

BirdTrends 2011: trends in numbers and demography for UK breeding birds



A population trend for Barn Owl is newly available from BBS: it indicates a clear increase in this species since 1995, though there is some extra uncertainty around trends for nocturnal species

Key findings

Species list

Using the BirdTrends pages

These pages are a one-stop shop for information about the population status of the common birds of the wider UK countryside. It is based on data gathered by the 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 1966–2010, 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 42 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 42 years).

Increasingly, further information on demography and causes of change is being added.

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 summary tables 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; some species pages also contain a reference list. Results and conclusions are summarised under Key findings.

The website covers the majority of UK 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, 2011).

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

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COMMENTS

Authors

These web pages constitute an annual report that is part of the BTO research report series. Authors were Stephen Baillie, John Marchant, David Leech, Anna Renwick, Sarah Eglington, 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.

Key findings

This section summarises the key findings of the report, under six headings, based on the results presented and discussed in the Summary tables and Discussion sections. It concentrates on the alerts raised by this edition of the report and changes to alerts since previous reports in this series.

Declining species



In this report, Mistle Thrush joins the list of species whose long-term trend is a decrease of more than 50%

In the current report, there are 25 species for which the best long-term trends provide high-levels alerts – i.e. 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](#), [Mistle Thrush](#), [Whitethroat](#), [Willow Warbler](#), [Spotted Flycatcher](#), [Willow Tit](#), [Marsh Tit](#), [Starling](#), [House Sparrow](#), [Tree Sparrow](#), [Linnet](#), [Lesser Redpoll](#), [Yellowhammer](#) and [Corn Bunting](#).

They outweigh the 19 species that show an equivalent doubling of population size (see Positive changes).

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 Population Status of Birds (PSoB/BoCC3) list, as revised in 2009. Despite now meeting a red-list criterion for population decline, the following species from the list above are, for various reasons, listed only as amber: [Snipe](#), [Woodcock](#), [Redshank](#), [Mistle Thrush](#), [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 eight species trigger lower-level alerts, as a result of statistically significant long-term declines of between 25% and 50% over periods of 25 to 42 years. These are [Common Sandpiper](#), [Tawny Owl](#), [Meadow Pipit](#), [Grey Wagtail](#), [Dipper](#), [Dunnock](#), [Song Thrush](#) 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 [Tawny Owl](#), which remain on the green list.

In addition, [Little Grebe](#) (-40% since 1975), [Curlew](#) (-38% since 1967) and [House Martin](#) (-64% since 1967) have also declined by more than 25%, but raise no formal long-term alerts because the confidence intervals around their change estimates are too wide.

Four scarcer species, monitored only over shorter periods, have also decreased by more than half during just a 14-year period. [Wood Warbler](#), already red-listed for declines, has decreased by an alarming 62% since 1995. [Nightingale](#), which has long been amber listed, is on course to meet red-list criteria, having decreased by 57% since 1995). [Whinchat](#) has decreased by 55% and [Pied Flycatcher](#) by 51% over the same period: these two species, along with [Swift](#) (-31%), were newly amber listed for population declines at the 2009 review but are already showing 14-year changes so severe in BBS squares that red listing may be warranted. There are also four species that more than doubled over equivalent short periods (see Positive changes).

Recent changes to alerts



Population decline for Tawny Owl appears to be accelerating

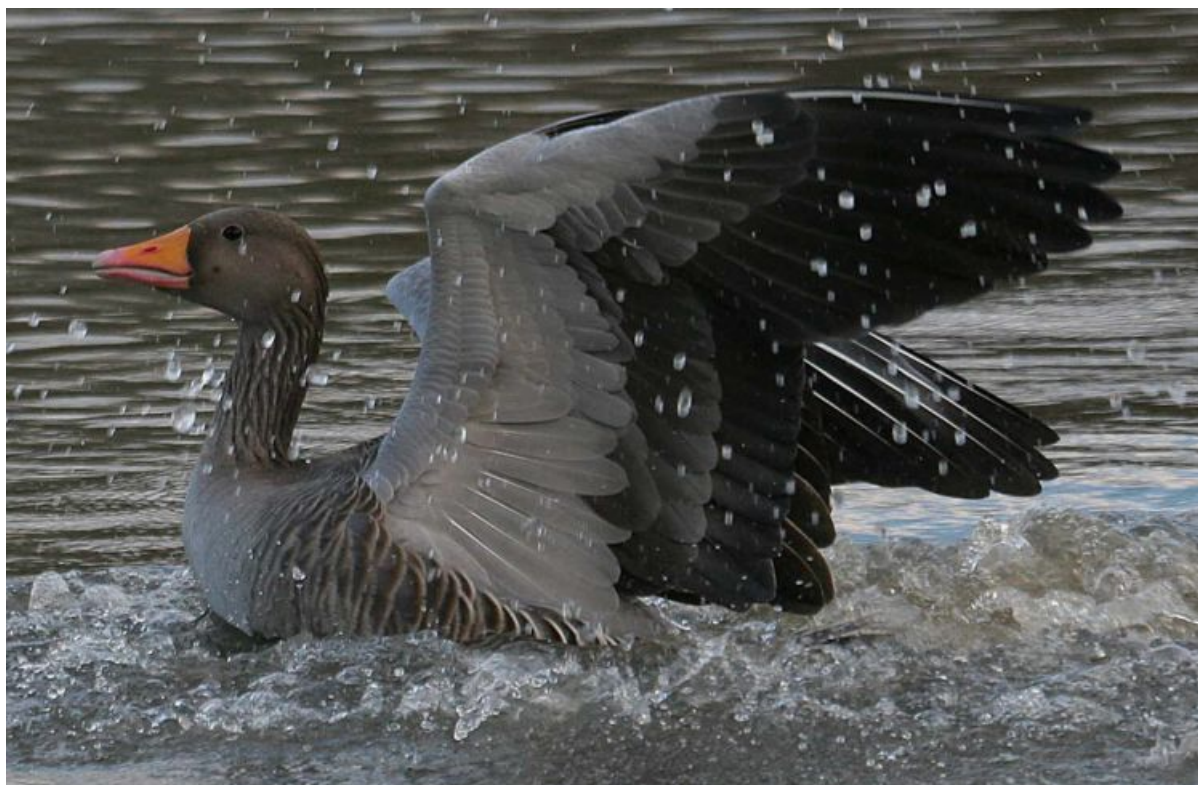
The latest data indicate that three changes are needed to the list of species raising long-term alerts in the 2010 version of this report.

[Mistle Thrush](#) formerly raised an alert for its population decline of between 25% and 50%. It now raises a high-level alert, its decline having passed the 50% threshold.

[Tawny Owl](#) raises alerts for the first time. It has shown a long-term shallow decline but its 25-year change now exceeds 25%.

[Goldcrest](#) briefly became an alert species in the 2010 report, because its 25-year decline strayed just over the 25% threshold. This trend is now calculated at -24% and therefore the species no longer raises alerts. It is well known that this species is prone to wide population fluctuations and that long-term estimates of its trend are always likely to be unstable.

Positive changes



The Greylag Goose trend (now treated as 'long-term') shows more than a fivefold increase since 1993

Although falling short of the 25 species that have at least halved over the long term (see Declining species), there are 19 species that have shown a statistically significant doubling in population size over similar periods (usually 42 years). These are [Mute Swan](#), [Greylag Goose](#), [Canada Goose](#), [Shelduck](#), [Mallard](#), [Sparrowhawk](#), [Buzzard](#), [Stock Dove](#), [Woodpigeon](#), [Collared Dove](#), [Green Woodpecker](#), [Great Spotted Woodpecker](#), [Reed Warbler](#), [Blackcap](#), [Great Tit](#), [Long-tailed Tit](#), [Nuthatch](#), [Jackdaw](#) and [Carrion Crow](#).

