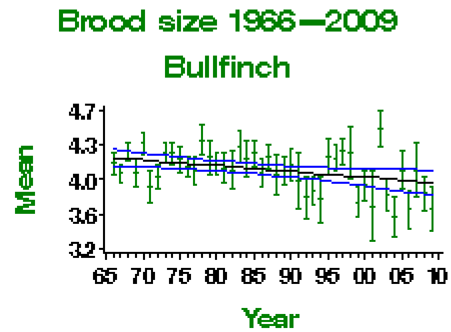
More on demographic trends

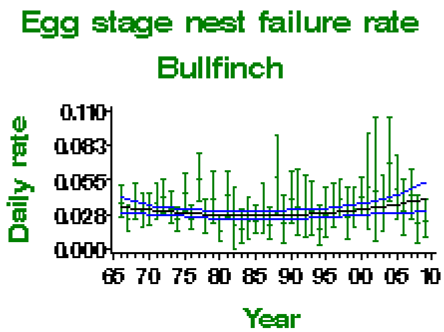
Table of demographic changes for Bullfinch

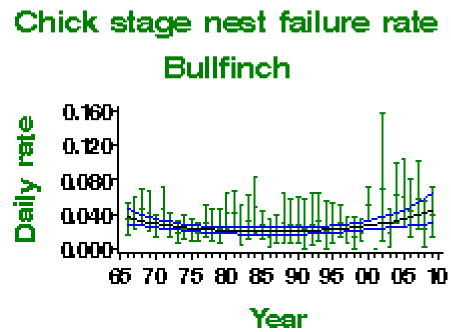
Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment
Fledglings per breeding attempt	40	1968-2008	18	Curvilinear	1.38 fledglings	1.32 fledglings	-4.9%	
Clutch size	40	1968-2008	34	None				
Brood size	40	1968-2008	36	Linear decline	4.17 chicks	3.93 chicks	-5.9%	
Daily failure rate (eggs)	40	1968-2008	49	Curvilinear	3.27% nests/day	3.88% nests/day	18.7%	
Daily failure rate (chicks)	40	1968-2008	33	Curvilinear	3.31% nests/day	4.14% nests/day	25.1%	
Laying date	40	1968-2008	32	None				
Juvenile to Adult ratio (CES)	24	1984-2008	84	Smoothed trend	96 Index value	100 Index value	4%	

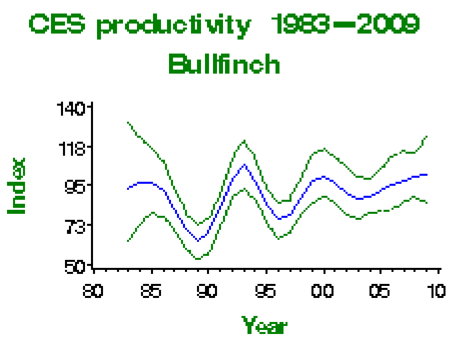
Juvenile to Adult ratio (CES)	10	1998-2008	91	Smoothed trend	87 Index value	100 Index value	15%	
Juvenile to Adult ratio (CES)	5	2003-2008	89	Smoothed trend	88 Index value	100 Index value	14%	

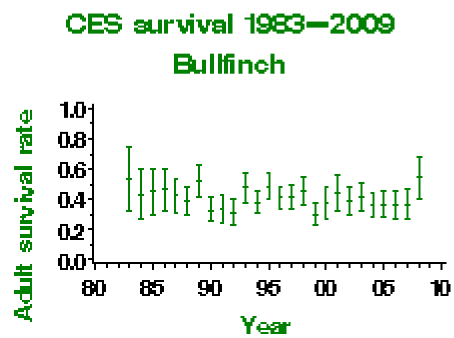












Additional information

- Maps and statistics from British and Irish atlases
- BirdFacts page on species biology
- BirdTrack results
- Garden BirdWatch results

YELLOWHAMMER
Emberiza citrinella

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: no SPEC category (concentrated in Europe, conservation status favourable)
UK: red (>50% population decline)
UK Biodiversity Action Plan: priority species

Long-term trend

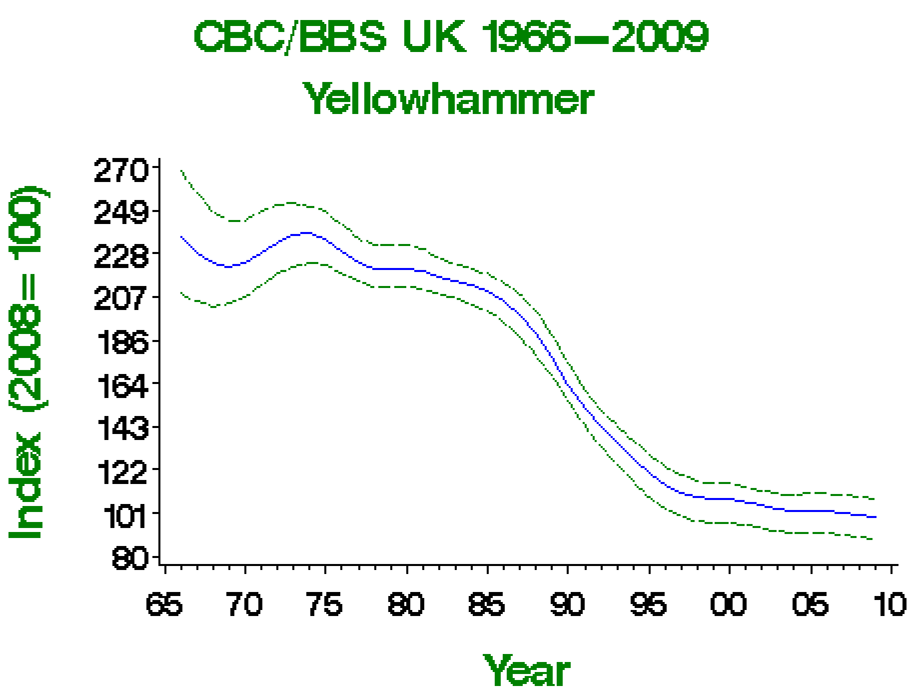
UK, England: rapid decline

UK population size

792,000 territories in 2000 (1988–91 Atlas estimate updated using CBC/BBS trend: **BiE04**, **APEP06**)

Status summary

Yellowhammer abundance began to decline on farmland in the mid 1980s and, except in Scotland, the decline has continued ever since. The species, listed as green in 1996, has been red listed since 2002. While there is some evidence that survival rates have decreased during the period of decline, Yellowhammer breeding performance has tended to improve (**Siriwardena *et al.* 1998b**, **2000b**). However, recent declines in clutch size, brood size and nest success are of NRS concern (**Leech & Barimore 2008**). The number of fledglings per breeding attempt rose until about 1990 but is now in decline. Overall nest failure rates are relatively high, probably because later nests, which tend to be more successful (**Kyrkos 1997**), are under-represented in the NRS data set, but this is unlikely to affect overall trends. Reductions in winter seed food availability as a result of agricultural intensification (for example, the loss of winter stubbles and a reduction in weed densities) are widely believed to have contributed to the population decline. **Gillings *et al.* (2005)** have identified better population performance in areas with extensive winter stubble, presumably because overwinter survival is relatively high. The local availability of winter setaside is a good predictor of sites chosen for breeding territories the next year (**Whittingham *et al*. 2005**). Numbers have shown widespread moderate decrease across Europe since 1980 (**PECBMS 2010**).



1967-2008: -56% (confidence interval -65% to -46%)

Population changes in detail

Table of population changes for Yellowhammer

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS UK	41	1967-2008	488	-56	-65	-46	>50	
	25	1983-2008	705	-53	-59	-48	>50	
	10	1998-2008	1204	-8	-13	-2		
	5	2003-2008	1245	-3	-8	2		
CBC/BBS England	41	1967-2008	428	-59	-68	-46	>50	
	25	1983-2008	618	-57	-63	-51	>50	
	10	1998-2008	1056	-14	-18	-11		
	5	2003-2008	1096	-10	-14	-7		
BBS UK	13	1995-2008	1136	-16	-22	-10		
	10	1998-2008	1179	-9	-14	-2		
	5	2003-2008	1245	-3	-9	3		
BBS England	13	1995-2008	991	-22	-26	-19		
	10	1998-2008	1031	-16	-20	-12		
	5	2003-2008	1093	-11	-15	-7		
BBS Scotland	13	1995-2008	99	13	-12	35		
	10	1998-2008	101	17	-5	41		
	5	2003-2008	107	22	2	43		
BBS Wales	13	1995-2008	37	-40	-55	-25	>25	

	10	1998-2008	38	-25	-44	-9	>25	
	5	2003-2008	36	-10	-28	8		

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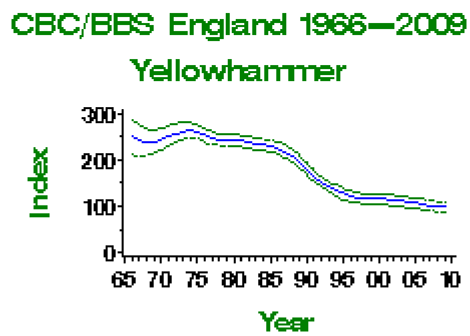
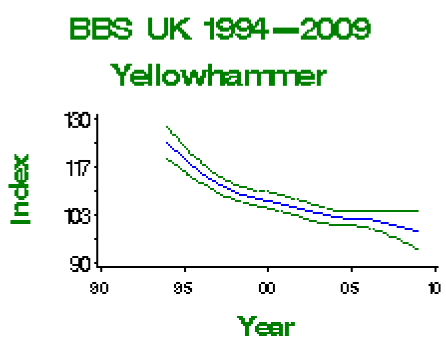
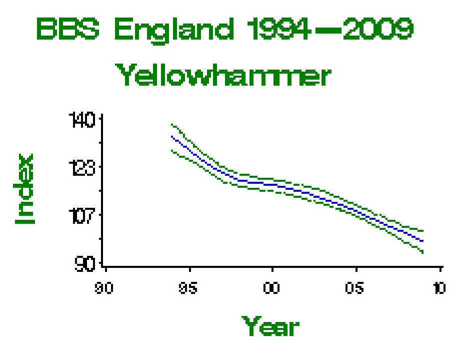
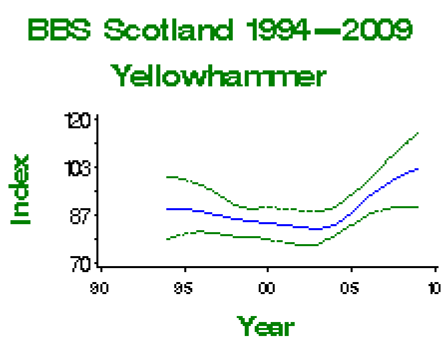
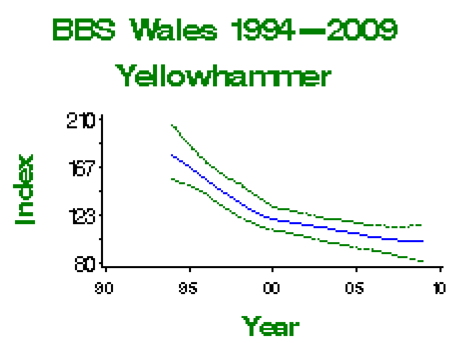


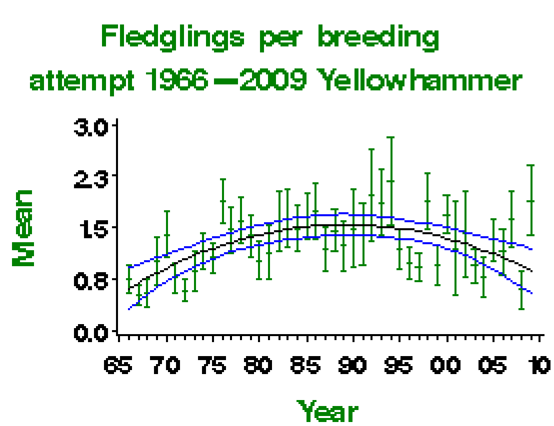


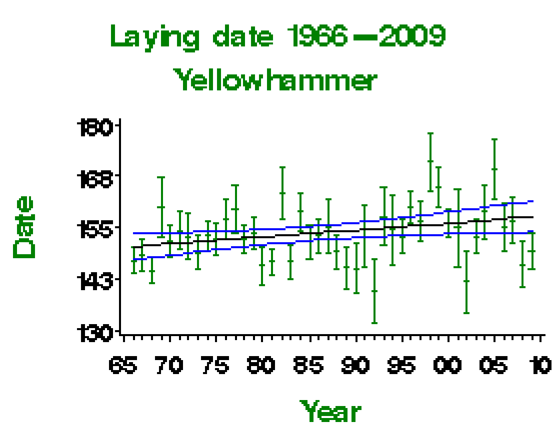






Demographic trends

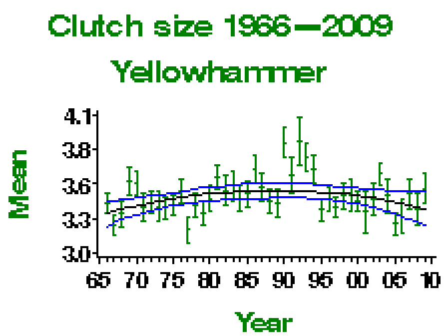


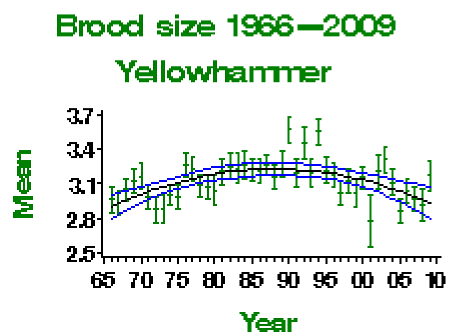


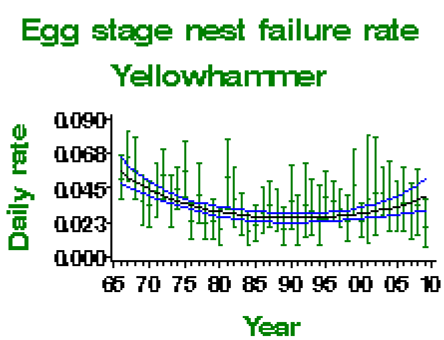
More on demographic trends

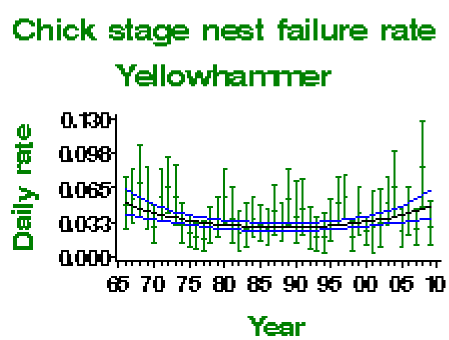
Table of demographic changes for Yellowhammer

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment
Fledglings per breeding attempt	40	1968-2008	28	Curvilinear	0.77 fledglings	0.94 fledglings	21.8%	
Clutch size	40	1968-2008	43	Curvilinear	3.35 eggs	3.38 eggs	0.8%	
Brood size	40	1968-2008	66	Curvilinear	2.96 chicks	2.97 chicks	0.3%	
Daily failure rate (eggs)	40	1968-2008	65	Curvilinear	4.95% nests/day	3.74% nests/day	-24.4%	
Daily failure rate (chicks)	40	1968-2008	51	Curvilinear	4.61% nests/day	4.54% nests/day	-1.5%	
Laying date	40	1968-2008	26	Linear increase	May 31	Jun 6	6 days	Small sample









Additional information

- Maps and statistics from British and Irish atlases
- BirdFacts page on species biology
- BirdTrack results
- Garden BirdWatch results

REED BUNTING
Emberiza schoeniclus

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe)
UK: amber (25–50% population decline to 2006)
UK Biodiversity Action Plan: click here, priority species

Long-term trend

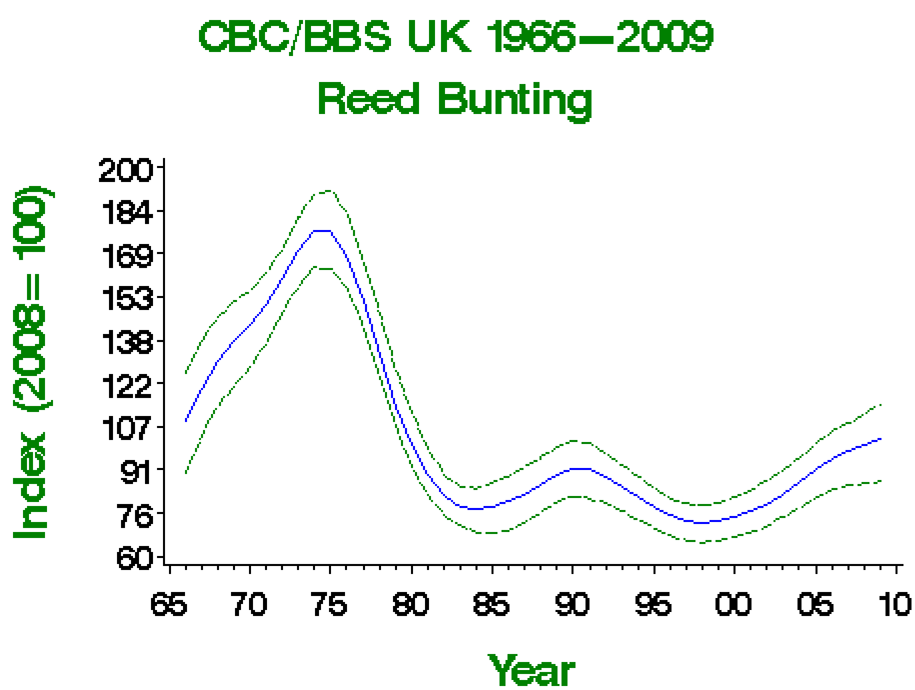
UK, England: probable shallow decline

UK population size

192,000–211,000 territories in 2000 (1988–91 Atlas estimate updated using CBC/BBS and WBS trends: **BiE04**, **APEP06**)

Status summary

Both CBC/BBS and WBS/WBBS indices declined rapidly during the 1970s, but Reed Bunting abundance subsequently remained remarkably stable. In recent years, results from BBS indicate significant population increase. The early increase in the CBC index was associated with a gradual spread into drier habitats, especially farmland, and it is likely that the subsequent decline was related to agricultural intensification. Detailed demographic analyses suggest that the decline was driven by decreasing survival rates and that a subsequent population recovery may have been prevented by increased nest losses (**Peach *et al.* 1999**). This is supported by a moderate decline in CES productivity and by a major increase in failure rates at the egg stage, which has raised NRS concern (**Leech & Barimore 2008**). There has been linear decline in numbers of fledglings per breeding attempt. Farmland densities are four times higher in oilseed rape than in cereals or setaside and this crop is crucial in reducing the dependency of the species on wetlands (**Gruar *et al.* 2006**). The initial decline placed Reed Bunting on the red list but in 2009, with evidence from BBS of some recovery in numbers, the species was moved from red to amber.