In addition, [Tufted Duck](#) has shown an increase of 104% but its trend is no longer statistically significant.

Four further species monitored only over shorter periods have more than doubled (while four equivalent species have more than halved: see Declining species) [Cetti's Warbler](#) has increased by 267% since 1999 and even faster increases have been recorded, for the period since 1995, for [Red Kite](#) (+475%), [Barn Owl](#) (+501%) and the non-native [Ring-necked Parakeet](#) (+842%). This is the first report in this series for which a Barn Owl trend has been available.

For seven species that are listed red or amber for population decline over the long term – [Little Grebe](#), [Lapwing](#), [Grey Wagtail](#), [Meadow Pipit](#), [Grasshopper Warbler](#), [House Sparrow](#) and [Yellowhammer](#) – decline has started to level off, or has ceased, during the recent ten-year period.

Six other formerly declining species – [Dunnock](#), [Song Thrush](#), [Whitethroat](#), [Bullfinch](#), [Tree Sparrow](#) and [Reed Bunting](#) – have reversed their trend and shown significant population increases over the last ten years. Where the earlier decline had been steep or long-lasting, however, for example 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 positive 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.

Reduced breeding success

Using data on clutch sizes, brood sizes and nest failure rates, it is possible to calculate the mean number of young leaving each nest in a given year, given as Fledglings Per Breeding Attempt (FPBA). Six species exhibit negative trends in FPBA over the past 20 years or more, indicating that reproductive output has decreased over time, including one BoCC3 red-listed species ([Nightjar](#)), three amber-listed species ([Willow Warbler](#), [Bullfinch](#) and [Reed Bunting](#)) and two green-listed species ([Chaffinch](#) and [Greenfinch](#)). While productivity of [Nightjar](#), [Willow Warbler](#) and [Reed Bunting](#) has been falling consistently for the past 40 years, trends for the other three species are curvilinear, increasing between the mid 1960s and mid 1980s and decreasing thereafter.

Productivity declines in the migrant [Nightjar](#) and [Willow Warbler](#) may be driven by changes in habitat 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, particularly those reliant on seasonal peaks in caterpillars – which may explain the falling productivity of [Chaffinch](#). However, the possibility of a density-dependent decline cannot be excluded for this species or for [Greenfinch](#), both of which have increased rapidly in number.

Declining nest survival at either the egg or chick stage is implicated in the productivity declines of [Nightjar](#), [Willow Warbler](#), [Chaffinch](#), [Bullfinch](#) and [Reed Bunting](#), suggesting that increasing predation pressure might be responsible, but there is currently little evidence that predators are impacting on bird populations at national scales. Increased grazing pressure from deer has led to a reduction in scrub, which may reduce food or nest-site availability for species such as [Willow Warbler](#) and [Bullfinch](#). Studies of declining [Reed Bunting](#) populations have identified winter food availability as a key factor, and loss of condition during the winter could depress subsequent breeding success.

CES ringing data indicate that productivity has fallen by more than 30% for five of the species monitored by this scheme: [Blackbird](#), [Song Thrush](#), [Sedge Warbler](#), [Blue Tit](#) and [Goldfinch](#). Two of these ([Song Thrush](#) and [Sedge Warbler](#)) have experienced significant population declines, either on CES sites or more widely, although previous analyses suggest that falling survival rates are the primary driver of this trend. [Blue Tit](#) and [Goldfinch](#) numbers have both increased over this period, and reduced breeding success may therefore be the result of a density-dependent reduction in intraspecific competition.

Increased breeding success



Breeding success is improving for Nuthatches

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

Early breeding



On average, Redstarts are now laying 13 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 44 species that, on average, are laying between 1 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](#) – 6 days), waders ([Oystercatcher](#) – 8 days), migrant insectivores ([Pied Flycatcher](#) – 11 days, [Swallow](#) – 8 days), resident insectivores ([Robin](#) – 8 days, [Blue Tit](#) – 11 days), corvids ([Magpie](#) – 30 days) and resident seed-eaters ([Greenfinch](#) – 16 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).

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 significant 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 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, [European bird indicators](#) have been developed.

Monitoring UK breeding birds

Long-running bird surveys operated by BTO contribute to an overall programme of Integrated Population Monitoring (IPM) that 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. IPM has the following specific aims (Baillie 1990, 1991):

1. to establish thresholds that will be used to notify conservation bodies of requirements for further research or conservation action;
2. to identify the stage of the life cycle at which demographic changes are taking place;
3. to provide data that will assist in identifying the causes of such changes; and
4. to distinguish changes in population sizes or demographic rates induced by human activities from those that are due to natural fluctuations.

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 representative of all habitats and 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 in length. 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.

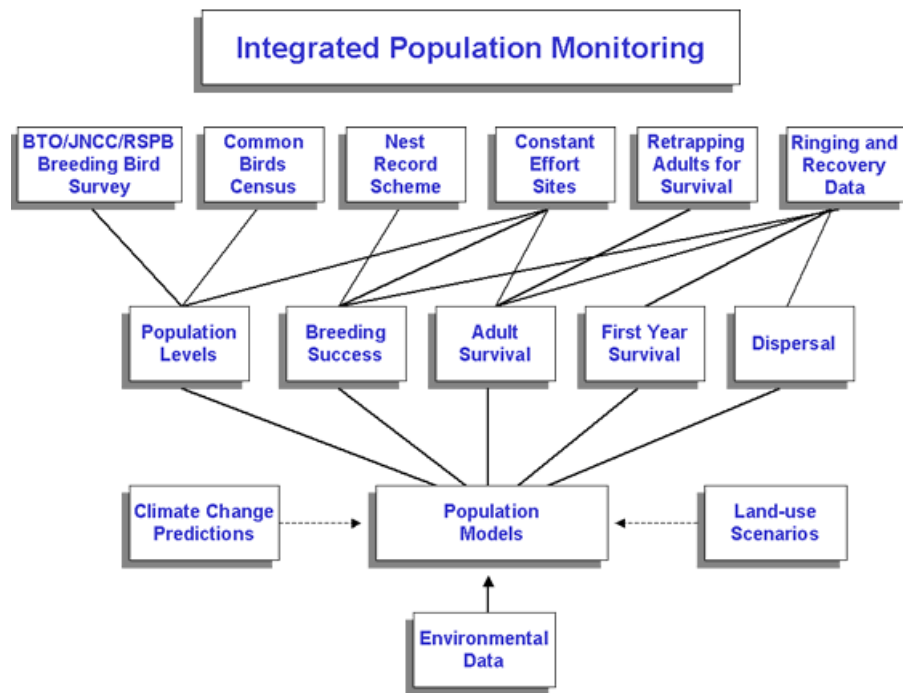
Changes in breeding performance are measured by:

- 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.
- Further information on survival rates is 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, using population models, to elucidate the mechanisms behind the changes we observe in population size.



Combining results from different 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 holds 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 drop in productivity decreased the capacity of the non-breeding section of the 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 impending 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 & Shrubbs 1986, Fulløe *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 funded by Government 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.

The aims of this report

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 on paper, 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](#). The first 12 reports were titled *Breeding Birds in the Wider Countryside: their conservation status* with 'birdtrends' as the link to the web pages and 'wider countryside report' as their informal title. 'Bird Trends' is now the informal title of the report, matching the web link.

The current report in the series is 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 has been extended more widely through a collaboration between EBCC, BirdLife and RSPB to produce [pan-European bird indicators](#).

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 all 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.

Our 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.

Helen Baker and Ian McLean of JNCC provided helpful discussions, comments and support during the production of the report. David Stroud, Rowena Langston, David Gibbons, Jacquie Clark, Nigel Clark, Jeremy Greenwood and Malcolm Vincent provided helpful comments on earlier editions of this publication.