1967-2008: -17% (confidence interval -38% to 9%)

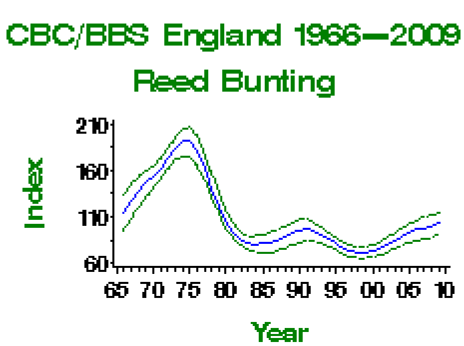
Population changes in detail

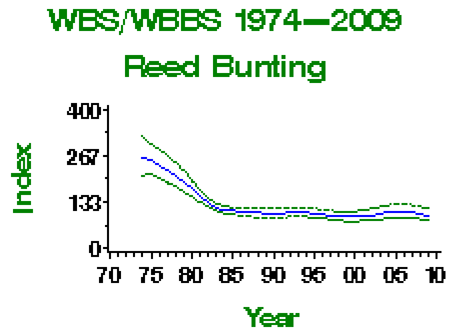
Table of population changes for Reed Bunting

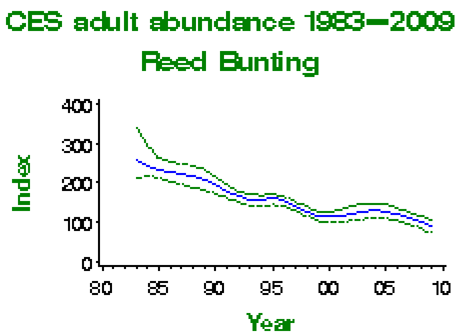
Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS UK	41	1967-2008	216	-17	-38	9		
	25	1983-2008	286	28	3	55		
	10	1998-2008	494	39	24	58		
	5	2003-2008	560	22	10	33		
CBC/BBS England	41	1967-2008	171	-21	-39	0		
	25	1983-2008	222	23	0	48		
	10	1998-2008	375	39	24	56		
	5	2003-2008	427	19	7	30		
WBS/WBBS waterways	33	1975-2008	81	-60	-74	-41	>50	
	25	1983-2008	92	-16	-35	11		
	10	1998-2008	145	8	-6	22		
	5	2003-2008	155	1	-7	12		
CES adults	24	1984-2008	58	-59	-72	-47	>50	
	10	1998-2008	66	-22	-34	-5		
	5	2003-2008	63	-22	-33	-11		
CES juveniles	24	1984-2008	44	74	-22	378		
	10	1998-2008	48	17	-12	58		
	5	2003-2008	48	-1	-22	26		

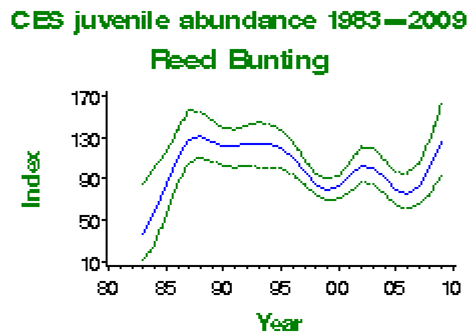
BBS UK	13	1995-2008	445	33	18	48		
	10	1998-2008	480	37	21	56		
	5	2003-2008	560	22	10	32		
BBS England	13	1995-2008	332	29	15	44		
	10	1998-2008	356	42	28	58		
	5	2003-2008	416	21	10	32		
BBS Scotland	13	1995-2008	54	58	12	118		
	10	1998-2008	58	49	-5	115		
	5	2003-2008	70	32	2	69		
BBS N.Ireland	13	1995-2008	31	12	-23	74		
	10	1998-2008	34	4	-27	55		
	5	2003-2008	40	4	-19	41		

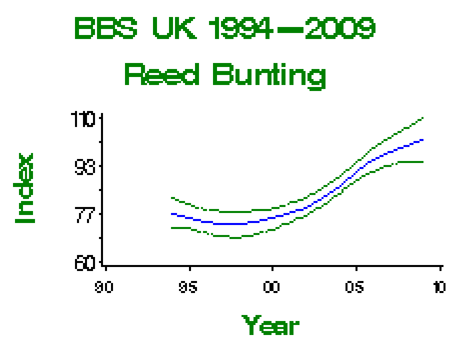
The Breeding Bird Survey is jointly funded by the BTO, JNCC & RSPB

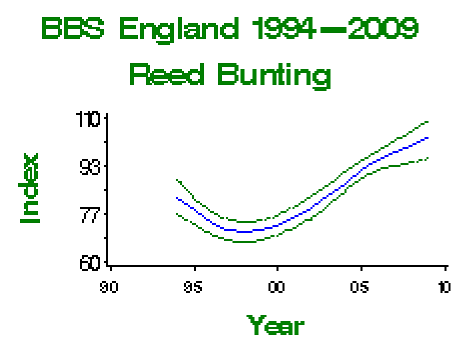


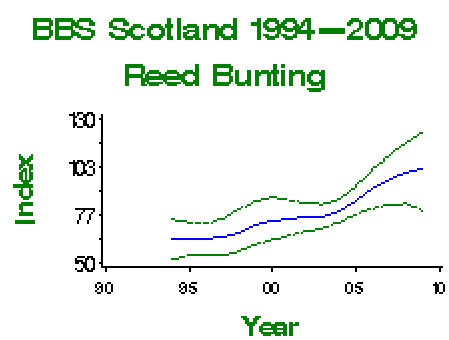


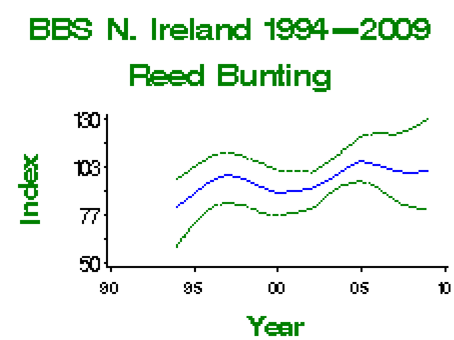




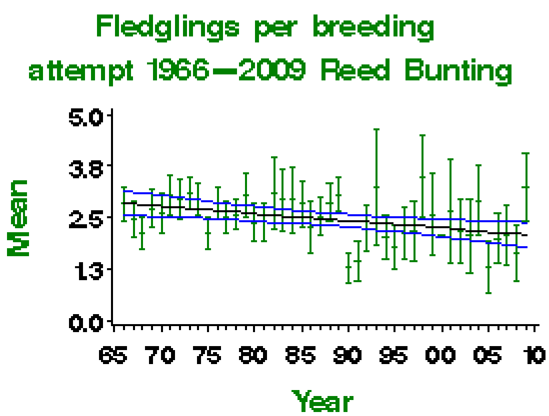


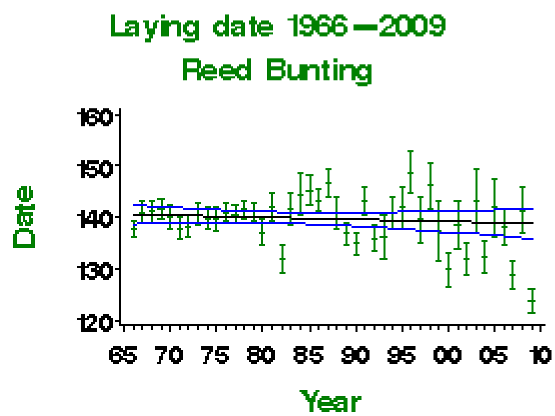






Demographic trends



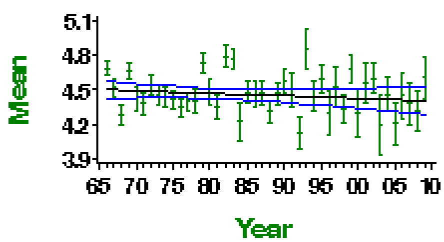


More on demographic trends

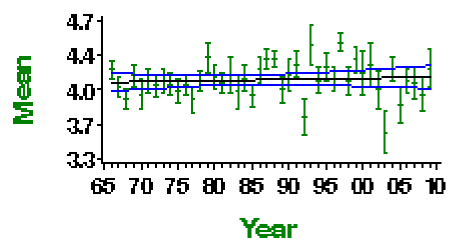
Table of demographic changes for Reed Bunting

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment
Fledglings per breeding attempt	40	1968-2008	28	Linear decline	2.82 fledglings	2.1 fledglings	-25.3%	
Clutch size	40	1968-2008	43	None				
Brood size	40	1968-2008	59	None				
Daily failure rate (eggs)	40	1968-2008	51	Linear increase	0.76% nests/day	2.67% nests/day	251.3%	
Daily failure rate (chicks)	40	1968-2008	51	Curvilinear	2.68% nests/day	3.51% nests/day	31%	
Laying date	40	1968-2008	47	None				
Juvenile to Adult ratio (CES)	24	1984-2008	61	Smoothed trend	190 Index value	100 Index value	-47% >25	
Juvenile to Adult ratio (CES)	10	1998-2008	70	Smoothed trend	119 Index value	100 Index value	-16%	
Juvenile to Adult ratio (CES)	5	2003-2008	67	Smoothed trend	113 Index value	100 Index value	-12%	

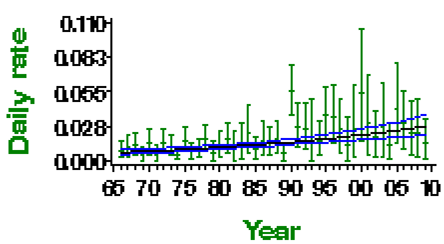
Clutch size 1966—2009
Reed Bunting



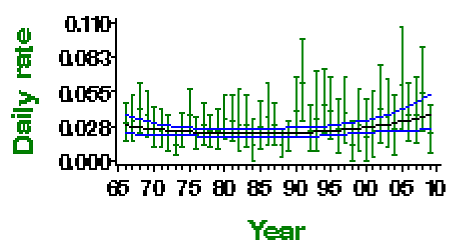
Brood size 1966—2009
Reed Bunting



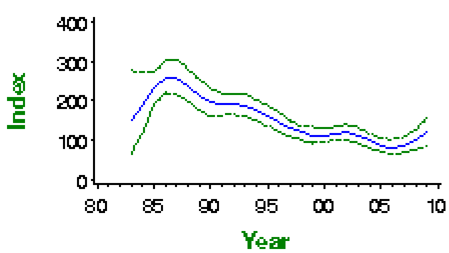
Egg stage nest failure rate
Reed Bunting



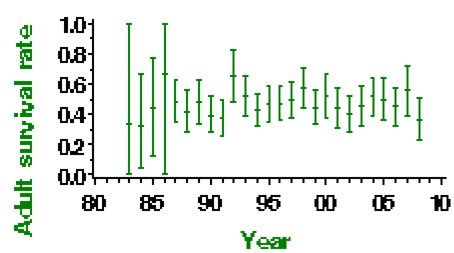
Chick stage nest failure rate
Reed Bunting



CES productivity 1983—2009
Reed Bunting



CES survival 1983—2009
Reed Bunting



Additional information

- Maps and statistics from British and Irish atlases
- BirdFacts page on species biology
- BirdTrack results
- Garden BirdWatch results

CORN BUNTING
Emberiza calandra

• Population changes • Productivity trends • Additional information

Conservation listings

Europe: SPEC category 2 (declining)
UK: red (>50% population decline, historical decline)
UK Biodiversity Action Plan: click here, priority species

Long-term trend

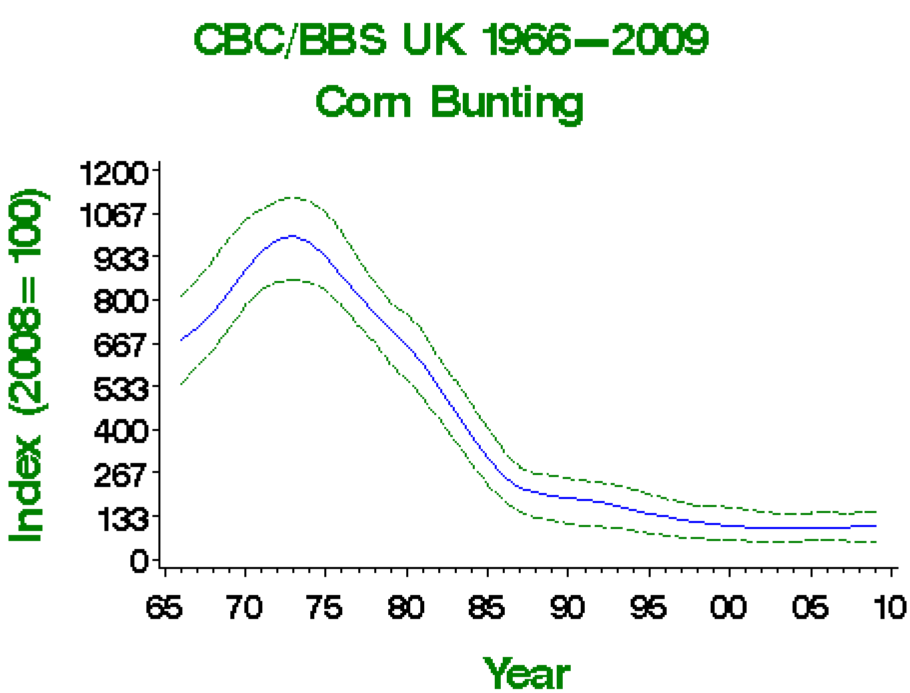
UK, England: rapid decline

UK population size

8,500–12,200 territories in 2000 (1988–91 Atlas estimate updated using CBC/BBS trend: **BiE04**, **APEP06**)

Status summary

Following an earlier, historical decrease, Corn Buntings declined very steeply between the mid 1970s and mid 1980s, with local extinctions across large sections of their former range. Subsequently the decline has continued, but at a much-reduced rate. Breeding performance per nesting attempt has increased considerably over this period (**Crick 1997**), but it is also reported that fewer birds now raise a second brood, thus reducing productivity overall (**Brickle & Harper 2002**). Brood size and nest survival at the chich stage are currently of NRS concern (**Leech & Barimore 2008**). Ring-recovery sample sizes do not permit an analysis of survival rates (**Siriwardena *et al.* 1998b**, **2000b**). Any decrease there has been in survival rates is probably a result of the reduction in winter seed availability that has followed from agricultural intensification (**Donald 1997**). The isolated Corn Bunting population on the Western Isles is still declining rapidly, probably because agricultural change has reduced the supply of winter grain (**Wilson *et al.* 2007**). Targeted restoration of lower-intensity cultivation, but without hedgerows, might help prevent further local extinctions (**Mason & Macdonald 2006**). Management interventions in eastern Scotland have known potential to halt, or perhaps reverse, the Corn Bunting decline there, but their implementation is being hampered by rising grain prices and the loss of set-aside (**Perkins *et al.* 2008**, **Watson *et al.* 2009**). Corn Buntings have declined rapidly across Europe since 1980 (**PECBMS 2010**) and have declined to extinction in Ireland (**Taylor & O'Halloran 2002**). With declines across much of its European range, this previously 'secure' species is now provisionally evaluated as 'declining' (**BirdLife International 2004**).



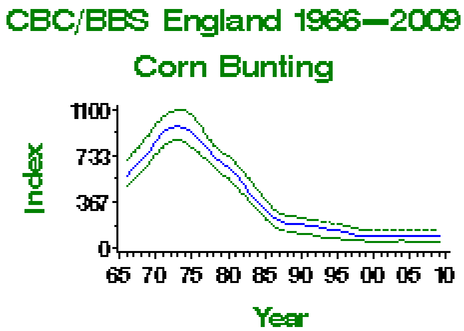
1967-2008: -86% (confidence interval -94% to -75%)

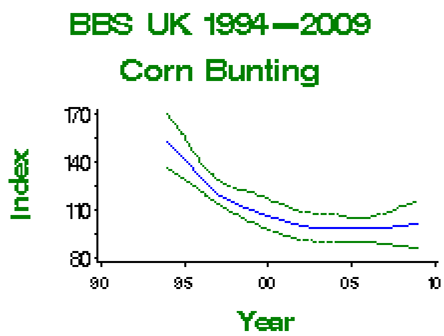
Population changes in detail

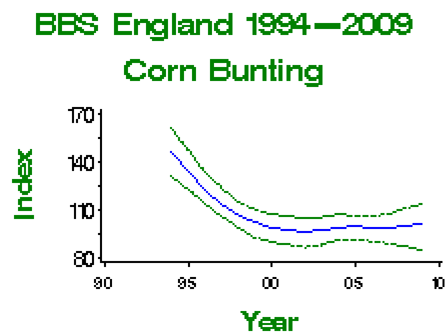
Table of population changes for Corn Bunting

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS UK	41	1967-2008	68	-86	-94	-75	>50	
	25	1983-2008	91	-78	-90	-62	>50	Small CBC sample
	10	1998-2008	141	-12	-31	4		
	5	2003-2008	140	2	-17	23		
CBC/BBS England	41	1967-2008	65	-84	-93	-73	>50	
	25	1983-2008	87	-77	-89	-62	>50	Small CBC sample
	10	1998-2008	136	-4	-22	15		
	5	2003-2008	134	2	-17	26		
BBS UK	13	1995-2008	142	-29	-43	-12	>25	
	10	1998-2008	138	-12	-28	6		
	5	2003-2008	140	2	-16	25		
BBS England	13	1995-2008	135	-25	-41	-9	>25	
	10	1998-2008	132	-6	-25	12		
	5	2003-2008	134	3	-16	23		

The Breeding Bird Survey is jointly funded by the BTO, JNCC & RSPB





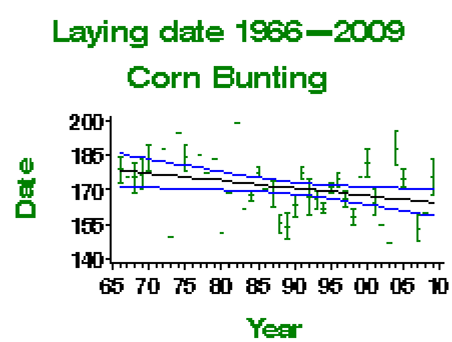


Demographic trends

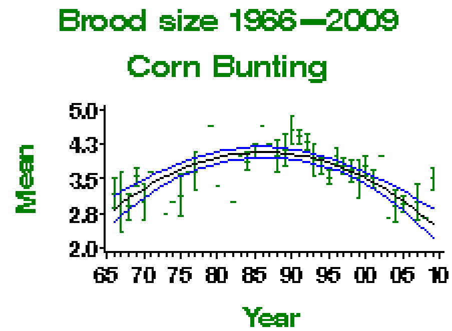
Table of demographic changes for Corn Bunting

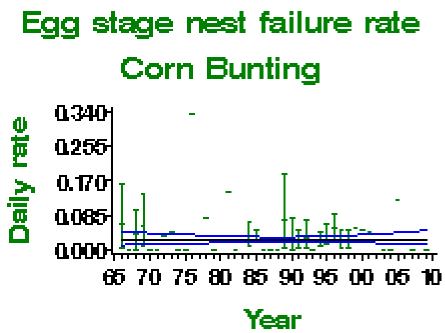
Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2008	Change	Comment
Brood size	40	1968-2008	11	Curvilinear	3.08 chicks	2.68 chicks	-13%	Small sample
Daily failure rate (eggs)	40	1968-2008	10	None				Small sample
Daily failure rate (chicks)	40	1968-2008	11	Linear decline	3.31% nests/day	0.92% nests/day	-72.2%	Small sample
Laying date	40	1968-2008	13	Linear decline	Jun 27	Jun 14	-13 days	Small sample

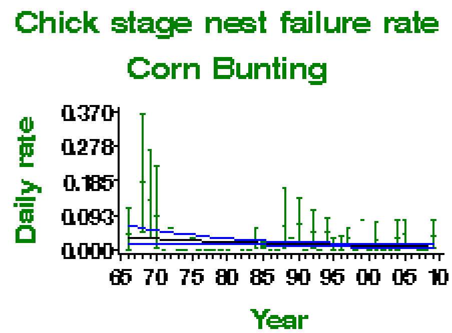
Insufficient data on fledglings per breeding attempt available for this species



Insufficient data on clutch size available for this species







Additional information

- **Maps and statistics from British and Irish atlases**
- **BirdFacts page on species biology**
- **BirdTrack results**

3. Help on species accounts

The 117 species in this report can be accessed in any order, but the species index and drop-down list use the taxonomic sequence established by the British Ornithologists' Union in its **British List** (although BTO has delayed implementing the latest set of changes). The vernacular and scientific names we use are also drawn from that list. Given this report's limited geographical scope, we use British rather than the international English names. Depending on the availability of data, the following will be found beneath each species heading:

1) ***Conservation listings:*** First, the European conservation category is given, according to current listings by BirdLife International in ***Birds in Europe*** (**BirdLife International 2004**). These update the original listings of **Tucker & Heath (1994)**. For SPECs (Species of European Conservation Concern), the European Threat Status is also given. The current SPEC categories are as follows:

SPEC 1	Species of global conservation concern, according to the latest assessments by BirdLife International (**www.birdlife.org/datazone/species/index.html**)
SPEC 2	Species with an unfavourable European conservation status, and with more than half of the global breeding or wintering population concentrated in Europe
SPEC 3	Species with an unfavourable European conservation status, but with less than half of the global breeding or wintering population within Europe

Other species, not considered to be of European conservation concern, and assessed as 'secure', have no SPEC category but are placed into two further groupings:

- Species with a favourable European conservation status, and with less than half of the breeding or wintering population within Europe (**Non-SPEC**)
- Species with a favourable European conservation status, but with more than half of the global breeding or wintering population concentrated in Europe (**Non-SPEC^{E}**)

The UK conservation listing, given next, is taken from *The Population Status of Birds in the UK* (**Eaton *et al.* 2009** (**BoCC3**); see **PSoB** pages). These assessments supersede two previous *Birds of Conservation Concern* listings (**Gibbons *et al.* 1996**, **Gregory *et al.* 2002**). There are three categories, as follows:

Red	high conservation concern
Amber	medium conservation concern
Green	all other species (except introduced species, which are not classified)

The main reason or reasons for listing as red or amber are also given. NB:

- SPEC 1 (globally threatened) species are automatically red listed, and SPEC 1 (near threatened), SPEC 2 or SPEC 3 species are amber listed (unless they are introduced or a red-list criterion applies)
- Red or amber listing may stem from decline, localisation or international importance of *non-breeding* as well as *breeding* populations in the UK
- Rates of population decline used to assess red and amber listing are generally derived from CBC/BBS results for the 25-year period 1981–2006 or for 1969–2006, and do not take more recent changes into account
- Range declines are generally calculated from the numbers of 10-km squares occupied in the 1968–72 and 1988–91 national **breeding atlases** (**Gibbons *et al.* 1993**) but make use of more recent material where available
- Historical decline (in UK over the period 1800–1995) is assessed by literature review

For the first time, **BoCC3** has undertaken to classify races, for polytypic species, where two or more races occur regularly in the UK. On occasion the listing for a race may differ from that for the species as a whole. These race-level assessments are given alongside those for species level in our species pages although, since our report is mainly about breeding birds in UK, we have omitted races that occur only as migrants or winter visitors.

Following the signing of the Convention on Biological Diversity at the 'Earth Summit' in Rio de Janeiro in 1992, the statutory conservation bodies in the UK compiled **Biodiversity Action Plans** (**BAPs**) for 26 rare or threatened bird species, of which 12 are covered by this report. A **BAP review** published in 2007 has concluded that 56 UK bird species now qualify for BAPs and has recommended that certain subspecies (e.g. Fair Isle and St Kilda Wrens) should now be included as BAP priorities. Our report covers 31 of those species.

Where a UK BAP exists, we give the link to the latest available version. For 'priority species', you will find an onward link to the relevant **JNCC priority species page**.

2) ***Long-term trend:*** This summarises the trend in population size since 1975 from WBS/WBBS data, 1984 from CES data, or 1967 from CBC/BBS, with reference to any CBC/BBS, WBS/WBBS or CES data that may be tabulated. If there are no data available from these schemes, any assessment of trends covers the period since about the mid 1960s, but may also take historical data into account. Increases and declines that are qualified as 'shallow', 'moderate' or 'rapid' are generally statistically significant. The following terms are used:

- **Rapid decline:** >50% population decline from CBC/BBS, WBS/WBBS or CES
- **Moderate decline:** 25–50% population decline from CBC/BBS, WBS/WBBS or CES
- **Shallow decline:** 10–25% population decline from CBC/BBS, WBS/WBBS or CES
- **Decline/Increase:** information has been derived from other sources
- **Probable/Possible increase/decline:** as above, but the information is not as certain - see the status summary for reasons
- **Stable/Fluctuating, with no long-term trend:** no overall change, or change <10%
- **Uncertain:** where the information from two monitoring schemes conflicts or if the data are unrepresentative of the species' total UK population
- **Unknown:** no information on the UK population trend is available
- **Shallow increase:** 10–50% population increase from CBC/BBS, WBS/WBBS or CES
- **Moderate increase:** 50–100% population increase from CBC/BBS, WBS/WBBS or CES
- **Rapid increase:** >100% population increase from CBC/BBS, WBS/WBBS or CES

3) ***UK population size:*** Periodic reports on population sizes of birds in Britain and in the UK, for the breeding season and for winter, are agreed by the Avian Population Estimates Panel (APEP), on which BTO, GCT, JNCC, RSPB and WWT are represented. Extracts from the Panel's second report (**Baker *et al.* 2006**) are given for each of our species, with a shortened reference (APEP06). The second edition of ***Birds in Europe*** (**BirdLife International 2004**) was published while APEP06 was in preparation. Their figures are also given, referenced as BiE04. The units and reference year (or period) is given for each estimate, and where possible its derivation is also described briefly or referenced. BiE04 and APEP06 estimates are usually identical, but may differ because:

- one or other has been updated to a new reference year
- the two publications apply different rules for inclusion of introduced species
- BiE04 but not APEP06 figures include the Channel Islands (but for most species this has no effect on the estimate)
- different methods of rounding or range estimation have sometimes been applied to the same original data
- sources used for BiE04, but not APEP06, included papers then in preparation

Information too recent to have been included in either of these publications is also given, pending ratification by APEP. Readers should note that the wide ranges given for many species reflect the considerable uncertainty that applies to all but a few of the current estimates. The application of distance sampling methods to BBS data (**Newson *et al.* 2005**, **2008**), or future surveys, including the current **2007–11 Atlas**, may well result in substantial challenge to the presently accepted figures.

4) ***Status summary:*** This section provides a brief summary of the trends detailed for the species and indicates why such changes might have occurred, with reference to any published information, if this is known.

5) ***Population trend graphs:*** The first, large graph shows the most representative long-term trend in abundance for the species, and is followed under the 'Population changes in detail' header by further graphs from other schemes, including BBS graphs for separate UK countries, as available. If no suitable long-term trend is available then the BBS trend for the UK is shown. **Methods (Section 2)** provides details about how the trend data are calculated for each scheme. For BBS, CBC/BBS, CBC, WBS/WBBS and CES, the graphs show a smoothed line (in blue) and its 85% confidence limits (in green); for the Heronries Census, annual estimates are shown in blue, 85% confidence limits in green, and a smoothed trend in red.

6) ***Population trends table:*** This table provides details of summarised percentage changes in population size, over the maximum period from each source, and from the past 25 years, 10 years and 5 years, where these figures are available. Further columns indicate the years included, the average number of census plots included in the analysis for each year, the percentage change (an increase if presented with no sign) and the upper and lower 90% confidence limits of that change. Where the confidence interval does not include zero change, population declines are regarded as statistically significant. The '**Alert**' column indicates where a statistically significant population decline is estimated to be of 50% or more (>50) or between 25% and 50% (>25) (see **Alerts, Section 2.8** for further details). The '**Comment**' column lists any caveats that must be considered when interpreting the estimates. The caveats include:

- **Small sample:** For CBC/BBS, WBS/WBBS and CES data, a mean sample size of less than 20 (but more than 10) census plots was available; for BBS data from individual countries, a mean sample of less than 40 (but more than 30) plots was available.

- **Unrepresentative?:** Where joint CBC/BBS trends are reported, the trends are always considered to be representative for the region concerned. The CBC data may inadequately represent the population as a whole. This judgment was made either because the species' average abundance in 10-km squares containing CBC plots was less than that in other occupied 10-km squares, as measured by Breeding Atlas timed counts or frequency indices (**Gibbons *et al.* 1993**), or, where these figures could not be calculated, on expert opinion.

7) ***Productivity graphs:*** Graphs from Constant Effort Sites Scheme or Nest Record Scheme data illustrate trends in productivity. For NRS data, annual means (averages) are shown in green, with error bars to denote �1 standard error; quadratic or linear regression lines (in black) and the upper and lower 95% confidence limits of these lines (in blue) are also shown. For CES data, the smoothed trends are plotted (in blue) with their 85% confidence limits (in green) (see **Section 2.6** for details). CES survival graphs, where available, also appear in this section. For these, annual estimates are shown, �1 standard error, but trends have not been assessed.

8) ***Productivity trends table:*** This provides details of changes in productivity since 1968 (or a more recent year, depending on the availability of data). It lists the period of years concerned, the mean annual sample, the type of trend ('curvilinear' is for a significant quadradic trend, 'linear' is for a significant linear trend, 'none' is where the linear trend is not significantly different from horizontal), the modelled values (from the appropriate regression) for the first and last years and their difference (where the trend is significant), and any caveats that must be considered when interpreting the data. Changes are presented either in the units given or as percentages, and are increases unless a minus sign is shown. The caveat '**Small sample**' is given when the mean number of nest record cards contributing annually was in the range 10–30, or when the mean annual number of CES plots recording the species was less than 20 (but more than 10).

9) ***Additional information:*** Provides links to atlas maps and tables from previous atlas surveys, and the relevant pages of BirdFacts, BirdTrack and Garden BirdWatch, as available, from the BTO web site. For a limited range of species, there are links to current results pages from Atlas 2007–11.

Tip: use the 'Species quick links' box at top of each page to navigate the species pages

Section 4 – Discussion

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4. Discussion

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4.1 The alert system

This report uses a standardised system for setting 'alerts' that has been agreed between the providers and users of population monitoring information in the UK. The system provides alerts to population declines of 25–50% and of >50% over short, medium and longer terms (5 years, 10 years and 25+ years respectively). These help to highlight the scale and timing of declines, and act as an aid to interpreting the trend graphs presented. Our main emphasis is on long-term declines measured over the longest period available (usually 41 years) and over 25 years, which is one of the periods used to determine red and amber listing (**Eaton *et al.* 2009**). Alerts triggered over the short term for individual species should be considered as early warnings, indicating that conservation issues may be developing for these species. However, it is possible that such declines may be due to chance fluctuations in abundance from which the population is able to recover without assistance. The rapid, short-term decline of a suite of species of similar ecology should be considered as a stronger indication that potential problems may be developing. Details of the alerts and methodology used in this report are given in the **methods section**.

These alerts are therefore important for conservation practitioners who need to set priorities for conservation action, but we hope that they will also prove of interest to more general readers of the report. Similar **alerts for wetland birds** are provided by the Wetland Bird Survey (**Thaxter *et al.* 2010**).

In this discussion we:

1) Review the latest population change measures and alerts for species that are on the **Birds of Conservation Concern (BoCC3) red or amber** lists for the UK for reasons of population decline (**Eaton *et al.* 2009**).

2) Identify species not on the **BoCC3** lists but which raise alerts on account of long-term declines, and currently listed species where recovery may be sufficient to downgrade their listing status in the future.

3) Briefly review declines along waterways and in scrub and wetland habitats as shown by the WBS/WBBS and CES schemes.

4) Review trends over the last 10 years in species that have shown long-term declines, to identify the extent of ongoing declines and check for any evidence of recovery.

5) Identify those species that have shown rapid long-term population increases.

6) Discuss patterns of changes in breeding performance and relationships between trends in abundance and breeding performance.

7) Summarise the overall patterns found.

Except where otherwise indicated, our discussion is based on the best long-term trend that is available for each species. These are the trends presented as the main trend graph for each species. Details of estimating and comparing trends are given in the **methods section**. Full details of all trends available for each species are given on the **species pages**. Summary tables of all alerts raised by each scheme are presented in the **appendices**.

It should be noted that a number of species included in the **BoCC3** red and amber lists are not covered by this report, and that not every species listed amber is in UK decline. Thus tables relating to red or amber list status do not include every species so listed.

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4.2 Latest long-term alerts

Where this section discusses conservation-listed species, it uses the now-current version of these lists, introduced in 2009 and abbreviated as **BoCC3**. The full paper (**Eaton *et al.* 2009**) details the criteria by which each listed species qualifies for its red or amber status. All of the red-listed species that breed in the UK satisfy criteria for UK decline, but amber-listed birds may be listed for other reasons (see **Help on species accounts**).

4.2.1 Long-term trends of PSoB red-listed species

The species considered in this section are **red-listed** wholly or partly because of severe UK population declines revealed by annual census data, amounting to more than 50% either over the 25-year period 1981–2006 or, in four cases (**Skylark**, **Song Thrush**, **Marsh Tit** and **Linnet**), over the 37-year period 1969–2006. The latest long-term population changes and alerts for these severely declining species are shown in Table 4.2.1, over the maximum period available (usually the 41 years 1967–2008) and over 25 years (1983–2008). The table thus provides updates to the figures that were used to produce the current **BoCC3** red list.

The 19 species in Table 4.2.1 are listed in descending order of longest-term percentage change. **Tree Sparrow** heads the table once again, despite significant increases in numbers recorded by BBS over the shorter term. The figures for **Lesser Spotted Woodpecker** are likely to be a very large underestimate of the current population change, because the species had by 1999 become too rare for further annual monitoring.

For **Linnet**, **Marsh Tit** and **Skylark**, the latest 25-year change is less than 50%, indicating that, while these species meet red-list criteria for long-term change, their recent rate of decline has been lower overall than for most other red-listed birds. On the data we present here, **Song Thrush** fails to meet any red-list criteria, but by only a narrow margin: its 25-year trend is effectively stable. The 25-year trend for **Lapwing** is a significant decline of 50% but, as for **Lesser Spotted Woodpecker**, data quality does not allow us to be 90% confident that a decline occurred over the longer period.

Table 4.2.1 Latest trends for red-listed species

Species	Period (yrs)	Source	Change (%)	Lower limit	Upper limit	Alert	Comment
Tree Sparrow	41	CBC/BBS England	-97	-99	-93	>50	
Tree Sparrow	25	CBC/BBS England	-87	-95	-77	>50	
Grey Partridge	41	CBC/BBS UK	-90	-93	-86	>50	
Grey Partridge	25	CBC/BBS UK	-77	-83	-69	>50	
Turtle Dove	41	CBC/BBS UK	-89	-93	-83	>50	
Turtle Dove	25	CBC/BBS UK	-84	-89	-79	>50	
Lesser Redpoll	41	CBC/BBS England	-89	-96	-75	>50	
Lesser Redpoll	25	CBC/BBS England	-94	-97	-88	>50	
Willow Tit	41	CBC/BBS UK	-88	-94	-76	>50	
Willow Tit	25	CBC/BBS UK	-85	-91	-75	>50	
Spotted Flycatcher	41	CBC/BBS UK	-87	-92	-81	>50	
Spotted Flycatcher	25	CBC/BBS UK	-80	-87	-73	>50	
Tree Pipit	41	CBC/BBS England	-86	-93	-73	>50	
Tree Pipit	25	CBC/BBS England	-86	-92	-79	>50	
Corn Bunting	41	CBC/BBS UK	-86	-94	-75	>50	
Corn Bunting	25	CBC/BBS UK	-78	-90	-62	>50	
Starling	41	CBC/BBS England	-85	-89	-80	>50	

Starling	25	CBC/BBS England	-79	-82	-74	>50	
Yellow Wagtail	41	CBC/BBS UK	-77	-90	-55	>50	
Yellow Wagtail	25	CBC/BBS UK	-74	-85	-58	>50	
Linnet	41	CBC/BBS England	-76	-82	-70	>50	
Linnet	25	CBC/BBS England	-41	-53	-28	>25	
Marsh Tit	41	CBC/BBS UK	-71	-79	-60	>50	
Marsh Tit	25	CBC/BBS UK	-41	-55	-28	>25	
House Sparrow	31	CBC/BBS England	-71	-78	-61	>50	
House Sparrow	25	CBC/BBS England	-52	-63	-39	>50	
Skylark	41	CBC/BBS England	-61	-68	-55	>50	
Skylark	25	CBC/BBS England	-39	-45	-32	>25	
Lesser Spotted Woodpecker	31	CBC to 1999	-60	-81	40		Small sample
Lesser Spotted Woodpecker	25	CBC to 1999	-73	-86	-31	>50	Small sample
Cuckoo	41	CBC/BBS UK	-58	-69	-43	>50	
Cuckoo	25	CBC/BBS UK	-58	-64	-51	>50	
Yellowhammer	41	CBC/BBS UK	-56	-65	-46	>50	
Yellowhammer	25	CBC/BBS UK	-53	-59	-48	>50	
Song Thrush	41	CBC/BBS UK	-48	-56	-38	>25	
Song Thrush	25	CBC/BBS UK	-5	-17	10		
Lapwing	41	CBC/BBS UK	-31	-60	14		
Lapwing	25	CBC/BBS UK	-50	-62	-34	>50	

See **PSoB** pages for information on red and amber criteria

4.2.2 Long-term trends of declining amber-listed species

There are 40 amber-listed species that are included in this report, of which about half (19 species) are listed because of UK population declines over the periods 1981–2006 or 1969–2006. Long-term trends are available from annual census data for 13 of these species, which are listed in Table 4.2.2 in descending order of longest-term percentage change (normally over the 41 years 1967–2008). Where available the 25-year change (1983–2008) is also shown.