The analyses would not have been possible without the hard work of many past and present BTO staff who have organised schemes, collated data sets or overseen analyses, including: Sue Adams, Dawn Balmer, Jeremy Blackburn, Jacquie Clark, Mark Collier, Rachel Coombes, Humphrey Crick, Steve Freeman, Mark Grantham, Bridget Griffin, Mike Raven, Brenda Read, Richard Thewlis, Anne Trewitt and Jane Waters. The work is also heavily dependent on the BTO's computer and database systems overseen jointly by Karen Wright (with Iain Downie). Susan Waghorn and Laura Smith exercised great skill and effort in helping to design and build the website. The site is now maintained by Mandy T Andrews.

We are very grateful to all of the above organisations and individuals for their contributions to this report.

Methods

Eight 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 the Constant Effort Sites ringing scheme. Two schemes, the Nest Record Scheme and Constant Effort Sites, provide data on changes in breeding productivity. Data on survival rates come from detailed analyses of the retrappings and recoveries of ringed birds, from Retrapping Adults for Survival, Constant Effort Sites and the general Ringing Scheme. In addition, information 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).

There are two additional sections to the methods - the alert system and statistical methods used for alerts. These deal, first in descriptive terms and second in statistical detail, with the system by which the results of monitoring surveys raise alerts and thereby are brought to the attention of conservation bodies.

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 on counting birds 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 already 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 here 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.

[Visit the main BBS section of the BTO website.](#)

Common Birds Census

The Common Birds Census (CBC) ran from 1962 to 2000 and was the first of the BTO's schemes for monitoring population trends among widespread breeding birds. It 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 Waterways Bird Survey 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 its 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).

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.

[More information on CBC](#) (PDF, 87.11 KB)

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CBC/BBS trends

CBC and BBS have been described separately in earlier sections. This page describes how the results have been combined to derive joint CBC/BBS trends, extending from the 1960s to the present.

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 BBS has been unable to contribute.

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).

Waterways Bird Survey & 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 closing years there were around 90 plots distributed throughout the UK. The north and west of Britain were better represented by WBS 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 held true for WBS (see CBC section). Marchant *et al.* (1990) found that there had been little change by 1988 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.

More information on

[WBS](#) (PDF, 77.53 KB)
and [WBBS](#).

Heronries Census

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, thus lending themselves to censuses of active nests.

The BTO Heronries Census began in 1928 and is the longest-running breeding-season bird monitoring scheme in the world. 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*, Night-herons *Nycticorax nycticorax* and Spoonbills *Platalea leucorodia*. 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 there 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.

Visit the [Heronries Census page](#) of the BTO website.

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 (Peach *et al.* 1996). 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 summing 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. More detailed information about analytical methods is given below and were also provided by Peach *et al.* (1998) (abundance) and Robinson *et al.* (2007) (productivity). Between-year recaptures of ringed birds are also used to calculate annual survival rates of adult birds using specialised analytical techniques (Peach 1993).

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 standard 12 visits, but no more than three visits have been missed, 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).

Annual estimates of adult survival are derived from a form of the standard Cormack–Jolly–Seber 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.

Data presentation

Abundance and productivity data are presented graphically with the smoothed trend in blue and their 85% confidence limits in green. No trend is currently fitted to the survival data, but the individual estimates are presented in green with 95% confidence limits. A caveat is provided for 'Small samples' when the average number of plots per year is between 10 and 20.

Visit the [CES section](#) of the BTO website.

Retrapping Adults for Survival scheme

RAS aims to provide information on adult survival for a range of species in a variety of habitats, particularly those not caught in sufficient numbers on CES sessions or during more general mist-netting. Each RAS project targets an individual species and operates within a defined study area, aiming to catch and/or resight the majority of the adults breeding within the site each year. The minimum annual sample size should ideally be sufficient to include 30 retraps or resightings from previous years, whilst maintaining a constant trapping/resighting effort. Each RAS study must run for a minimum of five years, but preferably much longer, to allow calculation of long-term survival rate trends.

As with CES, between-year recaptures of ringed birds can also be used to calculate annual survival rates of adults (Peach 1993), and RAS ringers often employ colour rings to increase the probability of detecting returning individuals. Further details of the analytical methods are given below, and examples of analyses of RAS data have been published by Robinson *et al.* (2008, 2010).

The RAS Scheme was launched in 1998 and around 130 projects are currently active, covering 50 species in total, and data for nine of these are presented in this report. Overall, study sites are well distributed throughout the UK.

Data analysis

Annual estimates of adult survival are derived from a form of the standard Cormack–Jolly–Seber capture–mark–recapture model (Lebreton et al. 1992). 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. Where individuals can be sexed we include a sex-specific intercept, but assume survival varies similarly across years for both sexes; where few individuals of one sex are caught, we exclude these from the models. We model the annual recapture probabilities as a function of either the number days on which the RAS project operated in that year or the amount of effort recorded, choosing the one that best fits the data. Note that the annual estimates of annual survival presented are in fact the probability that adult birds are found to have returned to the same RAS 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.

Visit the [RAS section](#) of the BTO website.

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). BTO now holds more than a million nest records, of which 35% are already 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):

$$FPBA = CS \times HS \times (1 - EF)EP \times (1 - YF)YP$$

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.

Visit the [Nest Record Scheme section](#) of the BTO website.

Alert system

[General approach](#)

[Smoothing population trends](#)

[Years used for analysis](#)

[Confidence limits and statistical testing](#)

[Data-deficient species](#)

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.

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

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. 2011) we have analyses of monitoring data up to year $(x-1)$ (e.g. 2010). As we drop the final year of the smoothed time series, we report here on change measures up to year $(x-2)$ (e.g. 2009).

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.

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

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.

Statistical methods 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.

General structure of the 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:

$$\log(\text{count}) = \text{site effect} + \text{year effect}$$

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 the same number of 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.

Fitting smoothed trends

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:

$$\log(\text{count}) = \text{site effect} + \text{smooth}(\text{year})$$

where smooth (year) represents some smoothing function of the year effect. It was not straightforward to fit GAMs to the bird 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	1966–2010	45	14
WBS/WBBS	1974–2010	37	11
Breeding Bird Survey	1994–2010	17	5
Heronries Census	1928–2010	83	25
Constant Effort Sites	1983–2010	28	8

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.

CBC/BBS, WBS/WBBS and BBS trends

The model fitted to the combined CBC/BBS and WBS/WBBS 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 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.

Heronries Census trends

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 limitation as there are presently no alerts for [Grey Heron](#), whose populations have generally been increasing.

Constant Effort Sites trends

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% ci) and change measures (90% ci) 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.

Species list

Access the page for a species by clicking its link on the list below. Each species page has alphabetical and taxonomic listings giving access to all the others.

Jump to

[Wildfowl](#)
[Gamebirds](#)
[Seabirds](#)
[Waterbirds](#)

[Raptors](#)
[Waders](#)
[Pigeons](#)
[Owls](#)

[Crows](#)
[Tits](#)
[Larks](#)
[Warblers](#)

[Thrushes](#)
[Sparrows](#)
[Finches](#)
[Buntings](#)

List of species (in BOU taxonomic order)

WILDFOWL

[Mute Swan](#)
[Greylag Goose](#)
[Canada Goose](#)
[Shelduck](#)
[Mallard](#)

[Tufted Duck](#)

[Goosander](#)

GAMEBIRDS

[Red Grouse](#)

[Red-legged Partridge](#)

[Grey Partridge](#)

[Pheasant](#)

WATERBIRDS

[Red-throated Diver](#)

[Cormorant](#)

[Grey Heron](#)

[Little Grebe](#)

[Great Crested Grebe](#)

RAPTORS, etc

[Red Kite](#)

[Hen Harrier](#)

[Sparrowhawk](#)

[Buzzard](#)

[Kestrel](#)

[Merlin](#)

[Hobby](#)

[Peregrine](#)

[Moorhen](#)

[Coot](#)

WADERS

[Oystercatcher](#)

[Ringed Plover](#)

[Golden Plover](#)

[Lapwing](#)

[Snipe](#)

[Woodcock](#)

[Curlew](#)

[Common Sandpiper](#)

[Redshank](#)

PIGEONS, etc

[Feral Pigeon](#)

[Stock Dove](#)

[Woodpigeon](#)

[Collared Dove](#)

[Turtle Dove](#)

[Ring-necked Parakeet](#)

[Cuckoo](#)

OWLS, etc

[Barn Owl](#)

[Little Owl](#)

[Tawny Owl](#)

[Nightjar](#)

[Swift](#)

[Kingfisher](#)

[Green Woodpecker](#)

[Great Spotted Woodpecker](#)

[Lesser Spotted Woodpecker](#)

CROWS, etc

[Magpie](#)

[Jay](#)

[Jackdaw](#)

[Rook](#)

[Carrion Crow](#)

[Hooded Crow](#)

[Raven](#)

TITS, etc

[Goldcrest](#)

[Blue Tit](#)

[Great Tit](#)

[Coal Tit](#)

[Willow Tit](#)

[Marsh Tit](#)

LARKS, etc

[Woodlark](#)

[Skylark](#)

[Sand Martin](#)

[Swallow](#)

[House Martin](#)

WARBLERS, etc

[Cetti's Warbler](#)

[Long-tailed Tit](#)

[Wood Warbler](#)

[Chiffchaff](#)

[Willow Warbler](#)

[Blackcap](#)

[Garden Warbler](#)

[Lesser Whitethroat](#)

[Whitethroat](#)

[Grasshopper Warbler](#)

[Sedge Warbler](#)

[Reed Warbler](#)

[Nuthatch](#)

[Treecreeper](#)

[Wren](#)

[Starling](#)

[Dipper](#)

THRUSHES, etc

[Ring Ouzel](#)

[Blackbird](#)

[Song Thrush](#)

[Mistle Thrush](#)

[Spotted Flycatcher](#)

[Robin](#)

[Nightingale](#)

[Pied Flycatcher](#)

[Redstart](#)

[Whinchat](#)

[Stonechat](#)

[Wheatear](#)

SPARROWS, etc

[Duncock](#)

[House Sparrow](#)

[Tree Sparrow](#)

[Yellow Wagtail](#)

[Grey Wagtail](#)

[Pied Wagtail](#)

[Tree Pipit](#)

[Meadow Pipit](#)

FINCHES

[Chaffinch](#)

[Greenfinch](#)

[Goldfinch](#)

[Siskin](#)

[Linnet](#)

[Lesser Redpoll](#)

[Common Crossbill](#)

[Bullfinch](#)

BUNTINGS

[Yellowhammer](#)

[Reed Bunting](#)

[Corn Bunting](#)

Information to aid interpretation of the pages for individual species can be found on the [Key to species texts](#) page.

The following seabird species are not covered by *BirdTrends* but full trend information is available from the [Seabird Population Trends and Causes of Change: 2011 Report](#), a separate web site produced by a partnership of which both BTO and JNCC were a part.

SEABIRDS

[Fulmar](#)

[Manx Shearwater](#)

[Storm Petrel](#)

[Leach's Petrel](#)

[Gannet](#)

[Shag](#)

[Arctic Skua](#)

[Great Skua](#)

[Kittiwake](#)

[Black-headed Gull](#)

[Mediterranean Gull](#)
[Common Gull](#)
[Lesser Black-backed Gull](#)
[Herring Gull](#)
[Great Black-backed Gull](#)
[Sandwich Tern](#)

[Common Tern](#)
[Roseate Tern](#)
[Arctic Tern](#)
[Little Tern](#)
[Guillemot](#)
[Razorbill](#)
[Black Guillemot](#)
[Puffin](#)

Key to species texts

The 117 species in this report can be accessed in any order, via alphabetic and taxonomic lists. The taxonomic sequence is that established by the British Ornithologists' Union and updated in its current [British List](#). The vernacular and scientific names we use are also drawn from that list. Given this report's limited geographical scope, we use the 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 earlier 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. [ABAP 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 [INCC priority species page](#).

2. Long-term trend: This summarises the trend in population size since 1967 from CBC/BBS, 1975 from WBS/WBBS data, or 1984 from CES data. 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 described as 'shallow', 'moderate' or 'rapid' are generally statistically significant. The following terms are used:
 - Rapid decline: >50% population decline according to CBC/BBS, WBS/WBBS or CES
 - Moderate decline: 25–50% population decline according to CBC/BBS, WBS/WBBS or CES
 - Shallow decline: 10–25% population decline according to CBC/BBS, WBS/WBBS or CES
 - Decline/Increase: information has been derived from sources other than CBC/BBS, WBS/WBBS or CES
 - Probable/Possible increase/decline: information has been derived from sources other than CBC/BBS, WBS/WBBS or CES, and the information is uncertain – see the status summary for details
 - Stable/Fluctuating, with no long-term trend no overall change, or change <10%
 - Uncertain: the information from two monitoring schemes conflicts, or the data are unrepresentative of the species' total UK population – see the status summary for details

- Unknown: no information on the UK population trend is available
 - Shallow increase: 10–50% population increase according to CBC/BBS, WBS/WBBS or CES
 - Moderate increase: 50–100% population increase according to CBC/BBS, WBS/WBBS or CES
 - Rapid increase: >100% population increase according to 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 recent surveys, including the [2007–11 Atlas](#), may well result in substantial challenge to the presently accepted figures.

4. Key facts table: For 43 species only, there follows a table giving a summary of key facts for migration, habitat and diet.
5. Status summary: This section provides a brief summary of the trends detailed for the species and, except where there is a separate Causes of change section for the species, indicates why such changes might have occurred, with reference to any published information, if this is known.
6. 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. The Methods section 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.
7. 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 the Alerts section 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.
8. Demographic 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 CES section 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.
9. Demography table: This provides details of changes in demographic variables 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 quadratic 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 (provided only 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).
10. Causes of change: For a selection of species (currently 43), information on the causes of the demographic changes we have observed has been removed from the Status summary paragraph and expanded upon under this heading. Literature references in this section are not generally linked to the main Reference section and are listed on each relevant species page.
11. Additional information: 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 are provided on the side bar of each species page.

Summary tables

[Tables of alerts and population increases from CBC/BBS](#)

[Tables of alerts and population increases from WBS/WBBS](#)

[Tables of alerts and population increases from CES](#)

[Tables of population declines and increases from BBS](#)

[Tables of breeding performance](#)

Tables of alerts and population increases from CBC/BBS

- 1a. CBC/BBS UK alerts – 41 years
- 1b. CBC/BBS England alerts – 41 years
- 2a. CBC/BBS UK alerts – 25 years
- 2b. CBC/BBS England alerts – 25 years
- 3a. CBC/BBS UK alerts – 10 years
- 3b. CBC/BBS England alerts – 10 years
- 4a. CBC/BBS UK alerts – 5 years
- 4b. CBC/BBS England alerts – 5 years
- 5a. CBC/BBS UK population increases of >50% – 41 years
- 5b. CBC/BBS England population increases of >50% – 41 years

Tables of alerts and population increases from WBS/WBBS

1. WBS/WBBS alerts – 33 years
2. WBS/WBBS alerts – 25 years
3. WBS/WBBS alerts – 10 years
4. WBS/WBBS alerts – 5 years
5. WBS/WBBS population increases of >50% – 33 years

Tables of alerts and population increases from CES

1. CES adults alerts – 24 years
2. CES adults alerts – 10 years
3. CES adults alerts – 5 years
4. CES adults population increases of >50% – 24 years