Table 4.2.2 Latest trends for declining amber-listed species

Species	Period (yrs)	Source	Change (%)	Lower limit	Upper limit	Alert	Comment
Redshank	33	WBS/WBBS waterways	-65	-89	-36	>50	
Redshank	25	WBS/WBBS waterways	-63	-84	-46	>50	
Whitethroat	41	CBC/BBS UK	-62	-72	-48	>50	
Whitethroat	25	CBC/BBS UK	93	59	137		
House Martin	41	CBC/BBS England	-61	-89	29		
House Martin	25	CBC/BBS England	-66	-92	97		
Willow Warbler	41	CBC/BBS England	-60	-70	-45	>50	
Willow Warbler	25	CBC/BBS England	-61	-68	-54	>50	
Meadow Pipit	41	CBC/BBS England	-49	-74	-25	>25	
Meadow Pipit	25	CBC/BBS England	-39	-58	-21	>25	
Mistle Thrush	41	CBC/BBS UK	-47	-55	-37	>25	
Mistle Thrush	25	CBC/BBS UK	-39	-44	-32	>25	
Bullfinch	41	CBC/BBS UK	-47	-58	-36	>25	
Bullfinch	25	CBC/BBS UK	-19	-31	-8		
Little Grebe	33	WBS/WBBS waterways	-39	-69	18		
Little Grebe	25	WBS/WBBS waterways	-28	-56	13		

Common Sandpiper	33	WBS/WBBS waterways	-38	-53	-27	>25	
Common Sandpiper	25	WBS/WBBS waterways	-39	-50	-27	>25	
Curlew	41	CBC/BBS England	-35	-77	21		
Curlew	25	CBC/BBS England	-26	-64	13		
Dunnock	41	CBC/BBS UK	-34	-43	-21	>25	
Dunnock	25	CBC/BBS UK	5	-6	17		
Grey Wagtail	33	WBS/WBBS waterways	-26	-42	-10	>25	
Grey Wagtail	25	WBS/WBBS waterways	53	26	77		
Reed Bunting	41	CBC/BBS UK	-17	-38	9		
Reed Bunting	25	CBC/BBS UK	28	3	55		

See **PSoB** pages for information on red and amber criteria

Three species raise high alerts, having shown significant declines of greater than 50%. **Whitethroat** shows a massive decline over the 41-year period, since this includes the extraordinary population crash that occurred between 1968 and 1969, but the 25-year period has seen a partial reversal of this decrease. English **Willow Warblers** meet the red-list criterion for population decline, but it is likely that the overall UK decline has been less severe: Scottish and Welsh trends are less clear, but show shallow declines over the ten-year period to 2008. **Redshank** has declined steeply in lowland Britain, according to waterways surveys, raising high alerts; a major decline is also documented for its breeding sites on saltmarsh, and BBS data show that decline has occurred recently across a wide range of habitats. Our best estimate of long-term change in the English **House Martin** population also shows a decline of more than 50%, but statistically it is not significantly different from no change and therefore no alerts are raised for this species. This species is best regarded as data deficient, but may possibly be a future candidate for red listing. BBS data indicate that its numbers have been changed little since 1994, however.

Bullfinch was moved from the red to the amber list at the 2009 review. Its 41-year trend is only marginally below the red-list threshold, but the 25-year trend, although significant, is not large enough to raise any alert. **Common Sandpiper**, **Meadow Pipit** and **Mistle Thrush** continue to meet amber-list decline criteria in both periods. Data for **Little Grebe** and **Curlew** suggest a similar overall rate of decline but should be treated with caution, as the confidence intervals are very wide. For **Little Grebe** there is poor agreement since 1994 between WBS/WBBS data and BBS, which may cover a more representative set of habitat types for this species: BBS results show a non-significant increase.

Populations of **Dunnock**, **Grey Wagtail** and **Reed Bunting** are recovering and show stable or increasing trends over the shorter, 25-year period. **Reed Bunting** now shows only a shallow decline over the 41-year period and has ceased to raise any alerts for population decline.

4.2.3 Long-term declines of species that are not currently red or amber listed (for declines)

This section of the report draws attention to declines which apparently surpass red or amber criteria but which are not recognised in the current listings. Even though a review of the red and amber lists took place in 2009, there are a few species that remain in this category (Table 4.2.3).

Table 4.2.3 Long-term trends for declining species not on the red or amber list (for declines)

Species	Period (yrs)	Source	Change (%)	Lower limit	Upper limit	Alert	Comment
Snipe	33	WBS/WBBS waterways	-93	-99	-78	>50	Small sample
Snipe	25	WBS/WBBS waterways	-94	-98	-86	>50	Small sample
Woodcock	31	CBC to 1999	-74	-88	-49	>50	Small sample
Woodcock	25	CBC to 1999	-76	-88	-51	>50	Small sample
Little Owl	41	CBC/BBS UK	-50	-69	-22	>25	
Little Owl	25	CBC/BBS UK	-54	-67	-39	>50	

Dipper	33	WBS/WBBS waterways	-31	-47	-12	>25	
Goldcrest	25	CBC/BBS England	-26	-41	-2	>25	

See **PSoB** pages for information on red and amber criteria

The WBS/WBBS trend for **Snipe** is based now on a very small sample of plots, the species having deserted so many of its former riverside haunts, and was not presented in our previous report. It is currently amber-listed solely because it is a Species of European Conservation Concern (SPEC category 3) through its moderate decline on the European scale (**BiE04**). There is ample evidence, however, that its breeding range has contracted sharply, especially in lowland England.

Similarly, **Woodcock** is currently amber-listed solely because it is a Species of European Conservation Concern (SPEC category 3) through its moderate decline on the European scale (**BiE04**). The only UK census data indicating a trend are from CBC, which recorded steep declines. Samples were small, however, and the CBC's mapping method was not well suited to monitoring this species: for these reasons, the CBC trend is no longer used to support the species' conservation listing.

Little Owl meets amber-list criteria for population decline but, as an introduced species, is not eligible for any conservation listing. Although the trends are statistically significant, it should be borne in mind that neither CBC nor BBS field techniques cater well for nocturnal and crepuscular species.

Fluctuations in the UK **Dipper** population since 1974 appear to be underlain by decrease. The current estimate of long-term change clearly raises an alert but decrease over the 25-year period has been moderate and not statistically significant. The UK **Goldcrest** population has historically shown very wide fluctuations but is currently at a relatively low level, marginally raising an alert in England for the 25-year period.

4.2.4 Declines along linear waterways

The **Waterways Bird Survey** and **Waterways Breeding Bird Survey** supplement the results from CBC and BBS, which are more broadly-based surveys, by measuring trends in bird populations alongside rivers and canals. Joint WBS/WBBS trend are now available, allowing trend assessment to be continuous since 1974 for up to 25 species that were covered by WBS. WBBS, ongoing since 1998, includes all bird species but WBBS trends for species are presented here only for waterway-specialist species, for which joint WBS/WBBS trends are available. A full set of up-to-date WBS/WBBS trends can be obtained from the **Table generator** section of this report.

For several species, such as **Canada Goose**, **Goosander** and **Kingfisher**, that are abundant in waterway habitats, the WBS/WBBS trend provides our headline information on population trends. For **Redshank**, **Little Grebe**, **Common Sandpiper**, **Grey Wagtail**, **Snipe** and **Dipper**, which are also in this category and are in decline, details appear in Tables 4.2.2 or 4.2.3, as appropriate. Where WBS/WBBS is not the headline trend for a species, however, the waterways data nevertheless provide valuable supplementary information from this sensitive habitat.

Table 4.2.4 lists all statistically significant declines of greater than 25% recorded from the full period of waterway monitoring (nominally 1975–2008). It does not include Little Grebe, for which the decline is not statistically significant (Table 4.2.2). Four species are included for which WBS/WBBS is not the headline trend and so are not listed in Tables 4.2.2 or 4.2.3.

Table 4.2.4 Population declines of greater than 25% recorded by the Joint Waterways Bird Survey (WBS/WBBS) between 1975 and 2008

Species	Period (yrs)	Source	Change (%)	Lower limit	Upper limit	Alert	Comment
Yellow Wagtail	33	WBS/WBBS waterways	-96	-99	-92	>50	
Snipe	33	WBS/WBBS waterways	-93	-99	-78	>50	Small sample

Redshank	33	WBS/WBBS waterways	-65	-89	-36	>50	
Pied Wagtail	33	WBS/WBBS waterways	-64	-72	-55	>50	
Reed Bunting	33	WBS/WBBS waterways	-60	-74	-41	>50	
Sedge Warbler	33	WBS/WBBS waterways	-40	-60	-19	>25	
Common Sandpiper	33	WBS/WBBS waterways	-38	-53	-27	>25	
Dipper	33	WBS/WBBS waterways	-31	-47	-12	>25	
Grey Wagtail	33	WBS/WBBS waterways	-26	-42	-10	>25	

The trends for **Yellow Wagtail** and **Reed Bunting** are consistent in direction with the 41-year trends reported from CBC/BBS, but in each case the declines on waterways have been more severe. For Reed Bunting, recovery along waterways has also been weaker than in the countryside as a whole. The **Pied Wagtail** declines along waterways, which are significant in all the periods assessed, are intriguing because they contrast markedly with the fluctuating but generally upward trend as measured by CBC/BBS. The cause of the decline along waterways is currently unknown.

For **Sedge Warbler**, the headline trend is a non-significant 41-year decrease of 21% from CBC/BBS. Large fluctuations make trends difficult to determine in this species, but the WBS/WBBS data add firmer evidence for a long-term moderate decrease.

A full set of alerts raised by WBS/WBBS, and long-term increases detected by that index, are tabulated in **Appendix 7.2**.

4.2.5 Declines on CES plots

The **Constant Effort Sites Scheme** provides trends from standardised ringing in scrub and wetland habitats. It is possibly our best scheme for monitoring some bird populations inhabiting reed beds but its main objective is to collect integrated data on relative abundance, productivity and survival for a suite of species. The longest trends currently available from the CES cover a period of 24 years (Table 4.2.5).

Table 4.2.5 Population declines of greater than 25% recorded by the Constant Effort Sites Scheme between 1984 and 2008

Species	Period (yrs)	Source	Change (%)	Lower limit	Upper limit	Alert	Comment
Linnet	24	CES adults	-95	-99	-86	>50	Small sample
Willow Warbler	24	CES adults	-67	-74	-60	>50	
Lesser Whitethroat	24	CES adults	-64	-81	-47	>50	
Reed Bunting	24	CES adults	-59	-72	-47	>50	
Willow Tit	24	CES adults	-49	-85	-5	>25	Small sample
Sedge Warbler	24	CES adults	-45	-61	-28	>25	
Whitethroat	24	CES adults	-42	-62	-25	>25	
Reed Warbler	24	CES adults	-40	-52	-23	>25	

Most of the species that are declining on CES sites show broadly similar trends to those from CBC/BBS or WBS/WBBS data. **Linnet** and **Willow Tit** are red listed on the strength of their CBC/BBS declines (Table 4.2.1). Similarly, **Willow Warbler**, **Reed Bunting**, and **Whitethroat** are amber listed.

For reasons unknown, CES trends for **Lesser Whitethroat**, **Sedge Warbler** and **Reed Warbler** are considerably more negative than those from census data. Both CBC/BBS and WBS/WBBS show strong increases for **Reed Warbler**, in clear contrast to the CES data.

A full set of alerts raised by CES, and long-term increases detected by that scheme, are tabulated in **Appendix 7.3**.

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4.3 Ten-year trends and evidence for species recovery

If the status of species that have shown long-term declines were now improving, we would expect to find trends to be more positive in recent years than in the earlier part of the time series. To examine this, we list in Table 4.3.1 the best change estimates over the most recent ten-year period for which we have data (1998–2008) for all of the declining species listed in Tables 4.2.1–4.2.3 (**section 4.2**).

The table also includes seven further species which are listed in **BoCC3** because of recent breeding decline, for which we can report ten-year trends but which lack monitoring series covering longer periods. These are **Grasshopper Warbler** and **Wood Warbler** (both red listed), and **Red Grouse**, **Swift**, **Nightingale**, **Whinchat**, and **Pied Flycatcher** (all amber listed).

Species are listed in ascending order of population change. Thus the species with the steepest recent decline appear first, followed by those with shallower change. Towards the foot of the table are species that remain in long-term decline but have shown partial recovery of those losses during the recent ten-year period. For **Lesser Spotted Woodpecker** and for **Woodcock**, both now too scarce for annual monitoring to continue, the ten-year period for which data are tabulated is 1989–99.

The 44 species listed include 21 from the red list, 18 declining species that are amber listed on account of population declines and five species (**Snipe**, **Woodcock**, **Little Owl**, **Dipper** and **Goldcrest**) whose declines, for reasons explained in **section 4.2**, are not recognised by either red or amber listing. Of these, **Snipe** and **Woodcock** are already amber listed because they are Species of European Conservation Concern (SPEC category 3) through their moderate declines on the European scale (**BiE04**).

Table 4.3.1 Ten year trends for species that have shown long-term declines

Species	Period (yrs)	Source	Change (%)	Lower limit	Upper limit	Alert	Comment
Willow Tit	10	CBC/BBS UK	-65	-74	-50	>50	
Turtle Dove	10	CBC/BBS UK	-64	-70	-58	>50	
Snipe	10	WBS/WBBS waterways	-53	-80	-30	>50	
Nightingale	10	BBS England	-53	-66	-34	>50	
Whinchat	10	BBS UK	-52	-65	-34	>50	
Lesser Spotted Woodpecker	10	CBC to 1999	-51	-75	-22	>50	Small sample
Redshank	10	WBS/WBBS waterways	-49	-62	-31	>25	
Wood Warbler	10	BBS UK	-45	-63	-22	>25	
Pied Flycatcher	10	BBS UK	-45	-59	-26	>25	
Yellow Wagtail	10	CBC/BBS UK	-43	-52	-33	>25	
Woodcock	10	CBC to 1999	-40	-62	-11	>25	Small sample
Starling	10	CBC/BBS England	-39	-42	-35	>25	
Grey Partridge	10	CBC/BBS UK	-38	-48	-31	>25	
Cuckoo	10	CBC/BBS UK	-34	-39	-29	>25	
Spotted Flycatcher	10	CBC/BBS UK	-32	-47	-11	>25	
Tree Pipit	10	CBC/BBS England	-30	-47	-10	>25	
Willow Warbler	10	CBC/BBS England	-30	-34	-25	>25	
Little Owl	10	CBC/BBS UK	-27	-37	-16	>25	

Lesser Redpoll	**10**	**CBC/BBS England**	**-25**	**-50**	**25**		
Red Grouse	**10**	**BBS UK**	**-25**	**-35**	**-13**		
Linnet	**10**	**CBC/BBS England**	**-24**	**-29**	**-19**		
Swift	**10**	**BBS UK**	**-23**	**-30**	**-16**		
Curlew	**10**	**CBC/BBS England**	**-22**	**-30**	**-15**		
Common Sandpiper	**10**	**WBS/WBBS waterways**	**-20**	**-31**	**-8**		
Dipper	**10**	**WBS/WBBS waterways**	**-19**	**-30**	**-6**		
Marsh Tit	**10**	**CBC/BBS UK**	**-17**	**-27**	**-4**		
Mistle Thrush	**10**	**CBC/BBS UK**	**-15**	**-20**	**-10**		
Corn Bunting	**10**	**CBC/BBS UK**	**-12**	**-31**	**4**		
House Sparrow	**10**	**CBC/BBS England**	**-12**	**-17**	**-8**		
Skylark	**10**	**CBC/BBS England**	**-10**	**-13**	**-6**		
Yellowhammer	**10**	**CBC/BBS UK**	**-8**	**-13**	**-2**		
Grasshopper Warbler	**10**	**BBS UK**	**-7**	**-29**	**10**		
Meadow Pipit	**10**	**CBC/BBS England**	**-6**	**-17**	**6**		
House Martin	**10**	**CBC/BBS England**	**-4**	**-12**	**5**		
Lapwing	**10**	**CBC/BBS UK**	**-3**	**-13**	**8**		
Little Grebe	**10**	**WBS/WBBS waterways**	**-1**	**-27**	**53**		
Goldcrest	**10**	**CBC/BBS England**	**2**	**-6**	**19**		
Bullfinch	**10**	**CBC/BBS UK**	**5**	**-4**	**11**		
Whitethroat	**10**	**CBC/BBS UK**	**13**	**6**	**18**		
Dunnock	**10**	**CBC/BBS UK**	**19**	**15**	**24**		
Grey Wagtail	**10**	**WBS/WBBS waterways**	**23**	**9**	**36**		
Song Thrush	**10**	**CBC/BBS UK**	**24**	**18**	**29**		
Tree Sparrow	**10**	**CBC/BBS England**	**32**	**11**	**71**		
Reed Bunting	**10**	**CBC/BBS UK**	**39**	**24**	**58**		

See **PSoB** pages for information on red and amber criteria

As indicated at the top of Table 4.3.1, there is high confidence that the populations of both **Willow Tit** and **Turtle Dove** have halved in the last ten years alone (1998–2008). In all, six species crossed the threshold of a 50% decline during the ten years. A further 12 also continue to raise alerts, having declined significantly by more than 25% (but less than 50%) in this ten-year period. All these declines compound earlier losses for these species. The ongoing declines of so many of the species listed in Table 4.3.1 must be a cause of serious conservation concern. Two (**Lesser Spotted Woodpecker** and **Woodcock**) have provided very little monitoring data during the ten-year period, their populations having dropped to so low a level.

The 25% threshold which is used to define decreases over the 25-year period that are worthy of amber listing equates to a change of 10.9% over ten years, assuming a constant rate of change. Rounding this to 11%, a decrease of 11% or greater indicates that, on the last ten years' results, the species is still on course for red or amber listing. A more positive change than -11% indicates that the population decline may be easing off. Species that have declined in the longer term but with a change smaller than 11%, or no measurable population change, over the ten-year period are **Skylark**, **Yellowhammer**,**Grasshopper Warbler**, **Meadow Pipit**, **House Martin**, **Lapwing**, **Little Grebe**, **Goldcrest** and **Bullfinch**.

Six species at the foot of the table show clear positive trends over the last ten years. Despite its recent increase, the long-term decline of **Whitethroat** was recognised in 2009 by the move of the species from the green to the amber list. Whitethroat numbers have increased steadily since the mid 1980s but are still far below the population level prior to their population crash in 1968/69 . **Tree Sparrow** and **Song Thrush** remain on the red list, and **Dunnock** and **Grey Wagtail** on the amber list, because their recent increases also represent only a small recovery from earlier losses. The increase in Tree Sparrow numbers is very welcome but is coming from such a low level that numbers remain far below those of the mid 1970s, with the population trend graph still showing little sign of a clear recovery. Because of its recent steep upturn, however, **Reed Bunting** was moved in 2009 from the red to the amber list.