Tables of population declines and increases from BBS

1. BBS – UK alerts – 13 years
2. BBS – England alerts – 13 years
3. BBS – Scotland alerts – 13 years
4. BBS – Wales alerts – 13 years
5. BBS – Northern Ireland alerts – 13 years
6. BBS – UK alerts – 10 years
7. BBS – England alerts – 10 years
8. BBS – Scotland alerts – 10 years
9. BBS – Wales alerts – 10 years
10. BBS – Northern Ireland alerts – 10 years
11. BBS – UK alert – 5 years
12. BBS – England alerts – 5 years
13. BBS – Scotland alerts – 5 years
14. BBS – Wales alerts – 5 years
15. BBS – Northern Ireland alerts – 5 years
16. BBS – UK population increases of >50%
17. BBS – England population increases of >50%
18. BBS – Scotland population increases of >50%
19. BBS – Wales population increases of >50%
20. BBS – Northern Ireland population increases of >50%

Tables of breeding performance

1. Clutch size
2. Brood size
3. Egg-stage nest failure rate

CBC/BBS alerts & population increases

- 1a. [CBC/BBS UK alerts – 41 years](#)
- 1b. [CBC/BBS England alerts – 41 years](#)
- 2a. [CBC/BBS UK alerts – 25 years](#)
- 2b. [CBC/BBS England alerts – 25 years](#)
- 3a. [CBC/BBS UK alerts – 10 years](#)
- 3b. [CBC/BBS England alerts – 10 years](#)
- 4a. [CBC/BBS UK alerts – 5 years](#)
- 4b. [CBC/BBS England alerts – 5 years](#)
- 5a. [CBC/BBS UK population increases of >50% – 41 years](#)
- 5b. [CBC/BBS England population increases of >50% – 41 years](#)

1a. Table of population alerts for CBC/BBS UK 1967-2009

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
Grey Partridge	42	128	-91	-93	-87	>50	
Turtle Dove	42	107	-90	-95	-86	>50	
Willow Tit	42	43	-90	-96	-83	>50	
Spotted Flycatcher	42	126	-89	-93	-84	>50	
Corn Bunting	42	70	-87	-94	-76	>50	
Yellow Wagtail	42	76	-78	-89	-52	>50	
Marsh Tit	42	95	-72	-80	-62	>50	
Whitethroat	42	537	-61	-73	-49	>50	
Yellowhammer	42	511	-57	-66	-48	>50	
Little Owl	42	58	-54	-71	-25	>50	
Mistle Thrush	42	520	-52	-61	-43	>50	
Song Thrush	42	823	-50	-57	-42	>25	
Bullfinch	42	305	-45	-57	-31	>25	
Dunnock	42	846	-33	-42	-21	>25	

1b. Table of population alerts for CBC/BBS England 1967-2009

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
Tree Sparrow	42	89	-96	-98	-93	>50	
Spotted Flycatcher	42	96	-91	-94	-86	>50	
Grey Partridge	42	115	-90	-93	-87	>50	
Turtle Dove	42	106	-90	-94	-86	>50	
Willow Tit	42	40	-89	-95	-80	>50	
Lesser Redpoll	42	46	-89	-96	-74	>50	
Tree Pipit	42	47	-87	-94	-76	>50	
Starling	42	584	-87	-90	-82	>50	
Corn Bunting	42	67	-85	-92	-70	>50	
Yellow Wagtail	42	75	-77	-90	-51	>50	
Linnet	42	418	-76	-82	-70	>50	
Cuckoo	42	281	-73	-80	-62	>50	
Marsh Tit	42	87	-71	-79	-60	>50	
Skylark	42	553	-63	-69	-58	>50	
Whitethroat	42	465	-62	-72	-51	>50	
Willow Warbler	42	450	-60	-71	-49	>50	

<u>Yellowhammer</u>	42	446	-60	-68	-50	>50	
Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
<u>Mistle Thrush</u>	42	423	-57	-65	-47	>50	
<u>Meadow Pipit</u>	42	173	-50	-77	-23	>25	
<u>Song Thrush</u>	42	652	-50	-58	-41	>50	
<u>Little Owl</u>	42	56	-48	-71	-3	>25	
<u>Bullfinch</u>	42	246	-48	-60	-36	>25	
<u>Dunnock</u>	42	698	-37	-47	-27	>25	
<u>Sedge Warbler</u>	42	93	-34	-67	-8	>25	

2a. Table of population alerts for CBC/BBS UK 1984-2009

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
<u>Willow Tit</u>	25	45	-87	-93	-80	>50	
<u>Turtle Dove</u>	25	129	-86	-91	-81	>50	
<u>Spotted Flycatcher</u>	25	152	-81	-87	-74	>50	
<u>Grey Partridge</u>	25	164	-79	-83	-71	>50	
<u>Corn Bunting</u>	25	96	-76	-88	-61	>50	
<u>Yellow Wagtail</u>	25	106	-75	-84	-64	>50	
<u>Little Owl</u>	25	79	-60	-72	-45	>50	
<u>Yellowhammer</u>	25	757	-54	-60	-48	>50	
<u>Lapwing</u>	25	426	-52	-62	-35	>50	
<u>Marsh Tit</u>	25	120	-43	-57	-27	>25	
<u>Mistle Thrush</u>	25	770	-42	-49	-35	>25	
<u>Tawny Owl</u>	25	92	-33	-47	-17	>25	

2b. Table of population alerts for CBC/BBS England 1984-2009

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
<u>Lesser Redpoll</u>	25	44	-93	-97	-87	>50	
<u>Tree Pipit</u>	25	55	-88	-93	-78	>50	
<u>Willow Tit</u>	25	41	-87	-92	-79	>50	
<u>Turtle Dove</u>	25	128	-86	-91	-81	>50	
<u>Spotted Flycatcher</u>	25	111	-84	-89	-78	>50	
<u>Tree Sparrow</u>	25	92	-81	-91	-64	>50	
<u>Starling</u>	25	900	-80	-83	-76	>50	
<u>Grey Partridge</u>	25	146	-78	-82	-69	>50	
<u>Corn Bunting</u>	25	92	-75	-87	-58	>50	
<u>Yellow Wagtail</u>	25	104	-74	-84	-61	>50	
<u>Cuckoo</u>	25	405	-73	-77	-67	>50	
<u>Willow Warbler</u>	25	642	-62	-68	-56	>50	
<u>Yellowhammer</u>	25	661	-58	-62	-52	>50	
<u>Little Owl</u>	25	76	-54	-68	-36	>50	
<u>Mistle Thrush</u>	25	620	-49	-55	-43	>25	
<u>House Sparrow</u>	25	780	-49	-61	-28	>25	
<u>Lapwing</u>	25	354	-46	-59	-30	>25	
<u>Marsh Tit</u>	25	110	-43	-56	-25	>25	

Skylark	Species	25	Period (yrs)	849	Plots (n)	-39	Change (%)	-45	Lower limit	-28	Upper limit	>25	Alert	Comment
Meadow Pipit		25		264		-35		-56		-17		>25		
Linnet		25		616		-34		-47		-21		>25		
Tawny Owl		25		79		-29		-46		-11		>25		

3a. Table of population alerts for CBC/BBS UK 1999-2009

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
<u>Turtle Dove</u>	10	163	-68	-73	-62	>50	
<u>Willow Tit</u>	10	50	-65	-76	-56	>50	
<u>Yellow Wagtail</u>	10	155	-42	-52	-31	>25	
<u>Spotted Flycatcher</u>	10	205	-38	-52	-14	>25	
<u>Grey Partridge</u>	10	228	-36	-46	-27	>25	
<u>Little Owl</u>	10	112	-35	-46	-24	>25	

3b. Table of population alerts for CBC/BBS England 1999-2009

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
<u>Turtle Dove</u>	10	161	-68	-74	-62	>50	
<u>Willow Tit</u>	10	44	-64	-72	-53	>50	
<u>Cuckoo</u>	10	569	-51	-54	-47	>50	
<u>Spotted Flycatcher</u>	10	144	-47	-55	-37	>25	
<u>Starling</u>	10	1526	-44	-46	-39	>25	
<u>Yellow Wagtail</u>	10	151	-42	-51	-32	>25	
<u>Tree Pipit</u>	10	78	-36	-52	-20	>25	
<u>Little Owl</u>	10	109	-33	-44	-20	>25	
<u>Mistle Thrush</u>	10	1018	-31	-35	-27	>25	
<u>Grey Partridge</u>	10	206	-28	-38	-17	>25	
<u>Willow Warbler</u>	10	956	-27	-32	-23	>25	

4a. Table of population alerts for CBC/BBS UK 2004-2009

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
<u>Turtle Dove</u>	5	141	-52	-59	-46	>50	
<u>Willow Tit</u>	5	48	-44	-56	-29	>25	
<u>Grey Partridge</u>	5	245	-31	-39	-21	>25	
<u>Yellow Wagtail</u>	5	156	-31	-42	-20	>25	

4b. Table of population alerts for CBC/BBS England 2004-2009

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
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<u>Turtle Dove</u>	5	140	-51	-58	-44	>50	
Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
<u>Willow Tit</u>	5	43	-40	-51	-24	>25	
<u>Cuckoo</u>	5	570	-35	-39	-31	>25	
<u>Spotted Flycatcher</u>	5	139	-33	-43	-20	>25	
<u>Yellow Wagtail</u>	5	153	-32	-42	-20	>25	
<u>Grey Partridge</u>	5	222	-27	-35	-15	>25	
<u>Tree Pipit</u>	5	83	-27	-43	-13	>25	
<u>Starling</u>	5	1646	-26	-29	-20	>25	

5a. Table of population increases of >50% for UK CBC/BBS 1967-2009

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
<u>Chiffchaff</u>	42	575	51	22	90		
<u>Pied Wagtail</u>	42	498	63	24	125		
<u>Coal Tit</u>	42	352	68	1	190		
<u>Wren</u>	42	995	81	56	102		
<u>Magpie</u>	42	754	98	63	145		
<u>Reed Warbler</u>	42	61	107	15	312		
<u>Jackdaw</u>	42	619	107	27	246		
<u>Great Tit</u>	42	889	110	86	139		
<u>Mallard</u>	42	519	167	101	227		
<u>Woodpigeon</u>	42	907	170	36	592		
<u>Blackcap</u>	42	626	177	126	239		
<u>Coot</u>	42	114	199	86	555		
<u>Nuthatch</u>	42	203	206	111	314		
<u>Mute Swan</u>	42	98	234	58	625		
<u>Great Spotted Woodpecker</u>	42	412	403	264	693		

5b. Table of population increases of >50% for England CBC/BBS 1967-2009

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
<u>Goldfinch</u>	42	486	55	21	108		
<u>Robin</u>	42	771	56	40	74		
<u>Chiffchaff</u>	42	490	57	30	107		
<u>Pied Wagtail</u>	42	384	63	18	135		
<u>Wren</u>	42	789	80	56	103		
<u>Reed Warbler</u>	42	58	81	17	230		
<u>Pheasant</u>	42	592	90	50	170		
<u>Jackdaw</u>	42	494	93	26	227		
<u>Great Tit</u>	42	731	101	74	132		
<u>Magpie</u>	42	640	104	62	165		
<u>Long-tailed Tit</u>	42	362	117	60	191		
<u>Carrion Crow</u>	42	758	119	76	175		Includes Hooded Crow
<u>Blackcap</u>	42	546	158	109	211		
<u>Stock Dove</u>	42	294	166	99	302		
<u>Woodpigeon</u>	42	728	191	62	589		

Coot	Species	42Period (yrs)	103Plots (n)	196Change (%)	88Lower limit	586Upper limit	Alert	Comment
Mute Swan		42	85	199	36	484		
Mallard		42	438	209	137	304		
Green Woodpecker		42	310	214	132	341		
Nuthatch		42	174	220	141	359		
Great Spotted Woodpecker		42	365	366	245	634		
Buzzard		42	195	652	380	2116		

WBS/WBBS alerts & population increases

1. [WBS/WBBS alerts – 33 years](#)
2. [WBS/WBBS alerts – 25 years](#)
3. [WBS/WBBS alerts – 10 years](#)
4. [WBS/WBBS alerts – 5 years](#)
5. [WBS/WBBS population increases of >50% – 33 years](#)

1. Table of alerts for WBS/WBBS waterways 1975-2009

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
Yellow Wagtail	34	24	-94	-98	-89	>50	Small sample
Snipe	34	13	-92	-98	-81	>50	
Redshank	34	24	-69	-90	-41	>50	
Pied Wagtail	34	110	-67	-76	-59	>50	
Reed Bunting	34	83	-58	-69	-40	>50	
Common Sandpiper	34	46	-40	-56	-27	>25	
Sedge Warbler	34	69	-37	-56	-12	>25	
Grey Wagtail	34	95	-35	-50	-15	>25	
Dipper	34	62	-32	-49	-15	>25	

2. Table of alerts for WBS/WBBS waterways 1984-2009

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
Snipe	25	14	-93	-98	-82	>50	Small sample
Yellow Wagtail	25	23	-93	-98	-88	>50	
Redshank	25	26	-68	-86	-52	>50	
Lapwing	25	73	-57	-71	-28	>50	
Pied Wagtail	25	126	-45	-55	-35	>25	
Common Sandpiper	25	54	-44	-55	-32	>25	

3. Table of alerts for WBS/WBBS waterways 1999-2009

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
Yellow Wagtail	10	26	-57	-79	-25	>50	
Redshank	10	32	-51	-65	-36	>50	
Curlew	10	77	-43	-54	-31	>25	
Snipe	10	23	-40	-67	-12	>25	
Lapwing	10	113	-33	-45	-18	>25	
Pied Wagtail	10	200	-30	-37	-21	>25	

4. Table of alerts for WBS/WBBS waterways 2004-2009

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
Redshank	5	33	-47	-62	-30	>25	
Snipe	5	24	-46	-65	-18	>25	
Lapwing	5	116	-26	-33	-16	>25	
Pied Wagtail	5	211	-26	-32	-17	>25	

5. Table of population increases for WBS/WBBS waterways 1975-2009

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
Oystercatcher	34	45	73	38	179		
Coot	34	60	90	29	253		
Mute Swan	34	76	100	41	191		
Whitethroat	34	77	126	3	304		
Mallard	34	159	209	143	300		

Go to CES alerts and population increases

1. [WBS/WBBS alerts – 33 years](#)
2. [WBS/WBBS alerts – 25 years](#)
3. [WBS/WBBS alerts – 10 years](#)
4. [WBS/WBBS alerts – 5 years](#)
5. [WBS/WBBS population increases of >50% – 33 years](#)

1. Table of alerts for WBS/WBBS waterways 1975-2009

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
Yellow Wagtail	34	24	-94	-98	-89	>50	
Snipe	34	13	-92	-98	-81	>50	Small sample
Redshank	34	24	-69	-90	-41	>50	
Pied Wagtail	34	110	-67	-76	-59	>50	
Reed Bunting	34	83	-58	-69	-40	>50	
Common Sandpiper	34	46	-40	-56	-27	>25	
Sedge Warbler	34	69	-37	-56	-12	>25	
Grey Wagtail	34	95	-35	-50	-15	>25	
Dipper	34	62	-32	-49	-15	>25	

2. Table of alerts for WBS/WBBS waterways 1984-2009

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
Snipe	25	14	-93	-98	-82	>50	Small sample
Yellow Wagtail	25	23	-93	-98	-88	>50	
Redshank	25	26	-68	-86	-52	>50	
Lapwing	25	73	-57	-71	-28	>50	

<u>Pied Wagtail</u>	25	Period	126	Plots	-45	Change	-55	Lower	-35	Upper	>25	Alert		Comment
<u>Common Sandpiper</u>	25	(yrs)	54	(n)	-44	(%)	-55	limit	-32	limit	>25			