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4.4 Increasing species

Population changes of species for which our best trend estimate from CBC/BBS (usually over 41 years) or from WBS/WBBS (usually over 33 years) shows an increase of more than 50% are shown in Table 4.4.1, below. There are 27 species listed: this is one fewer than last year, with **Goldcrest** now qualifying for Table 4.2.3 instead (declining species not red or amber listed). Seventeen of the 27 species have more than doubled their population size over the periods under review. **Wren** and **Magpie** no longer fall into this category, with their percentage increases having dropped marginally below 100%.

The fastest-increasing species in this report are, however, not included in Table 4.4.1, because their monitoring data cover too short a period. All three species with the fastest rates of increase are introduced. The population of **Ring-necked Parakeet** is estimated to have risen by almost 700% (an eightfold increase) over the 13 years 1995–2008, and that of **Greylag Goose** (a native species, long re-established, but now spreading) by 410% over the 15-year period 1993–2008. Both of these are more conservation problems than successes, however. An unmitigated success is the growth of the reintroduced **Red Kite**, now estimated through BBS at 418% during 1995–2008. **Cetti's Warbler**, which has increased by 244% over the recent ten-year period, is the fastest-growing species in this report that has not benefited from introduction.

Four groups stand out among the increasing species: corvids – **Carrion Crow**, **Magpie** and **Jackdaw**; doves – **Collared Dove**, **Stock Dove** and **Woodpigeon**; insectivores; and some waterbirds. Corvids appear to have benefited from the decrease of predator control by gamekeepers in recent years, and the increased use of brassica crops (particularly oilseed rape) has probably been beneficial to the larger doves.

The majority of increasing insectivores are woodland species that are also common in gardens: **Great Spotted Woodpecker**, **Green Woodpecker**, **Nuthatch**, **Blackcap**, **Great Tit**, **Wren**, **Long-tailed Tit** and **Coal Tit**. The reasons for these increases are presently unclear. **Pied Wagtail** has increased in numbers by 72% on CBC/BBS plots over 41 years, but declined by 64% on WBS/WBBS plots over the past 33 years. The former survey is likely to be more representative of the UK population as a whole. **Reed Warbler**, also an insectivore, has been expanding its range northwards and westwards and might be benefiting from climate change.

Table 4.4.1 Long-term population increases of greater than 50% from CBC/BBS (1967-2008) or WBS/WBBS (1975-2008) using the best survey for each species

Species	Period (yrs)	Source	Change (%)	Lower limit	Upper limit	Alert	Comment
Buzzard	41	CBC/BBS England	606	359	1525		
Collared Dove	36	CBC/BBS UK	403	206	649		
Great Spotted Woodpecker	41	CBC/BBS UK	386	251	700		
Shelduck	31	CBC to 1999	300	94	787		Small sample
Mute Swan	41	CBC/BBS UK	230	48	641		
Green Woodpecker	41	CBC/BBS England	217	147	369		
Canada Goose	27	WBS/WBBS waterways	179	34	972		
Nuthatch	41	CBC/BBS UK	178	98	303		
Mallard	41	CBC/BBS UK	166	108	239		
Stock Dove	41	CBC/BBS England	160	77	304		
Woodpigeon	41	CBC/BBS UK	160	20	501		
Blackcap	41	CBC/BBS UK	157	110	217		
Sparrowhawk	33	CBC/BBS England	152	58	304		
Carrion Crow	41	CBC/BBS England	119	74	176		

Tufted Duck	33	WBS/WBBS waterways	111	-16	295		
Great Tit	41	CBC/BBS UK	109	86	137		
Reed Warbler	41	CBC/BBS UK	104	31	347		
Jackdaw	41	CBC/BBS UK	103	23	228		
Long-tailed Tit	41	CBC/BBS England	98	49	185		
Magpie	41	CBC/BBS UK	98	57	152		
Wren	41	CBC/BBS UK	98	77	120		
Coot	33	WBS/WBBS waterways	92	22	230		
Pheasant	41	CBC/BBS England	92	57	169		
Goosander	27	WBS/WBBS waterways	82	13	236		
Oystercatcher	33	WBS/WBBS waterways	74	36	163		
Pied Wagtail	41	CBC/BBS UK	72	27	157		
Coal Tit	41	CBC/BBS UK	59	2	168		

A number of species associated with freshwater habitats are becoming more abundant, although differences between their ecological requirements make it unlikely that a common causal factor is involved. For **Mallard**, the CBC/BBS increase was matched by a WBS/WBBS increase of 207% over 33 years. The long-term increases recorded for **Mute Swan** on both CBC/BBS and WBS/WBBS plots are likely to be the result of banning the use of lead weights by anglers, which took effect in 1986. **Shelduck**, **Canada Goose**, **Tufted Duck**, **Coot** and **Goosander** are other wildfowl among this report's increasing species. **Oystercatchers** have increased by 74% on WBS/WBBS plots over the last 33 years. This finding is consistent with the results of the most recent survey of **Breeding Waders of Wet Meadows** which found that numbers of Oystercatchers using these habitats in England and Wales increased by 51% between 1982 and 2002 (**Wilson *et al.* 2005**). **Grey Heron** is not listed in Table 4.4.1 because it is covered by a separate survey that spans a much longer period. The population of this species is not increasing as fast as the species listed in the table, with only a 18% increase over the last 25 years. Nevertheless this population has undergone a sustained increase of 57% over the last 79 years (1929–2008).

Two widespread raptors have shown remarkable recoveries from low population levels caused by pesticides in the 1950s and 1960s, assisted by a relaxation of predator control. **Buzzards** increased by a remarkable 606% between 1967 and 2008, with a rapid increase of 85% over the last ten years alone. **Sparrowhawks**, too scarce for CBC to monitor until the mid 1970s, showed a 152% increase over the 33-year period from 1975 to 2008. However, their recovery appears to have been completed earlier than the **Buzzard**'s, with the population having been relatively stable since the early 1990s.

While **Pheasant** has a place in this table, its increase has been driven largely by the hugely increasing scale of releases for shooting, from which the corvids may also have benefited.

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4.5 Changes in breeding performance

Changes in a range of aspects of breeding performance can be measured under the **Nest Record Scheme** (NRS) and the **Constant Effort Sites** (CES) scheme. The NRS provides information on components of breeding performance per nesting attempt (clutch size, brood size and failure rates at the egg and nestling stages) that can be combined to give an overall estimate of the number of Fledglings produced Per Breeding Attempt (FPBA) – see **section 2.7** for further information. The CES scheme provides an index of breeding performance accrued over all nesting attempts in a particular year – see **section 2.6**. CES results also take changes in the survival rates of fledglings in the first few months after leaving the nest into account, a period when losses of young can be high.

Breeding performance may be influenced by a variety of factors, including food availability, predation pressure and weather conditions. Variation in breeding performance may help to influence fluctuations in abundance and may even be the main demographic factor responsible for determining the size of the population. Conversely, the breeding performance of a population may be negatively related to its size, with productivity decreasing as the number of individuals increases, and vice versa. This relationship may be due to the action of density-dependent factors, such as competition for resources: as numbers increase, competition for resources is likely to increase, possibly resulting in poorer productivity. Alternatively, increases in abundance may be accompanied by range expansion into new, suboptimal habitats where breeding performance is poorer, thus reducing the average productivity of the population. The converse is also true, and where declines result from the loss of individuals from these suboptimal habitats, there may be a subsequent increase in average productivity.

4.5.1 Changes in Fledglings Per Breeding Attempt from Nest Record Scheme data

The NRS started collating nest histories of individual breeding attempts in 1939 and sufficient data are available for trends to be produced from the mid 1960s onwards. Previous reports have explored annual variation in clutch size, brood size and stage-specific nest failure rates, and the summary tables for these breeding parameters can all be found in **section 7.5**. While detailed exploration of annual variation in productivity is essential if the impacts of environmental factors on breeding success are to be fully understood, the combined effects of concurrent changes in the number of offspring and failure rates can be difficult to interpret. These measures are therefore integrated into a single figure representing the mean number of young leaving each nest in a given year, termed Fledglings Per Breeding Attempt (FPBA; **Siriwardena *et al.* 2000b**, **Crick *et al.* 2003**).

All species displaying significant temporal trends in the mean number of FPBA are included in Table 4.5.1; trends in the individual reproductive parameters are summarised in **section 7.5**. In total, 32 species exhibited significant trends in FPBA, of which ten were negative over the past 20 years or more, indicating that reproductive output has decreased over time, including four BoCC red-listed species (**Nightjar**, **Spotted Flycatcher**, **Linnet**, **Yellowhammer**), four amber-listed species (**Dunnock**, **Willow Warbler**, **Bullfinch**, **Reed Bunting**) and two green-listed species (**Great Tit**, **Chaffinch**). While productivity of **Nightjar**, **Willow Warbler**, **Great Tit**, **Linnet** and **Reed Bunting** has been falling consistently for the past 40 years, trends for the other five species are curvilinear, increasing between the mid 1960s and mid 1980s and decreasing thereafter.

There is increasing evidence that lower trophic levels are responding to climatic change more rapidly than those towards the top of the food chain (**Visser & Both 2005**, **Thackeray *et al.* 2010**) Resulting mismatches in the relative timing of food availability and offspring, referred to as phenological disjunction, can have severe impacts on breeding success and ultimately on population trends (**Both *et al.* 2009**). Long-distance migrants are thought to be particularly susceptible, due to their later arrival on the breeding grounds and the energetic demands of their journey northwards, which may constrain their ability to advance their laying dates (**Rubolini *et al.* 2010**).

The model species most frequently used in European studies are **Great Tit** and **Pied Flycatcher**, which are both dependent on a relatively short period of caterpillar availability to provide food for their nestlings. As springs have become warmer, oak leafing dates have advanced – a shift matched by caterpillars (**Buse *et al.* 1999**) but not by tits (**Visser *et al.* 1998**) or flycatchers (**Both *et al.* 2009**), leading to declines in productivity. Contrary to predictions, the NRS data set provides no evidence for a decline in **Pied Flycatcher** productivity at a national scale. A recent study in the Netherlands found that responses to disjunction may vary spatially, with the negative effects exacerbated in more seasonal habitats where the window of prey availability is smaller (**Both *et al.* 2010**), and regional variation in breeding success at sites across the UK is currently being investigated.

The results presented in this report indicate that **Great Tit** productivity has decreased significantly (Table 4.5.1), however, as has that of **Chaffinch**, another woodland insectivore heavily reliant on Lepidoptera larvae to provision its offspring. While phenological disjunction may be responsible for this decline, we cannot currently exclude the possibility that increases in abundance of both species are increasing levels of intraspecific competition, resulting in a fall in mean per capita reproductive output.

As insectivorous long-distance migrants, **Nightjar**, **Willow Warbler** and **Spotted Flycatcher** are also vulnerable to climate related shifts in food availability, although none is as dependent on individual species of invertebrate as tits or **Pied Flycatchers**. In addition, recent declines in the number of aerial insects (**Shortall *et al.* 2009**), particularly moths (**Conrad *et al.* 2006**), have been reported across the UK and these may also impact on the productivity of nesting attempts of **Nightjar**, **Willow Warbler** and **Spotted Flycatcher** by reducing food availability for both parents and offspring. All three species may also be experiencing negative impacts of climate change in their African wintering grounds, where reduced rainfall could lead to a fall in insect abundance and a subsequent loss of condition, resulting in a lower reproductive output in the following spring (**Saino *et al.* 2004**).

Declining food availability may also be an issue for the other species displaying negative trends in FPBA. Reduced access to winter stubbles due to changes in farming practices has been linked to declines in survival rates of **Reed Bunting** and **Yellowhammer**, resulting in population declines (**Siriwardena *et al.* 1998b**, **Peach *et al.* 1999**, **Siriwardena *et al.* 2000b**). If adults of these species and of other stubble feeders such as **Linnet** are in poorer condition at the start of the breeding season, their investment in reproduction may be reduced. Investigations into **Linnet** declines using BTO data sets have indicated that population declines observed for this species are driven by a fall in productivity (**Siriwardena *et al.* 1999**, **2000b**). Causes of declines in the breeding success, and indeed the population declines, of **Dunnock** and **Bullfinch** are still unclear despite a significant number of demographic studies (**Siriwardena *et al.* 1998a**, **1999**, **2000b**, **2001**, **Proffitt *et al.* 2004**). A general decline in the quality of scrub and woodland habitats, possibly mediated at least in part by browsing by increasing numbers of deer (**Fuller *et al.* 2005**), may have reduced the availability both of food and of high-quality nesting sites.

Increases in egg-stage failure rate are evident across nine of the ten species exhibiting negative FPBA trends (Table 7.5.3), the exception being **Great Tit**, which has experienced a linear decline in the incidence of clutch failures since the mid 1960s. If increasing predation pressure is responsible for driving these trends, then one might predict that a cavity nester such as **Great Tit** would be less severely affected, although it has experienced a recent increase in chick-stage failure rates, along with **Dunnock**, **Spotted Flycatcher**, **Linnet**, **Bullfinch**, **Reed Bunting** and **Yellowhammer**. While there is good evidence to suggest that corvids, **Sparrowhawks** and Grey Squirrels are all increasing in number and that these species may have a negative influence on avian abundance at a very localised scale (e.g. **Groom 1993**, **Stoate & Szczur 2001**, **2006**), previous studies have failed to find any evidence of a significant impact at a national scale (**Gooch *et al.* 1991**, **Thomson *et al.* 1998**, **Chamberlain *et al.* 2009**, **Newson *et al.* 2009**). Further research into the impacts of nest predators on population trajectories, at a variety of spatial scales, is urgently required.

Increasing human activity in the wider countryside, resulting from a growing population, could also increase disturbance levels, which could in turn influence the rates of predation and desertion. A recent investigation of **Nightjar** productivity suggested that nest failure is most likely in areas heavily frequented by walkers and dogs (**Langston *et al.* 2007**).

Table 4.5.1 Significant trends in Fledglings per breeding attempt measured between 1968-2008

Species	Period (yrs)	Mean annual sample	Trend	Predicted in first year	Predicted in last year	Change	Comment
Nightjar	40	13	Linear decline	1.45 fledglings	0.66 fledglings	-0.79 fledglings	Small sample
Reed Bunting	40	28	Linear decline	2.82 fledglings	2.1 fledglings	-0.72 fledglings	Small sample
Great Tit	40	149	Linear decline	6.02 fledglings	5.38 fledglings	-0.64 fledglings	

Willow Warbler	40	32	Linear decline	3.48 fledglings	3.01 fledglings	-0.47 fledglings	
Linnet	40	70	Linear decline	2.73 fledglings	2.33 fledglings	-0.4 fledglings	
Chaffinch	40	57	Curvilinear	1.64 fledglings	1.46 fledglings	-0.18 fledglings	
Spotted Flycatcher	40	55	Curvilinear	2.53 fledglings	2.35 fledglings	-0.18 fledglings	
Bullfinch	40	18	Curvilinear	1.38 fledglings	1.32 fledglings	-0.06 fledglings	Small sample
Dunnock	40	58	Curvilinear	1.71 fledglings	1.72 fledglings	0.01 fledglings	
Yellowhammer	40	28	Curvilinear	0.77 fledglings	0.94 fledglings	0.17 fledglings	Small sample
Reed Warbler	40	74	Linear increase	2.38 fledglings	2.8 fledglings	0.42 fledglings	
Skylark	40	23	Linear increase	1.05 fledglings	1.49 fledglings	0.44 fledglings	Small sample
Stock Dove	40	58	Curvilinear	1.09 fledglings	1.54 fledglings	0.45 fledglings	
Buzzard	40	21	Curvilinear	1.16 fledglings	1.66 fledglings	0.5 fledglings	Small sample
Kestrel	40	38	Curvilinear	3.06 fledglings	3.6 fledglings	0.54 fledglings	
House Sparrow	40	50	Curvilinear	2.34 fledglings	2.88 fledglings	0.54 fledglings	
Sedge Warbler	40	25	Linear increase	3.11 fledglings	3.69 fledglings	0.58 fledglings	Small sample
Tawny Owl	40	53	Linear increase	1.37 fledglings	1.96 fledglings	0.59 fledglings	Nocturnal species
Merlin	40	23	Curvilinear	3.02 fledglings	3.64 fledglings	0.62 fledglings	Small sample
Pied Wagtail	40	46	Linear increase	3.01 fledglings	3.65 fledglings	0.64 fledglings	
Grey Wagtail	40	27	Linear increase	2.6 fledglings	3.31 fledglings	0.71 fledglings	Small sample
Robin	40	77	Linear increase	1.89 fledglings	2.71 fledglings	0.82 fledglings	
Dipper	40	55	Linear increase	2.33 fledglings	3.24 fledglings	0.91 fledglings	
Sparrowhawk	40	24	Linear increase	2.82 fledglings	3.75 fledglings	0.93 fledglings	Small sample
Tree Sparrow	40	137	Linear increase	2.77 fledglings	3.7 fledglings	0.93 fledglings	
Jackdaw	40	34	Linear increase	1.89 fledglings	2.83 fledglings	0.94 fledglings	
Nuthatch	40	21	Linear increase	4.47 fledglings	5.42 fledglings	0.95 fledglings	Small sample
Long-tailed Tit	40	19	Linear increase	2.02 fledglings	3.05 fledglings	1.03 fledglings	Small sample
Starling	40	62	Linear increase	2.86 fledglings	4.17 fledglings	1.31 fledglings	
Redstart	40	34	Linear increase	3.81 fledglings	5.29 fledglings	1.48 fledglings	
Carrion Crow	40	24	Linear increase	1.87 fledglings	3.39 fledglings	1.52 fledglings	Includes Hooded Crow
Magpie	40	32	Curvilinear	1.16 fledglings	3.19 fledglings	2.03 fledglings	

See **Help** for help with interpretation

4.5.2 Changes in productivity from Constant Effort Scheme ringing data

The CES started monitoring populations in 1983, so the changes in productivity shown in Table 4.5.2 cover roughly half the time period of the Nest Record Scheme results. The CES data set is unique in providing relative measures of adult abundance and productivity from the same set of sites in wetland and scrub habitats. While the NRS data set monitors the productivity of individual nesting attempts, the proportion of juveniles in the CES catch provides a relative measure of annual variation in productivity that integrates the effects of the number of fledglings produced per attempt, number of nesting attempts and immediate post-fledging survival. Use of these two techniques in combination provides a powerful method of determining which factors are responsible for observed declines in recruitment of young birds into the breeding population.