3. Table of alerts for WBS/WBBS waterways 1999-2009

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
<u>Yellow Wagtail</u>	10	26	-57	-79	-25	>50	
<u>Redshank</u>	10	32	-51	-65	-36	>50	
<u>Curlew</u>	10	77	-43	-54	-31	>25	
<u>Snipe</u>	10	23	-40	-67	-12	>25	
<u>Lapwing</u>	10	113	-33	-45	-18	>25	
<u>Pied Wagtail</u>	10	200	-30	-37	-21	>25	

4. Table of alerts for WBS/WBBS waterways 2004-2009

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
<u>Redshank</u>	5	33	-47	-62	-30	>25	
<u>Snipe</u>	5	24	-46	-65	-18	>25	
<u>Lapwing</u>	5	116	-26	-33	-16	>25	
<u>Pied Wagtail</u>	5	211	-26	-32	-17	>25	

5. Table of population increases for WBS/WBBS waterways 1975-2009

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
<u>Oystercatcher</u>	34	45	73	38	179		
<u>Coot</u>	34	60	90	29	253		
<u>Mute Swan</u>	34	76	100	41	191		
<u>Whitethroat</u>	34	77	126	3	304		
<u>Mallard</u>	34	159	209	143	300		

CES alerts & population increases

- 1. [CES adults alerts – 24 years](#)
- 2. [CES adults alerts – 10 years](#)
- 3. [CES adults alerts – 5 years](#)
- 4. [CES adults population increases of >50% – 24 years](#)

1. Table of alerts for CES adults 1984-2009

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
Linnet	25	17	-94	-98	-83	>50	Small sample
Willow Warbler	25	89	-68	-75	-60	>50	
Lesser Whitethroat	25	38	-66	-82	-51	>50	
Reed Bunting	25	58	-61	-72	-49	>50	
Willow Tit	25	19	-53	-82	-9	>50	Small sample
Sedge Warbler	25	65	-40	-58	-24	>25	
Reed Warbler	25	55	-35	-49	-13	>25	
Whitethroat	25	60	-35	-52	-11	>25	

2. Table of alerts for CES adults 1999-2009

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
Willow Warbler	10	91	-44	-52	-35	>25	
Sedge Warbler	10	74	-37	-44	-30	>25	
Lesser Whitethroat	10	33	-28	-46	-10	>25	
Reed Warbler	10	62	-27	-35	-18	>25	
Greenfinch	10	50	-26	-43	-7	>25	

3. Table of alerts for CES adults 2004-2009

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
Linnet	5	15	-44	-66	-14	>25	Small sample
Lesser Whitethroat	5	33	-34	-50	-20	>25	
Greenfinch	5	52	-34	-46	-25	>25	
Sedge Warbler	5	70	-30	-36	-24	>25	
Reed Bunting	5	65	-28	-37	-18	>25	

4. Table of population increases for CES adults 1984-2009

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
Blackcap	25	89	55	32	89		
Chiffchaff	25	72	161	77	331		

Go to BBS population declines and increases

1. [CES adults alerts – 24 years](#)
2. [CES adults alerts – 10 years](#)
3. [CES adults alerts – 5 years](#)
4. [CES adults population increases of >50% – 24 years](#)

1. Table of alerts for CES adults 1984-2009

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
Linnet	25	17	-94	-98	-83	>50	Small sample
Willow Warbler	25	89	-68	-75	-60	>50	
Lesser Whitethroat	25	38	-66	-82	-51	>50	
Reed Bunting	25	58	-61	-72	-49	>50	
Willow Tit	25	19	-53	-82	-9	>50	Small sample
Sedge Warbler	25	65	-40	-58	-24	>25	
Reed Warbler	25	55	-35	-49	-13	>25	
Whitethroat	25	60	-35	-52	-11	>25	

2. Table of alerts for CES adults 1999-2009

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
Willow Warbler	10	91	-44	-52	-35	>25	
Sedge Warbler	10	74	-37	-44	-30	>25	
Lesser Whitethroat	10	33	-28	-46	-10	>25	
Reed Warbler	10	62	-27	-35	-18	>25	
Greenfinch	10	50	-26	-43	-7	>25	

3. Table of alerts for CES adults 2004-2009

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
Linnet	5	15	-44	-66	-14	>25	Small sample
Lesser Whitethroat	5	33	-34	-50	-20	>25	
Greenfinch	5	52	-34	-46	-25	>25	
Sedge Warbler	5	70	-30	-36	-24	>25	
Reed Bunting	5	65	-28	-37	-18	>25	

4. Table of population increases for CES adults 1984-2009

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
Blackcap	25	89	55	32	89		

Chiffchaff Species	25 Period (yrs)	72 Plots (n)	161 Change (%)	77 Lower limit	331 Upper limit	Alert	Comment
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BBS population declines & increases

1. [BBS – UK alerts – 13 years](#)
2. [BBS – England alerts – 13 years](#)
3. [BBS – Scotland alerts – 13 years](#)
4. [BBS – Wales alerts – 13 years](#)
5. [BBS – Northern Ireland alerts – 13 years](#)
6. [BBS – UK alerts – 10 years](#)
7. [BBS – England alerts – 10 years](#)
8. [BBS – Scotland alerts – 10 years](#)
9. [BBS – Wales alerts – 10 years](#)
10. [BBS – Northern Ireland alerts – 10 years](#)
11. [BBS – UK alert – 5 years](#)
12. [BBS – England alerts – 5 years](#)
13. [BBS – Scotland alerts – 5 years](#)
14. [BBS – Wales alerts – 5 years](#)
15. [BBS – Northern Ireland alerts – 5 years](#)
16. [BBS – UK population increases of >50%](#)
17. [BBS – England population increases of >50%](#)
18. [BBS – Scotland population increases of >50%](#)
19. [BBS – Wales population increases of >50%](#)
20. [BBS – Northern Ireland population increases of >50%](#)

1. Table of declines >25% for BBS UK 1995-2009

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
Willow Tit	14	52	-76	-82	-67	>50	
Turtle Dove	14	170	-74	-79	-69	>50	
Wood Warbler	14	54	-62	-73	-46	>50	
Yellow Wagtail	14	156	-55	-62	-47	>50	
Whinchat	14	77	-55	-67	-41	>50	
Grey Partridge	14	228	-54	-60	-45	>50	
Pied Flycatcher	14	41	-51	-65	-33	>50	
Cuckoo	14	731	-48	-52	-43	>25	
Spotted Flycatcher	14	199	-47	-60	-33	>25	
Starling	14	1734	-45	-48	-41	>25	
Curlew	14	504	-41	-46	-35	>25	
Redshank	14	85	-35	-48	-14	>25	
Dipper	14	57	-35	-53	-10	>25	
Corn Bunting	14	143	-33	-45	-22	>25	
Swift	14	1022	-31	-40	-22	>25	
Little Owl	14	101	-29	-42	-17	>25	
Kestrel	14	641	-28	-34	-19	>25	

2. Table of declines >25% for BBS England 1995-2009

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
Willow Tit	14	46	-76	-82	-69	>50	
Turtle Dove	14	167	-74	-79	-69	>50	
Cuckoo	14	572	-63	-66	-60	>50	
Nightingale	14	30	-57	-70	-32	>50	
Yellow Wagtail	14	153	-55	-63	-46	>50	
Spotted Flycatcher	14	139	-52	-62	-41	>50	
Starling	14	1421	-51	-54	-47	>50	