Overall, eight species exhibit significant declines in the proportion of juveniles captured (Table 4.5.2), with the apparent productivity of **Sedge Warbler**, **Blue Tit** and **Goldfinch** falling by 50% or more over the last 25 years. A further five species show reductions in relative productivity of between 30% and 50%: **Blackbird, Song Thrush**, **Garden Warbler**, **Great Tit** and **Reed Bunting**. Productivity declines in **Reed Bunting** and **Great Tit** have also been identified using the NRS data set, suggesting that these trends may be driven by declines in the productivity of individual attempts rather than by changes in the number of breeding attempts made or in post-fledging survival rates.

Although several of these species (**Song Thrush**, **Sedge Warbler** and **Reed Bunting**) have experienced significant population declines, either on CES sites or more widely (based on CBC/BBS figures), previous analyses suggest that in all three cases falling survival rates are likely to have been a more important contributor to population changes than falling productivity (**Peach *et al.* 1991**, **1995a**, **1999**, **Robinson et al. 2004**, **Baillie et al. 2009**).The five other species (**Blackbird**, **Garden Warbler**, **Great Tit**, **Blue Tit** and **Goldfinch**) demonstrating marked reductions in productivity on CES sites have not experienced related declines in abundance, either on CES sites or more widely. These productivity declines may be driven by density-dependent processes, whereby increased competition for resources in an expanding population reduces the mean breeding success per pair.

One species, **Chaffinch**, displayed a significant increase in productivity, with the reproductive output per adult almost doubling over the last 25 years. The marked difference between this trend and the decline in productivity identified by analyses of the NRS data set requires further investigation, but it may be that changes in post-juvenile survival over time are responsible. Two species, **Nightingale** and **Lesser Redpoll**, previously included in the CES analyses were dropped form the list this year as they are no longer caught in sufficient numbers to permit accurate calculation of productivity trends.

Table 4.5.2 Changes in productivity indices (percentage juveniles) for CES 1984-2008 (24 years) calculated from smoothed trend

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Comment
Goldfinch	24	35	-66	-86	-16	
Sedge Warbler	24	71	-56	-73	-37	
Blue Tit	24	102	-50	-60	-36	
Reed Bunting	24	61	-47	-71	-5	
Garden Warbler	24	78	-43	-62	-11	
Song Thrush	24	90	-41	-58	-22	
Blackbird	24	101	-33	-50	-15	
Great Tit	24	101	-30	-48	-0	
Chaffinch	24	84	101	12	260	

See **Help** for help with interpretation

4.5.3 Changes in average laying dates from Nest Record Scheme data

Over the past 25 years, many species have exhibited a trend towards progressively earlier clutch initiation (**Crick *et al.* 1997**) with laying dates showing curvilinear responses over the past 50 years as spring temperatures have cooled and then warmed (**Crick & Sparks 1999**). Table 4.5.3 confirms that since the mid-1960s, the majority of species exhibiting significant trends show an advancement of laying dates rather than a delay. Thus 39 species are laying between five and 30 days earlier, on average, than they were 40 years ago. The efforts of volunteer inputters enabled long-term laying date trends for **Pied Flycatcher** to be produced for the first time last year. It is interesting to note that, while the results of previous studies predict laying date advancement to be more constrained in long-distance migrants (**Both *et al.* 2009**, **Rubolini *et al.* 2010**), the magnitude of the laying date shift in both **Pied Flycatcher** and **Redstart** (11 days and 12 days respectively), is greater than that displayed by **Blue** and **Great Tits** (8 days). However, the mean laying date of the migrant species is still approximately a fortnight later than that of the residents. No taxonomic or ecological associations are apparent and a wide range of species demonstrate trends of a similar magnitude (**Crick *et al.* 1997**).

The significance of the changes in phenology for breeding performance not well understood but has stimulated a large number of scientific studies, including several ongoing projects at BTO. Earlier average laying may be beneficial for birds because earlier fledging is often related to improved survival to the following year – early-nesting parents have an increased chance of having their offspring recruited into the next generation (**Visser *et al.* 1998**). However, the timing of leaf emergence and the speed of caterpillar development is also changing under increased temperatures (**Buse *et al.* 1999**, **Visser & Holleman 2001**) and the results of several recent studies have suggested that some birds may be unable to advance their phenology sufficiently to match phenological changes in their food supply, such that later-nesting birds are suffering from poorer productivity. **Both *et al.* (2006)** demonstrated that mismatches between periods of food availability and chick demand can affect abundance in Dutch **Pied Flycatcher** populations, with those demonstrating the largest mismatches between arrival in spring and peak caterpillar abundance exhibiting the greatest declines. As a consequence of climate change there may be an increasing mismatch between predator activities and the availability of their food supplies at different trophic levels within ecosystems (**Both *et al*. 2009**). The conservation significance of such phenological disjunction remains an active research area with potentially important policy implications for conservation.

Only two species, **Skylark** and **Yellowhammer**, exhibit significant trends towards later laying. A recent collaboration between BTO and Aberdeen University used NRS data to identify an increase in the frequency of repeat brooding in **Yellowhammers** (**Cornulier *et al.* 2009**) which, as mean laying dates are calculated across all broods, would result in the observed shift. Increased production of repeat broods could be stimulated by climatic amelioration, with later nests being more productive in warmer conditions, or by movement of populations away from farmland and into habitats where they are released from constraints on multiple brooding. Previous research into multiple brooding in **Skylark** populations has demonstrated that increased planting of autumn-sown cereals has restricted the potential for repeat nesting attempts (**Chamberlain & Siriwardena 2000**), but this species may also increasingly have moved to alternative habitats.

It is likely that the laying dates of the majority of those species that do not show a significant trend in timing of laying are also related to weather, but that their weather-mediated cues do not show any trend over time (**Crick & Sparks 1999**).

Table 4.5.3 Significant trends in Laying date measured between 1968-2008

Species	Period (yrs)	Mean annual sample	Trend	Predicted in first year	Predicted in last year	Change	Comment
Grey Heron	40	26	Linear decline	Apr 8	Mar 9	-30 days	Non-breeders include
Magpie	40	34	Linear decline	Apr 24	Mar 25	-30 days	
Long-tailed Tit	40	47	Linear decline	Apr 21	Apr 6	-15 days	
Greenfinch	40	93	Linear decline	May 25	May 10	-15 days	
Chiffchaff	40	47	Linear decline	May 16	May 3	-13 days	
Carrion Crow	40	30	Curvilinear	Apr 16	Apr 3	-13 days	Includes Hooded Crow
Corn Bunting	40	13	Linear decline	Jun 27	Jun 14	-13 days	Small sample
Redstart	40	61	Curvilinear	May 21	May 9	-12 days	
Pied Flycatcher	40	179	Linear decline	May 21	May 10	-11 days	
Nuthatch	40	28	Linear decline	May 2	Apr 21	-11 days	Small sample
Stonechat	40	37	Curvilinear	May 3	Apr 23	-10 days	
Blackcap	40	37	Curvilinear	May 20	May 10	-10 days	
Treecreeper	40	13	Linear decline	May 7	Apr 27	-10 days	Small sample
Goldfinch	40	22	Linear decline	Jun 7	May 28	-10 days	Small sample
Lesser Redpoll	40	11	Curvilinear	May 26	May 16	-10 days	Small sample
Swallow	40	120	Curvilinear	Jun 20	Jun 11	-9 days	
Tree Pipit	40	19	Linear decline	May 25	May 16	-9 days	Small sample
Dipper	40	61	Linear decline	Apr 18	Apr 9	-9 days	
Whitethroat	40	18	Curvilinear	May 26	May 17	-9 days	Small sample
Marsh Tit	40	14	Linear decline	Apr 28	Apr 19	-9 days	Small sample
Chaffinch	40	106	Linear decline	May 12	May 3	-9 days	
Kestrel	40	22	Linear decline	May 5	Apr 27	-8 days	Small sample
Robin	40	119	Linear decline	Apr 28	Apr 20	-8 days	
Sedge Warbler	40	48	Curvilinear	May 29	May 21	-8 days	
Reed Warbler	40	159	Curvilinear	Jun 16	Jun 8	-8 days	
Blue Tit	40	267	Linear decline	May 3	Apr 25	-8 days	
Great Tit	40	230	Linear decline	May 4	Apr 26	-8 days	
House Sparrow	40	54	Linear decline	May 25	May 17	-8 days	
Garden Warbler	40	21	Linear decline	May 28	May 21	-7 days	Small sample
Willow Warbler	40	84	Linear decline	May 20	May 13	-7 days	
Oystercatcher	40	45	Linear decline	May 16	May 10	-6 days	
Grey Wagtail	40	61	Linear decline	May 8	May 2	-6 days	
Wood Warbler	40	31	Curvilinear	May 24	May 18	-6 days	
Moorhen	40	67	Linear decline	May 10	May 5	-5 days	
Wren	40	87	Linear decline	May 14	May 9	-5 days	
Whinchat	40	27	Linear decline	May 30	May 25	-5 days	Small sample
Jackdaw	40	24	Curvilinear	Apr 23	Apr 18	-5 days	Small sample
Starling	40	81	Curvilinear	Apr 27	Apr 22	-5 days	
Tree Sparrow	40	201	Linear decline	May 29	May 24	-5 days	
Yellowhammer	40	26	Linear increase	May 31	Jun 6	6 days	Small sample
Skylark	40	20	Curvilinear	May 25	Jun 2	8 days	Small sample

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4.6 Conclusion

We trust that this report will be useful as a ready source of information for conservation practitioners, and as a source of information for those involved in more strategic conservation policy-making, as well as to the general student of bird populations. The information presented here is a summary of a very extensive and much more detailed data set held by the BTO. This report provides a relatively simple and concise overview of the way in which populations are changing, suggesting areas where further research is required or where conservation action needs to be taken.

Alerts are raised as a result of declines in the population sizes of a considerable number of species. These alerts will help conservation organisations to prioritise future conservation action, alongside the **Birds of Conservation Concern** list (**Eaton *et al.* 2009**) and other information.

The information concerning demographic factors contained in this report will also help conservation organisations to target their resources more effectively. For declining species of conservation importance, declines in breeding performance may indicate that conservation action should be targeted towards the breeding season; such responses may sometimes be masked, however, by density-dependent improvements in breeding success as the population declines (**Green 1999**). The lack of a decline in breeding performance may suggest that factors other than nesting success, such as loss of habitat or changes in survival rates are more likely to be influencing the observed population declines. A report of this kind can provide only an initial summary of such information, and a full assessment of the population dynamics of a declining species will generally require more detailed investigations (e.g. **Peach *et al.* 1999**, **Freeman & Crick 2003**, **Robinson *et al.* 2004**).

Finally, we hope that users of this report will provide feedback on how the report can be improved. We will welcome comments on any aspect of this report, as they will help us to produce a better and more useful next edition.

Email your comments

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5. Acknowledgements

Volunteer fieldwork

Our biggest thankyou is to the volunteers who collected the data on which this website is based. The population trends and other results that we present rely on the sustained, long-term fieldwork of many thousands of BTO volunteers. Our knowledge of the conservation status of the UK's bird populations is possible only as a result of their dedication and enthusiasm. The conservation community owes them an enormous debt of gratitude for their work. We are also very grateful to the many farmers, land managers and landowners who permitted census work, nest recording and ringing to take place on their land.

Report production and analysis

This website presents the latest in a series of reports, prepared within the partnership between the British Trust for Ornithology (BTO) and the Joint Nature Conservation Committee (JNCC) (on behalf of the Council for Nature Conservation and the Countryside, the Countryside Council for Wales, Natural England and Scottish Natural Heritage), as part of its programme of research into nature conservation.

Mr and Mrs J A Pye's Charitable Settlement provided additional support towards the development of the website.

This report includes results from the Breeding Bird Survey, which is funded jointly by BTO, JNCC and RSPB. The BBS partners are very grateful to the Environment and Heritage Service in Northern Ireland (now Northern Ireland Environment Agency) and to the Royal Society for the Protection of Birds in Scotland for supporting professional surveys in areas that would otherwise be difficult to cover.

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We are very grateful to all of the above organisations and individuals for their contributions to this report.

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Clicking on the short form of any reference in the text of this report will bring you to its full details in this section: the reference sought will be at the very top of your view. Where possible, we provide an onward link either to an abstract or, where it is freely available, to the full text. Alternatively, your own web search will often take you to the summary of an article and the opportunity to purchase the text in full. The **doi** (digital object identifier), where given, is a useful key to copy to a search engine.

Most of the listed publications are available in printed form to BTO members and other bona fide researchers through the **Chris Mead Library** at BTO headquarters in Thetford.

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Section 7 – Appendix

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7.1 Tables of alerts and population increases from CBC/BBS

1a. Table of population alerts for CBC/BBS UK 1967-2008

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
Grey Partridge	41	126	-90	-93	-86	>50	
Turtle Dove	41	106	-89	-93	-83	>50	
Willow Tit	41	43	-88	-94	-76	>50	
Spotted Flycatcher	41	124	-87	-92	-81	>50	
Corn Bunting	41	68	-86	-94	-75	>50	
Yellow Wagtail	41	74	-77	-90	-55	>50	
Marsh Tit	41	92	-71	-79	-60	>50	
Whitethroat	41	508	-62	-72	-48	>50	
Cuckoo	41	330	-58	-69	-43	>50	
Yellowhammer	41	488	-56	-65	-46	>50	
Little Owl	41	57	-50	-69	-22	>25	
Song Thrush	41	771	-48	-56	-38	>25	
Mistle Thrush	41	494	-47	-55	-37	>25	
Bullfinch	41	292	-47	-58	-36	>25	
Dunnock	41	796	-34	-43	-21	>25	

1b. Table of population alerts for CBC/BBS England 1967-2008

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
Tree Sparrow	41	87	-97	-99	-93	>50	
Spotted Flycatcher	41	95	-90	-94	-84	>50	
Grey Partridge	41	114	-89	-93	-85	>50	
Turtle Dove	41	106	-89	-93	-83	>50	
Lesser Redpoll	41	44	-89	-96	-75	>50	
Willow Tit	41	40	-87	-95	-77	>50	
Tree Pipit	41	46	-86	-93	-73	>50	
Starling	41	557	-85	-89	-80	>50	
Corn Bunting	41	65	-84	-93	-73	>50	

Linnet	41	401	-76	-82	-70	>50	
Yellow Wagtail	41	73	-75	-88	-58	>50	
Cuckoo	41	275	-70	-78	-60	>50	
Marsh Tit	41	85	-70	-79	-61	>50	
Whitethroat	41	441	-63	-75	-51	>50	
Skylark	41	523	-61	-68	-55	>50	
Willow Warbler	41	433	-60	-70	-45	>50	
Yellowhammer	41	428	-59	-68	-46	>50	
Mistle Thrush	41	407	-54	-62	-43	>50	
Bullfinch	41	238	-51	-62	-39	>50	
Meadow Pipit	41	161	-49	-74	-25	>25	
Song Thrush	41	617	-49	-59	-41	>25	
Little Owl	41	55	-43	-66	-9	>25	
Dunnock	41	662	-38	-47	-28	>25	
Sedge Warbler	41	89	-36	-66	-8	>25	

2a. Table of population alerts for CBC/BBS UK 1983-2008

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
Willow Tit	25	45	-85	-91	-75	>50	
Turtle Dove	25	127	-84	-89	-79	>50	
Spotted Flycatcher	25	148	-80	-87	-73	>50	
Corn Bunting	25	91	-78	-90	-62	>50	
Grey Partridge	25	158	-77	-83	-69	>50	
Yellow Wagtail	25	101	-74	-85	-58	>50	
Cuckoo	25	472	-58	-64	-51	>50	
Little Owl	25	76	-54	-67	-39	>50	
Yellowhammer	25	705	-53	-59	-48	>50	
Lapwing	25	386	-50	-62	-34	>50	
Marsh Tit	25	114	-41	-55	-28	>25	
Mistle Thrush	25	713	-39	-44	-32	>25	

2b. Table of population alerts for CBC/BBS England 1983-2008

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
Lesser Redpoll	25	41	-94	-97	-88	>50	
Tree Sparrow	25	88	-87	-95	-77	>50	
Tree Pipit	25	53	-86	-92	-79	>50	
Willow Tit	25	40	-85	-93	-76	>50	
Turtle Dove	25	126	-84	-89	-80	>50	
Spotted Flycatcher	25	110	-83	-89	-77	>50	
Starling	25	837	-79	-82	-74	>50	
Corn Bunting	25	87	-77	-89	-62	>50	
Grey Partridge	25	142	-76	-83	-68	>50	
Yellow Wagtail	25	99	-73	-83	-60	>50	
Cuckoo	25	389	-70	-75	-64	>50	
Willow Warbler	25	604	-61	-68	-54	>50	

Yellowhammer	25	618	-57	-63	-51	>50	
House Sparrow	25	717	-52	-63	-39	>50	
Little Owl	25	73	-48	-64	-31	>25	
Mistle Thrush	25	582	-48	-55	-42	>25	
Lapwing	25	325	-44	-59	-22	>25	
Marsh Tit	25	105	-41	-57	-23	>25	
Linnet	25	576	-41	-53	-28	>25	
Skylark	25	782	-39	-45	-32	>25	
Meadow Pipit	25	240	-39	-58	-21	>25	
Tawny Owl	25	77	-27	-44	-7	>25	
Goldcrest	25	335	-26	-41	-2	>25	

3a. Table of population alerts for CBC/BBS UK 1998-2008

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
Willow Tit	10	53	-65	-74	-50	>50	
Turtle Dove	10	176	-64	-70	-58	>50	
Yellow Wagtail	10	155	-43	-52	-33	>25	
Grey Partridge	10	234	-38	-48	-31	>25	
Cuckoo	10	729	-34	-39	-29	>25	
Spotted Flycatcher	10	210	-32	-47	-11	>25	
Little Owl	10	111	-27	-37	-16	>25	

3b. Table of population alerts for CBC/BBS England 1998-2008

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
Turtle Dove	10	174	-64	-70	-58	>50	
Willow Tit	10	47	-63	-71	-50	>50	
Cuckoo	10	585	-50	-53	-46	>25	
Yellow Wagtail	10	152	-42	-51	-32	>25	
Spotted Flycatcher	10	152	-41	-49	-29	>25	
Starling	10	1497	-39	-42	-35	>25	
Tree Pipit	10	77	-30	-47	-10	>25	
Willow Warbler	10	950	-30	-34	-25	>25	
Grey Partridge	10	213	-28	-40	-21	>25	
Little Owl	10	109	-27	-38	-17	>25	
Mistle Thrush	10	1004	-26	-30	-21	>25	

4a. Table of population alerts for CBC/BBS UK 2003-2008

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
Turtle Dove	5	146	-47	-55	-39	>25	
Willow Tit	5	49	-36	-51	-15	>25	
Yellow Wagtail	5	150	-32	-42	-19	>25	
Grey Partridge	5	241	-25	-34	-13	>25	

4b. Table of population alerts for CBC/BBS England 2003-2008

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
Turtle Dove	5	144	-47	-54	-37	>25	
Willow Tit	5	43	-36	-50	-18	>25	
Yellow Wagtail	5	148	-32	-41	-19	>25	
Cuckoo	5	556	-31	-35	-26	>25	
Spotted Flycatcher	5	141	-30	-39	-17	>25	
Linnet	5	1011	-26	-31	-20	>25	

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Appendix 7.1 Tables 5a and 5b

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7.1 Tables of alerts and population increases from CBC/BBS

5a. Table of population increases of >50% for UK CBC/BBS 1967-2008

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
Coal Tit	41	328	59	2	168		
Pied Wagtail	41	467	72	27	157		
Wren	41	930	98	77	120		
Magpie	41	712	98	57	152		
Jackdaw	41	573	103	23	228		
Reed Warbler	41	58	104	31	347		
Great Tit	41	835	109	86	137		
Blackcap	41	587	157	110	217		
Woodpigeon	41	842	160	20	501		
Mallard	41	487	166	108	239		
Nuthatch	41	191	178	98	303		
Coot	41	108	203	110	538		
Mute Swan	41	93	230	48	641		
Great Spotted Woodpecker	41	380	386	251	700		

5b. Table of population increases of >50% for England CBC/BBS 1967-2008

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
Robin	41	729	60	43	77		
Reed Warbler	41	55	76	18	250		
Pied Wagtail	41	364	78	32	150		
Wren	41	746	89	65	112		
Jackdaw	41	460	91	15	204		
Pheasant	41	555	92	57	169		
Long-tailed Tit	41	343	98	49	185		
Great Tit	41	692	99	76	128		
Magpie	41	605	104	61	154		
Carrion Crow	41	713	119	74	176		Includes Hooded Crow

Blackcap	41	515	142	95	197		
Stock Dove	41	279	160	77	304		
Woodpigeon	41	681	186	39	554		
Nuthatch	41	165	191	122	309		
Mute Swan	41	80	199	42	563		
Coot	41	98	202	86	542		
Mallard	41	414	212	144	279		
Green Woodpecker	41	292	217	147	369		
Great Spotted Woodpecker	41	341	356	221	594		
Buzzard	41	172	606	359	1525		

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Appendix 7.2

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7.2 Tables of alerts and population increases from WBS/WBBS

1. Table of alerts for WBS/WBBS waterways 1975-2008

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
Yellow Wagtail	33	25	-96	-99	-92	>50	
Snipe	33	12	-93	-99	-78	>50	Small sample
Redshank	33	24	-65	-89	-36	>50	
Pied Wagtail	33	108	-64	-72	-55	>50	
Reed Bunting	33	81	-60	-74	-41	>50	
Sedge Warbler	33	68	-40	-60	-19	>25	
Common Sandpiper	33	45	-38	-53	-27	>25	
Dipper	33	61	-31	-47	-12	>25	
Grey Wagtail	33	94	-26	-42	-10	>25	

2. Table of alerts for WBS/WBBS waterways 1983-2008

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
Yellow Wagtail	25	23	-95	-98	-92	>50	
Snipe	25	14	-94	-98	-86	>50	Small sample
Redshank	25	26	-63	-84	-46	>50	
Lapwing	25	70	-50	-70	-12	>50	
Pied Wagtail	25	122	-43	-53	-30	>25	
Common Sandpiper	25	52	-39	-50	-27	>25	
Sedge Warbler	25	79	-25	-44	-3	>25	

3. Table of alerts for WBS/WBBS waterways 1998-2008

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
Yellow Wagtail	10	28	-74	-84	-63	>50	
Snipe	10	23	-53	-80	-30	>50	
Redshank	10	33	-49	-62	-31	>25	
Curlew	10	76	-39	-50	-22	>25	
Lapwing	10	112	-34	-49	-11	>25	
Sedge Warbler	10	124	-27	-38	-16	>25	
Pied Wagtail	10	198	-26	-37	-15	>25	

4. Table of alerts for WBS/WBBS waterways 2003-2008

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
Snipe	5	25	-57	-72	-24	>50	
Yellow Wagtail	5	27	-47	-60	-21	>25	
Redshank	5	36	-42	-60	-21	>25	
Lapwing	5	121	-27	-37	-13	>25	

4. Table of population increases for WBS/WBBS waterways 1975-2008

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
Oystercatcher	33	44	74	36	163		
Coot	33	59	92	22	230		
Mute Swan	33	75	98	46	185		
Mallard	33	156	207	143	276		

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Appendix 7.3

7.3 Tables of alerts and population increases from CES

1. Table of alerts for CES adults 1984-2008

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
Linnet	24	17	-95	-99	-86	>50	Small sample
Willow Warbler	24	89	-67	-74	-60	>50	
Lesser Whitethroat	24	39	-64	-81	-47	>50	
Reed Bunting	24	58	-59	-72	-47	>50	
Willow Tit	24	19	-49	-85	-5	>25	Small sample
Sedge Warbler	24	65	-45	-61	-28	>25	
Whitethroat	24	60	-42	-62	-25	>25	
Reed Warbler	24	55	-40	-52	-23	>25	

2. Table of alerts for CES adults 1998-2008

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
Linnet	10	16	-68	-88	-43	>50	Small sample
Willow Warbler	10	93	-51	-57	-46	>50	
Sedge Warbler	10	75	-47	-54	-40	>25	
Reed Warbler	10	63	-33	-41	-22	>25	
Lesser Whitethroat	10	35	-33	-49	-16	>25	

3. Table of alerts for CES adults 2003-2008

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
Linnet	5	16	-44	-74	-18	>25	Small sample
Sedge Warbler	5	70	-38	-45	-31	>25	
Lesser Whitethroat	5	34	-31	-45	-18	>25	
Whitethroat	5	66	-27	-39	-17	>25	
Greenfinch	5	53	-25	-42	-12	>25	

4. Table of population increases for CES adults 1984-2008

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
Robin	24	93	55	33	77		

Chiffchaff	24	71	164	81	319		

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Appendix 7.4

7.4 Tables of population declines and increases from BBS

1. Table of declines >25% for BBS UK 1995-2008

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
Willow Tit	13	53	-73	-80	-63	>50	
Turtle Dove	13	173	-70	-74	-64	>50	
Wood Warbler	13	52	-61	-73	-47	>50	
Whinchat	13	73	-57	-68	-39	>50	
Yellow Wagtail	13	156	-52	-59	-42	>50	
Grey Partridge	13	233	-50	-58	-42	>50	
Pied Flycatcher	13	40	-50	-63	-31	>50	
Cuckoo	13	725	-44	-48	-39	>25	
Curlew	13	469	-42	-48	-34	>25	
Spotted Flycatcher	13	199	-39	-54	-21	>25	
Starling	13	1713	-38	-42	-34	>25	
Redshank	13	80	-30	-42	-8	>25	
Swift	13	1005	-29	-38	-17	>25	
Corn Bunting	13	142	-29	-43	-12	>25	

2. Table of declines >25% for BBS England 1995-2008

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
Willow Tit	13	46	-73	-79	-64	>50	

Turtle Dove	13	171	-70	-74	-64	>50	
Cuckoo	13	578	-60	-63	-56	>50	
Yellow Wagtail	13	153	-52	-60	-42	>50	
Nightingale	13	31	-49	-65	-25	>25	
Spotted Flycatcher	13	142	-48	-58	-36	>25	
Tree Pipit	13	72	-47	-62	-23	>25	
Whinchat	13	32	-47	-69	-23	>25	
Starling	13	1404	-46	-49	-42	>25	
Grey Partridge	13	207	-44	-50	-35	>25	
Linnet	13	928	-34	-39	-29	>25	
Willow Warbler	13	889	-30	-36	-25	>25	
Swift	13	867	-29	-40	-15	>25	
Curlew	13	304	-27	-34	-20	>25	
Redshank	13	57	-27	-42	-3	>25	
Mistle Thrush	13	908	-25	-30	-20	>25	
Corn Bunting	13	135	-25	-41	-9	>25	

3. Table of declines >25% for BBS Scotland 1995-2008

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
Kestrel	13	43	-54	-67	-31	>50	
Curlew	13	121	-53	-62	-45	>50	
Hooded Crow	13	51	-31	-48	-11	>25	
Swift	13	49	-29	-54	-3	>25	
Meadow Pipit	13	201	-28	-38	-18	>25	
Lapwing	13	89	-27	-43	-14	>25	

4. Table of declines >25% for BBS Wales 1995-2008

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
Starling	13	82	-58	-69	-38	>50	
Swift	13	67	-52	-63	-34	>50	
Curlew	13	38	-46	-58	-32	>25	
Goldcrest	13	83	-41	-59	-8	>25	
Yellowhammer	13	37	-40	-55	-25	>25	
Cuckoo	13	57	-37	-51	-21	>25	
Linnet	13	91	-32	-50	-13	>25	

5. Table of declines >25% for BBS Northern Ireland 1995-2008

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
Skylark	13	34	-33	-45	-22	>25	

6. Table of declines >25% for BBS UK 1998-2008

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
Willow Tit	10	50	-65	-75	-53	>50	
Turtle Dove	10	169	-64	-69	-59	>50	
Whinchat	10	69	-52	-65	-34	>50	
Wood Warbler	10	51	-45	-63	-22	>25	
Pied Flycatcher	10	40	-45	-59	-26	>25	
Yellow Wagtail	10	151	-42	-53	-33	>25	
Grey Partridge	10	227	-39	-49	-33	>25	
Curlew	10	484	-35	-40	-28	>25	
Starling	10	1803	-35	-38	-30	>25	
Cuckoo	10	712	-34	-38	-29	>25	
Dipper	10	56	-32	-45	-12	>25	
Spotted Flycatcher	10	201	-31	-48	-13	>25	
Little Owl	10	104	-28	-38	-19	>25	

7. Table of declines >25% for BBS England 1998-2008

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
Turtle Dove	10	167	-64	-70	-59	>50	
Willow Tit	10	44	-63	-72	-50	>50	
Nightingale	10	33	-53	-66	-34	>50	
Cuckoo	10	562	-48	-51	-44	>25	
Yellow Wagtail	10	148	-43	-52	-32	>25	
Whinchat	10	32	-43	-66	-21	>25	
Spotted Flycatcher	10	143	-41	-51	-31	>25	
Starling	10	1470	-40	-43	-36	>25	
Redshank	10	62	-35	-49	-14	>25	
Tree Pipit	10	74	-31	-48	-6	>25	
Grasshopper Warbler	10	32	-31	-53	-12	>25	
Grey Partridge	10	203	-29	-37	-20	>25	
Little Owl	10	101	-27	-37	-14	>25	
Willow Warbler	10	898	-26	-31	-22	>25	
Mistle Thrush	10	965	-25	-29	-20	>25	

8. Table of declines >25% for BBS Scotland 1998-2008

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
Curlew	10	118	-45	-54	-38	>25	
Kestrel	10	43	-41	-57	-14	>25	
Mallard	10	98	-32	-45	-18	>25	
Meadow Pipit	10	194	-27	-36	-19	>25	
Red Grouse	10	50	-25	-40	-4	>25	

9. Table of declines >25% for BBS Wales 1998-2008

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
Swift	10	75	-52	-67	-36	>50	
Starling	10	89	-46	-56	-30	>25	
Goldcrest	10	92	-43	-54	-24	>25	
Curlew	10	40	-39	-50	-25	>25	
Tree Pipit	10	34	-39	-61	-6	>25	
Linnet	10	100	-37	-54	-18	>25	
Cuckoo	10	60	-34	-48	-19	>25	
Treecreeper	10	44	-28	-50	-4	>25	
Yellowhammer	10	38	-25	-44	-9	>25	

10. Table of declines >25% for BBS Northern Ireland 1998-2008

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
Skylark	10	36	-43	-54	-37	>25	
Rook	10	83	-32	-47	-15	>25	

11. Table of declines >25% for BBS UK 2003-2008

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
Turtle Dove	5	146	-47	-54	-38	>25	
Willow Tit	5	49	-37	-52	-17	>25	
Whinchat	5	64	-36	-46	-8	>25	
Yellow Wagtail	5	150	-31	-40	-19	>25	
Dipper	5	61	-31	-44	-8	>25	

12. Table of declines >25% for BBS England 2003-2008

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
Turtle Dove	5	144	-47	-54	-38	>25	
Willow Tit	5	43	-36	-49	-20	>25	
Redshank	5	70	-32	-43	-17	>25	
Yellow Wagtail	5	147	-31	-41	-19	>25	
Cuckoo	5	545	-29	-32	-24	>25	
Whinchat	5	32	-29	-41	-10	>25	
Spotted Flycatcher	5	138	-29	-39	-18	>25	
Nightingale	5	31	-26	-44	-1	>25	

13. Table of declines >25% for BBS Scotland 2003-2008

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
Goldcrest	5	117	-43	-49	-28	>25	
Kestrel	5	47	-37	-54	-9	>25	
Grey Wagtail	5	36	-33	-50	-10	>25	
Mallard	5	106	-31	-45	-16	>25	

14. Table of declines >25% for BBS Wales 2003-2008

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
Swift	5	75	-43	-53	-31	>25	
Linnet	5	103	-41	-53	-30	>25	
Meadow Pipit	5	96	-25	-35	-15	>25	
Starling	5	85	-25	-37	-10	>25	

15. Table of declines >25% for BBS Northern Ireland 2003-2008

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
Starling	5	95	-37	-48	-24	>25	
Skylark	5	36	-30	-41	-25	>25	
Greenfinch	5	68	-29	-38	-10	>25	
Rook	5	91	-27	-38	-13	>25	

16. Table of population increases for BBS UK 1995-2008

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
Tree Sparrow	13	157	55	25	102		
Goldfinch	13	1396	56	46	68		
Blackcap	13	1394	61	54	70		
Buzzard	13	770	63	49	78		
Canada Goose	13	429	106	62	147		
Great Spotted Woodpecker	13	919	129	114	141		
Greylag Goose	13	150	144	21	336		
Stonechat	13	146	168	114	245		
Red Kite	13	58	418	249	857		
Barn Owl	13	38	464	300	679		
Ring-necked Parakeet	13	46	696	284	2408		

17. Table of population increases for BBS England 1995-2008

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
Blackcap	13	1205	51	42	58		
Nuthatch	13	352	56	40	72		

Green Woodpecker	13	700	57	45	67		
Canada Goose	13	400	94	50	128		
Stonechat	13	68	105	46	201		
Great Spotted Woodpecker	13	814	115	100	134		
Buzzard	13	491	132	106	161		
Greylag Goose	13	123	188	92	379		
Barn Owl	13	36	421	284	614		
Ring-necked Parakeet	13	46	696	236	2053		
Red Kite	13	37	6522	3054	6668		

18. Table of population increases for BBS Scotland 1995-2008

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
Swallow	13	160	53	31	79		
Great Tit	13	142	53	29	79		
Dunnock	13	131	54	28	83		
Reed Bunting	13	54	58	12	118		
Snipe	13	56	60	13	133		
Wren	13	219	69	51	90		
Whitethroat	13	72	86	37	148		
Goldfinch	13	80	97	41	157		
House Martin	13	57	103	50	174		
Crossbill	13	23	128	30	327		
Blackcap	13	46	178	90	297		
Stonechat	13	37	208	99	343		
Chiffchaff	13	38	289	143	547		
Great Spotted Woodpecker	13	39	300	191	430		

19. Table of population increases for BBS Wales 1995-2008

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
Pheasant	13	88	51	22	92		
Collared Dove	13	68	51	12	99		
Goldfinch	13	121	52	22	91		
Blackcap	13	113	60	33	87		
House Sparrow	13	117	74	40	108		
Great Spotted Woodpecker	13	68	159	114	229		
Stonechat	13	36	168	85	308		

20. Table of population increases for BBS Northern Ireland 1995-2008

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
Willow Warbler	13	75	66	32	95		
Jackdaw	13	71	67	16	112		
Woodpigeon	13	78	71	32	109		

Coal Tit	13	58	71	20	105		
Song Thrush	13	72	74	35	114		
Wren	13	87	77	32	115		
Dunnock	13	67	93	31	134		
Goldcrest	13	44	93	37	165		
Linnet	13	33	99	29	195		
Hooded Crow	13	76	113	51	166		
Pheasant	13	35	167	41	279		
Great Tit	13	67	176	101	206		
Goldfinch	13	40	674	.	.		

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Appendix 7.5

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7.5 Tables of breeding performance

1. Table of significant trends in Clutch size measured between 1968-2008

Species	Period (yrs)	Mean annual sample	Trend	Predicted in first year	Predicted in last year	Change	Comment
Great Tit	40	199	Linear decline	8.35 eggs	7.27 eggs	-1.08 eggs	
Magpie	40	44	Linear decline	5.81 eggs	4.86 eggs	-0.95 eggs	
Long-tailed Tit	40	36	Linear decline	7.5 eggs	6.64 eggs	-0.86 eggs	
Hen Harrier	40	13	Curvilinear	5.48 eggs	4.81 eggs	-0.67 eggs	Small sample
Moorhen	40	90	Linear decline	6.49 eggs	5.99 eggs	-0.5 eggs	
Blue Tit	40	216	Linear decline	9.24 eggs	8.76 eggs	-0.48 eggs	
Peregrine	40	16	Linear decline	3.53 eggs	3.11 eggs	-0.42 eggs	Small sample
Greenfinch	40	92	Curvilinear	4.73 eggs	4.51 eggs	-0.22 eggs	
Pied Wagtail	40	59	Linear decline	5.11 eggs	4.92 eggs	-0.19 eggs	
Chaffinch	40	86	Curvilinear	4.23 eggs	4.05 eggs	-0.18 eggs	
Nightjar	40	18	Linear decline	2.01 eggs	1.83 eggs	-0.18 eggs	Small sample
Linnet	40	107	Curvilinear	4.7 eggs	4.57 eggs	-0.13 eggs	
Grey Wagtail	40	38	Curvilinear	4.7 eggs	4.63 eggs	-0.07 eggs	
Common Sandpiper	40	11	Curvilinear	4 eggs	3.93 eggs	-0.07 eggs	Small sample
Spotted Flycatcher	40	79	Curvilinear	4.22 eggs	4.15 eggs	-0.07 eggs	
Blackbird	40	132	Curvilinear	3.8 eggs	3.76 eggs	-0.04 eggs	
Buzzard	40	32	Curvilinear	2.21 eggs	2.2 eggs	-0.01 eggs	
Wren	40	95	Curvilinear	5.57 eggs	5.57 eggs	0 eggs	
Dipper	40	73	Curvilinear	4.49 eggs	4.5 eggs	0.01 eggs	
Stock Dove	40	90	Curvilinear	2.07 eggs	2.08 eggs	0.01 eggs	
Yellowhammer	40	43	Curvilinear	3.35 eggs	3.38 eggs	0.03 eggs	
Swallow	40	259	Curvilinear	4.46 eggs	4.49 eggs	0.03 eggs	
Carrion Crow	40	33	Curvilinear	4.08 eggs	4.14 eggs	0.06 eggs	Includes Hooded Crow
Lapwing	40	120	Linear increase	3.7 eggs	3.82 eggs	0.12 eggs	
Stonechat	40	32	Curvilinear	4.96 eggs	5.1 eggs	0.14 eggs	
Mistle Thrush	40	34	Linear increase	3.9 eggs	4.05 eggs	0.15 eggs	
Little Owl	40	19	Linear increase	3.39 eggs	3.63 eggs	0.24 eggs	Small sample
Dunnock	40	100	Linear increase	3.95 eggs	4.19 eggs	0.24 eggs	
Pied Flycatcher	40	142	Linear increase	6.52 eggs	6.82 eggs	0.3 eggs	
Redstart	40	48	Curvilinear	5.9 eggs	6.24 eggs	0.34 eggs	
Skylark	40	37	Linear increase	3.38 eggs	3.72 eggs	0.34 eggs	
Tree Sparrow	40	190	Curvilinear	4.73 eggs	5.12 eggs	0.39 eggs	
Starling	40	75	Linear increase	4.43 eggs	4.96 eggs	0.53 eggs	
Sand Martin	40	31	Curvilinear	4.68 eggs	5.25 eggs	0.57 eggs	
Barn Owl	40	29	Linear increase	4.54 eggs	5.18 eggs	0.64 eggs	Small sample

2. Table of significant trends in Brood size measured between 1968-2008

Species	Period (yrs)	Mean annual sample	Trend	Predicted in first year	Predicted in last year	Change	Comment
Great Tit	40	400	Linear decline	7.6 chicks	6.13 chicks	-1.47 chicks	
Blue Tit	40	397	Linear decline	8.33 chicks	7.28 chicks	-1.05 chicks	
Sand Martin	40	42	Curvilinear	3.17 chicks	2.72 chicks	-0.45 chicks	
Chiffchaff	40	35	Linear decline	5.14 chicks	4.69 chicks	-0.45 chicks	

Yellow Wagtail	40	12	Linear decline	4.82 chicks	4.38 chicks	-0.44 chicks	Small sample
Carrion Crow	40	77	Curvilinear	2.9 chicks	2.48 chicks	-0.42 chicks	Includes Hooded Crow
Corn Bunting	40	11	Curvilinear	3.08 chicks	2.68 chicks	-0.4 chicks	Small sample
Magpie	40	76	Curvilinear	3.12 chicks	2.73 chicks	-0.39 chicks	
House Sparrow	40	118	Linear decline	3.47 chicks	3.09 chicks	-0.38 chicks	
Raven	40	66	Linear decline	3.2 chicks	2.86 chicks	-0.34 chicks	
Long-tailed Tit	40	29	Curvilinear	6.72 chicks	6.39 chicks	-0.33 chicks	Small sample
Greenfinch	40	113	Linear decline	4.1 chicks	3.77 chicks	-0.33 chicks	
Grey Heron	40	48	Linear decline	2.69 chicks	2.42 chicks	-0.27 chicks	Non-breeders include
Bullfinch	40	36	Linear decline	4.17 chicks	3.93 chicks	-0.24 chicks	
Pied Wagtail	40	115	Linear decline	4.52 chicks	4.34 chicks	-0.18 chicks	
Nightjar	40	25	Linear decline	1.9 chicks	1.77 chicks	-0.13 chicks	Small sample
Jackdaw	40	99	Curvilinear	2.69 chicks	2.56 chicks	-0.13 chicks	
Rook	40	82	Curvilinear	2.21 chicks	2.11 chicks	-0.1 chicks	
Treecreeper	40	27	Curvilinear	4.38 chicks	4.3 chicks	-0.08 chicks	Small sample
Robin	40	171	Curvilinear	4.41 chicks	4.34 chicks	-0.07 chicks	
Chaffinch	40	136	Curvilinear	3.59 chicks	3.52 chicks	-0.07 chicks	
Turtle Dove	40	16	Curvilinear	1.82 chicks	1.77 chicks	-0.05 chicks	Small sample
Blackbird	40	172	Curvilinear	3.33 chicks	3.3 chicks	-0.03 chicks	
Spotted Flycatcher	40	128	Curvilinear	3.62 chicks	3.61 chicks	-0.01 chicks	
Linnet	40	122	Curvilinear	4.08 chicks	4.09 chicks	0.01 chicks	
Stock Dove	40	134	Curvilinear	1.82 chicks	1.83 chicks	0.01 chicks	
Yellowhammer	40	66	Curvilinear	2.96 chicks	2.97 chicks	0.01 chicks	
Wren	40	97	Curvilinear	4.71 chicks	4.73 chicks	0.02 chicks	
Swallow	40	458	Curvilinear	4.09 chicks	4.13 chicks	0.04 chicks	
Grey Wagtail	40	81	Curvilinear	4 chicks	4.05 chicks	0.05 chicks	
Buzzard	40	97	Curvilinear	1.88 chicks	1.95 chicks	0.07 chicks	
Collared Dove	40	71	Linear increase	1.77 chicks	1.85 chicks	0.08 chicks	
Kestrel	40	132	Curvilinear	3.77 chicks	3.88 chicks	0.11 chicks	
Dunnock	40	108	Curvilinear	3.42 chicks	3.54 chicks	0.12 chicks	
Skylark	40	65	Curvilinear	3.1 chicks	3.29 chicks	0.19 chicks	
Peregrine	40	42	Linear increase	2.35 chicks	2.6 chicks	0.25 chicks	
Sparrowhawk	40	69	Curvilinear	3.13 chicks	3.42 chicks	0.29 chicks	
Dipper	40	138	Curvilinear	3.42 chicks	3.72 chicks	0.3 chicks	
Tree Pipit	40	28	Linear increase	4.4 chicks	4.72 chicks	0.32 chicks	Small sample
Merlin	40	56	Linear increase	3.5 chicks	3.82 chicks	0.32 chicks	
Tree Sparrow	40	249	Curvilinear	3.78 chicks	4.16 chicks	0.38 chicks	
Redstart	40	85	Curvilinear	5.13 chicks	5.57 chicks	0.44 chicks	
Nuthatch	40	67	Curvilinear	4.24 chicks	5.14 chicks	0.9 chicks	
Moorhen	40	78	Linear increase	2.67 chicks	3.74 chicks	1.07 chicks	

3. Table of significant trends in Daily failure rate (eggs) measured between 1968-2008

Species	Period (yrs)	Mean annual sample	Trend	Predicted in first year	Predicted in last year	Change	Comment
Woodlark	40	22	Curvilinear	0.0593 nests/day	0.0234 nests/day	-0.0359 nests/day	Small sample
Long-tailed Tit	40	55	Linear decline	0.0346 nests/day	0.0086 nests/day	-0.026 nests/day	
Magpie	40	50	Linear decline	0.0269 nests/day	0.0026 nests/day	-0.0243 nests/day	
Redshank	40	32	Linear decline	0.0397 nests/day	0.0161 nests/day	-0.0236 nests/day	
Dipper	40	103	Curvilinear	0.0256 nests/day	0.0035 nests/day	-0.0221 nests/day	
Snipe	40	15	Linear decline	0.0332 nests/day	0.0128 nests/day	-0.0204 nests/day	Small sample
Carrion Crow	40	49	Linear decline	0.016 nests/day	0.0019 nests/day	-0.0141 nests/day	Includes Hooded Crow
Sand Martin	40	29	Linear decline	0.0138 nests/day	0.0001 nests/day	-0.0137 nests/day	Small sample
Robin	40	190	Linear decline	0.0262 nests/day	0.0127 nests/day	-0.0135 nests/day	
Wood Warbler	40	21	Linear decline	0.0197 nests/day	0.007 nests/day	-0.0127 nests/day	Small sample
Yellowhammer	40	65	Curvilinear	0.0495 nests/day	0.0374 nests/day	-0.0121 nests/day	
Pied Wagtail	40	84	Curvilinear	0.015 nests/day	0.0056 nests/day	-0.0094 nests/day	
Stock Dove	40	87	Curvilinear	0.0136 nests/day	0.0046 nests/day	-0.009 nests/day	
Starling	40	117	Linear decline	0.0115 nests/day	0.0026 nests/day	-0.0089 nests/day	
Treecreeper	40	22	Curvilinear	0.0222 nests/day	0.0141 nests/day	-0.0081 nests/day	Small sample
Wheatear	40	17	Curvilinear	0.0081 nests/day	0.0005 nests/day	-0.0076 nests/day	Small sample
Tawny Owl	40	56	Linear decline	0.0092 nests/day	0.0018 nests/day	-0.0074 nests/day	Nocturnal species
House Sparrow	40	97	Linear decline	0.0114 nests/day	0.004 nests/day	-0.0074 nests/day	

Redstart	40	73	Linear decline	0.0107 nests/day	0.0034 nests/day	-0.0073 nests/day	
Greenfinch	40	130	Linear decline	0.0248 nests/day	0.0178 nests/day	-0.007 nests/day	
Buzzard	40	27	Linear decline	0.0078 nests/day	0.0009 nests/day	-0.0069 nests/day	Small sample
Blackcap	40	47	Linear decline	0.0222 nests/day	0.0156 nests/day	-0.0066 nests/day	
Sedge Warbler	40	42	Linear decline	0.0128 nests/day	0.0062 nests/day	-0.0066 nests/day	
Jackdaw	40	57	Linear decline	0.0074 nests/day	0.002 nests/day	-0.0054 nests/day	
Tree Sparrow	40	255	Linear decline	0.0087 nests/day	0.0036 nests/day	-0.0051 nests/day	
Wren	40	141	Linear decline	0.0185 nests/day	0.0136 nests/day	-0.0049 nests/day	
Barn Owl	40	22	Curvilinear	0.005 nests/day	0.0003 nests/day	-0.0047 nests/day	Small sample
Marsh Tit	40	20	Linear decline	0.0068 nests/day	0.0021 nests/day	-0.0047 nests/day	Small sample
Kestrel	40	41	Linear decline	0.0055 nests/day	0.0009 nests/day	-0.0046 nests/day	
Merlin	40	25	Linear decline	0.0066 nests/day	0.0023 nests/day	-0.0043 nests/day	Small sample
Sparrowhawk	40	33	Linear decline	0.0045 nests/day	0.0009 nests/day	-0.0036 nests/day	
Great Tit	40	365	Linear decline	0.0062 nests/day	0.0031 nests/day	-0.0031 nests/day	
Pied Flycatcher	40	178	Curvilinear	0.0063 nests/day	0.0034 nests/day	-0.0029 nests/day	
Nuthatch	40	50	Curvilinear	0.0052 nests/day	0.0024 nests/day	-0.0028 nests/day	
Blue Tit	40	372	Linear decline	0.0047 nests/day	0.0023 nests/day	-0.0024 nests/day	
Raven	40	22	Curvilinear	0.0022 nests/day	0.0006 nests/day	-0.0016 nests/day	Small sample
Dunnock	40	144	Curvilinear	0.0248 nests/day	0.0246 nests/day	-0.0002 nests/day	
Grey Heron	40	14	Curvilinear	0.0009 nests/day	0.001 nests/day	0.0001 nests/day	Non-breeders include
Hen Harrier	40	11	Curvilinear	0.0002 nests/day	0.0012 nests/day	0.001 nests/day	Small sample
Tree Pipit	40	13	Curvilinear	0.051 nests/day	0.0525 nests/day	0.0015 nests/day	Small sample
Spotted Flycatcher	40	120	Curvilinear	0.0177 nests/day	0.0199 nests/day	0.0022 nests/day	
Mute Swan	40	30	Curvilinear	0.0058 nests/day	0.0106 nests/day	0.0048 nests/day	
Linnet	40	152	Curvilinear	0.0165 nests/day	0.0223 nests/day	0.0058 nests/day	
Bullfinch	40	49	Curvilinear	0.0327 nests/day	0.0388 nests/day	0.0061 nests/day	
Ringed Plover	40	123	Linear increase	0.0232 nests/day	0.0297 nests/day	0.0065 nests/day	
Chaffinch	40	165	Curvilinear	0.0294 nests/day	0.0369 nests/day	0.0075 nests/day	
Moorhen	40	111	Curvilinear	0.0133 nests/day	0.0223 nests/day	0.009 nests/day	
Lapwing	40	132	Curvilinear	0.0167 nests/day	0.0264 nests/day	0.0097 nests/day	
Willow Warbler	40	68	Linear increase	0.009 nests/day	0.019 nests/day	0.01 nests/day	
Blackbird	40	205	Curvilinear	0.0254 nests/day	0.0372 nests/day	0.0118 nests/day	
Whinchat	40	15	Linear increase	0.0069 nests/day	0.0213 nests/day	0.0144 nests/day	Small sample
Reed Bunting	40	51	Linear increase	0.0076 nests/day	0.0267 nests/day	0.0191 nests/day	
Oystercatcher	40	112	Curvilinear	0.0148 nests/day	0.0347 nests/day	0.0199 nests/day	
Nightjar	40	24	Linear increase	0.0132 nests/day	0.0393 nests/day	0.0261 nests/day	Small sample

4. Table of significant trends in Daily failure rate (chicks) measured between 1968-2008

Species	Period (yrs)	Mean annual sample	Trend	Predicted in first year	Predicted in last year	Change	Comment
Grey Heron	40	26	Linear decline	0.0557 nests/day	0.0003 nests/day	-0.0554 nests/day	Non-breeders include
Corn Bunting	40	11	Linear decline	0.0331 nests/day	0.0092 nests/day	-0.0239 nests/day	Small sample
Sand Martin	40	45	Linear decline	0.0177 nests/day	0.0006 nests/day	-0.0171 nests/day	
Meadow Pipit	40	60	Linear decline	0.0269 nests/day	0.0105 nests/day	-0.0164 nests/day	
Magpie	40	49	Linear decline	0.0167 nests/day	0.0013 nests/day	-0.0154 nests/day	
Reed Warbler	40	113	Curvilinear	0.0175 nests/day	0.0045 nests/day	-0.013 nests/day	
Skylark	40	54	Linear decline	0.0466 nests/day	0.0339 nests/day	-0.0127 nests/day	
Grey Wagtail	40	58	Linear decline	0.0209 nests/day	0.0091 nests/day	-0.0118 nests/day	
Blackbird	40	175	Linear decline	0.0294 nests/day	0.0198 nests/day	-0.0096 nests/day	
Jackdaw	40	54	Linear decline	0.0117 nests/day	0.0025 nests/day	-0.0092 nests/day	
Redstart	40	52	Linear decline	0.0123 nests/day	0.0037 nests/day	-0.0086 nests/day	
House Sparrow	40	92	Curvilinear	0.0143 nests/day	0.0057 nests/day	-0.0086 nests/day	
Robin	40	165	Curvilinear	0.0251 nests/day	0.0183 nests/day	-0.0068 nests/day	
Tree Sparrow	40	185	Curvilinear	0.0125 nests/day	0.0057 nests/day	-0.0068 nests/day	
Merlin	40	29	Linear decline	0.0088 nests/day	0.0024 nests/day	-0.0064 nests/day	Small sample
Stonechat	40	58	Linear decline	0.014 nests/day	0.0076 nests/day	-0.0064 nests/day	
Collared Dove	40	57	Linear decline	0.0174 nests/day	0.0111 nests/day	-0.0063 nests/day	
Carrion Crow	40	42	Linear decline	0.0072 nests/day	0.0014 nests/day	-0.0058 nests/day	Includes Hooded Crow
Stock Dove	40	61	Linear decline	0.012 nests/day	0.0068 nests/day	-0.0052 nests/day	
Starling	40	134	Linear decline	0.0062 nests/day	0.0018 nests/day	-0.0044 nests/day	
Pied Wagtail	40	93	Linear decline	0.0125 nests/day	0.0085 nests/day	-0.004 nests/day	
Barn Owl	40	93	Linear decline	0.0023 nests/day	0.0002 nests/day	-0.0021 nests/day	
Tawny Owl	40	87	Curvilinear	0.0031 nests/day	0.001 nests/day	-0.0021 nests/day	Nocturnal species

Yellowhammer	40	51	Curvilinear	0.0461 nests/day	0.0454 nests/day	-0.0007 nests/day	
Hen Harrier	40	14	Curvilinear	0 nests/day	0.0005 nests/day	0.0005 nests/day	Small sample
Swallow	40	297	Linear increase	0.003 nests/day	0.005 nests/day	0.002 nests/day	
Pied Flycatcher	40	148	Linear increase	0.0043 nests/day	0.0072 nests/day	0.0029 nests/day	
Blue Tit	40	271	Curvilinear	0.0076 nests/day	0.0107 nests/day	0.0031 nests/day	
Great Tit	40	263	Linear increase	0.0055 nests/day	0.0091 nests/day	0.0036 nests/day	
Dunnock	40	119	Curvilinear	0.0245 nests/day	0.0282 nests/day	0.0037 nests/day	
Spotted Flycatcher	40	108	Linear increase	0.0097 nests/day	0.0147 nests/day	0.005 nests/day	
Tree Pipit	40	20	Curvilinear	0.0323 nests/day	0.0393 nests/day	0.007 nests/day	Small sample
Nightjar	40	22	Curvilinear	0.0008 nests/day	0.0081 nests/day	0.0073 nests/day	Small sample
Linnet	40	110	Linear increase	0.0153 nests/day	0.0226 nests/day	0.0073 nests/day	
Reed Bunting	40	51	Curvilinear	0.0268 nests/day	0.0351 nests/day	0.0083 nests/day	
Bullfinch	40	33	Curvilinear	0.0331 nests/day	0.0414 nests/day	0.0083 nests/day	
Long-tailed Tit	40	39	Linear increase	0.0081 nests/day	0.0176 nests/day	0.0095 nests/day	
Garden Warbler	40	19	Linear increase	0.011 nests/day	0.0252 nests/day	0.0142 nests/day	Small sample
Woodlark	40	31	Linear increase	0.0163 nests/day	0.0343 nests/day	0.018 nests/day	

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Images: Red Kite, by Sarah Kelman / BTO; Lapwing, by Sarah Kelman / BTO

Breeding Birds in the Wider Countryside: their conservation status 2010

This report is a "one-stop-shop" for information about the population status of our common terrestrial birds. With one page per species, readers can quickly find all the key information about trends in population size and breeding performance as measured by BTO monitoring schemes. It provides an overview of trends for the period 1966–2009.

This report is the third in a series, prepared within the Partnership between the British Trust for Ornithology (BTO) and the Joint Nature Conservation Committee (JNCC) (on behalf of Natural England, Scottish Natural Heritage, Countryside Council for Wales and the Environment & Heritage Service of Northern Ireland) as part of its programme of research into nature conservation.

It is the result of the sustained long-term fieldwork efforts of many thousands of the BTO's volunteer supporters. Without their enthusiasm for collecting these hard-won facts, the cause of conservation in the UK would be very much the poorer.

Baillie, S.R., Marchant, J.H., Leech, D.I., Renwick, A.R., Joys, A.C., Noble, D.G., Barimore, C., Conway, G.J., Downie, I.S., Risely, K. & Robinson, R.A. 2010. Breeding Birds in the Wider Countryside: their conservation status 2010. *BTO Research Report* **565**, BTO, Thetford, UK.

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