Grey Partridge Species	14 Period (yrs)	203 Plots (n)	-50 Change (%)	-56 Lower limit	-40 Upper limit	>25 Alert	Comment
<u>Tree Pipit</u>	14	73	-50	-63	-28	>25	
<u>Whinchat</u>	14	33	-45	-67	-17	>25	
<u>Swift</u>	14	882	-32	-41	-21	>25	
<u>Linnet</u>	14	937	-32	-36	-26	>25	
<u>Curlew</u>	14	317	-30	-37	-22	>25	
<u>Mistle Thrush</u>	14	918	-30	-36	-25	>25	
<u>Willow Warbler</u>	14	900	-30	-37	-24	>25	
<u>Corn Bunting</u>	14	136	-29	-41	-13	>25	
<u>Little Owl</u>	14	98	-28	-41	-14	>25	

3. Table of declines >25% for BBS Scotland 1995-2009

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
<u>Kestrel</u>	14	43	-58	-71	-38	>50	
<u>Curlew</u>	14	121	-53	-60	-43	>50	
<u>Lapwing</u>	14	89	-37	-50	-21	>25	
<u>Meadow Pipit</u>	14	201	-31	-41	-23	>25	
<u>Starling</u>	14	144	-29	-40	-12	>25	

4. Table of declines >25% for BBS Wales 1995-2009

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
<u>Starling</u>	14	82	-63	-72	-49	>50	
<u>Goldcrest</u>	14	82	-52	-69	-22	>50	
<u>Swift</u>	14	67	-50	-64	-28	>50	
<u>Curlew</u>	14	37	-49	-61	-35	>25	
<u>Yellowhammer</u>	14	37	-35	-54	-17	>25	
<u>Cuckoo</u>	14	56	-34	-50	-16	>25	
<u>Linnet</u>	14	91	-31	-51	-5	>25	

5. Table of declines >25% for BBS Northern Ireland 1995-2009

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
<u>Skylark</u>	14	35	-36	-47	-29	>25	

6. Table of declines >25% for BBS UK 1999-2009

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
<u>Turtle Dove</u>	10	158	-67	-72	-62	>50	
<u>Willow Tit</u>	10	48	-65	-73	-54	>50	

Whinchat	10	72	-46	-60	-33	>25	
Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
Wood Warbler	10	52	-43	-61	-21	>25	
<u>Yellow Wagtail</u>	10	152	-42	-51	-34	>25	
<u>Pied Flycatcher</u>	10	40	-42	-58	-24	>25	
<u>Dipper</u>	10	62	-41	-56	-21	>25	
<u>Starling</u>	10	1841	-41	-44	-37	>25	
<u>Grey Partridge</u>	10	220	-39	-48	-29	>25	
<u>Spotted Flycatcher</u>	10	199	-37	-52	-21	>25	
<u>Cuckoo</u>	10	714	-35	-40	-30	>25	
<u>Little Owl</u>	10	106	-34	-45	-25	>25	
<u>Curlew</u>	10	532	-32	-38	-26	>25	
<u>Goldcrest</u>	10	860	-29	-32	-17	>25	

7. Table of declines >25% for BBS England 1999-2009

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
<u>Turtle Dove</u>	10	156	-67	-72	-62	>50	
<u>Willow Tit</u>	10	43	-63	-72	-53	>50	
<u>Nightingale</u>	10	32	-59	-70	-41	>50	
<u>Cuckoo</u>	10	548	-49	-52	-45	>25	
<u>Spotted Flycatcher</u>	10	136	-44	-53	-34	>25	
<u>Starling</u>	10	1501	-44	-46	-40	>25	
<u>Yellow Wagtail</u>	10	148	-43	-52	-32	>25	
<u>Whinchat</u>	10	32	-40	-60	-17	>25	
<u>Tree Pipit</u>	10	76	-35	-54	-15	>25	
<u>Redshank</u>	10	66	-33	-49	-12	>25	
<u>Little Owl</u>	10	103	-33	-45	-20	>25	
<u>Mistle Thrush</u>	10	983	-31	-34	-26	>25	
<u>Grey Partridge</u>	10	198	-30	-40	-19	>25	
<u>Swift</u>	10	940	-27	-33	-20	>25	

8. Table of declines >25% for BBS Scotland 1999-2009

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
<u>Kestrel</u>	10	41	-43	-59	-12	>25	
<u>Curlew</u>	10	117	-42	-51	-31	>25	
<u>Goldcrest</u>	10	102	-42	-49	-25	>25	
<u>Starling</u>	10	152	-35	-46	-22	>25	
<u>Mallard</u>	10	99	-33	-45	-23	>25	
<u>Meadow Pipit</u>	10	193	-28	-36	-20	>25	
<u>Red Grouse</u>	10	47	-25	-38	-12	>25	

9. Table of declines >25% for BBS Wales 1999-2009

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
<u>Goldcrest</u>	10	91	-53	-64	-35	>50	
<u>Swift</u>	10	75	-50	-65	-34	>50	
<u>Starling</u>	10	87	-48	-57	-36	>25	
<u>Curlew</u>	10	38	-41	-51	-26	>25	
<u>Linnet</u>	10	101	-37	-54	-20	>25	
<u>Tree Pipit</u>	10	33	-35	-53	-6	>25	
<u>Treecreeper</u>	10	44	-34	-53	-13	>25	
<u>House Martin</u>	10	96	-30	-44	-13	>25	
<u>Cuckoo</u>	10	59	-27	-39	-11	>25	

10. Table of declines >25% for BBS Northern Ireland 1999-2009

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
<u>Skylark</u>	10	36	-47	-60	-42	>25	
<u>Rook</u>	10	86	-41	-55	-25	>25	
<u>Starling</u>	10	90	-31	-44	-16	>25	
<u>Greenfinch</u>	10	60	-27	-43	-10	>25	

11. Table of declines >25% for BBS UK 2004-2009

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
<u>Turtle Dove</u>	5	140	-51	-59	-44	>50	
<u>Willow Tit</u>	5	48	-41	-52	-25	>25	
<u>Stonechat</u>	5	258	-36	-33	-17	>25	
<u>Dipper</u>	5	72	-35	-54	-8	>25	
<u>Goldcrest</u>	5	973	-33	-34	-22	>25	
<u>Kingfisher</u>	5	69	-32	-45	-13	>25	
<u>Yellow Wagtail</u>	5	155	-31	-40	-22	>25	
<u>Grey Partridge</u>	5	240	-30	-37	-19	>25	
<u>Whinchat</u>	5	76	-30	-43	-14	>25	
<u>Starling</u>	5	1988	-27	-31	-21	>25	

12. Table of declines >25% for BBS England 2004-2009

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
<u>Turtle Dove</u>	5	139	-51	-57	-44	>50	
<u>Stonechat</u>	5	120	-45	-49	-27	>25	
<u>Willow Tit</u>	5	43	-39	-53	-24	>25	
<u>Nightingale</u>	5	32	-34	-49	-9	>25	
<u>Cuckoo</u>	5	553	-33	-36	-28	>25	
<u>Yellow Wagtail</u>	5	152	-32	-41	-19	>25	

<u>Spotted Flycatcher</u>	5	134	-31	-41	-20	>25	
Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
<u>Tree Pipit</u>	5	83	-27	-41	-13	>25	
<u>Grey Partridge</u>	5	217	-26	-33	-15	>25	
<u>Starling</u>	5	1623	-26	-30	-21	>25	

13. Table of declines >25% for BBS Scotland 2004-2009

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
<u>Goldcrest</u>	5	124	-53	-58	-40	>50	Non-breeders included
<u>Kestrel</u>	5	46	-43	-57	-18	>25	
<u>Stonechat</u>	5	58	-41	-36	-4	>25	
<u>Grey Heron</u>	5	56	-29	-41	-11	>25	
<u>Mistle Thrush</u>	5	102	-27	-42	-13	>25	
<u>Starling</u>	5	168	-27	-40	-11	>25	

14. Table of declines >25% for BBS Wales 2004-2009

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
<u>Swift</u>	5	75	-39	-52	-26	>25	
<u>Linnet</u>	5	104	-34	-45	-23	>25	
<u>Goldcrest</u>	5	95	-33	-43	-19	>25	
<u>Starling</u>	5	85	-30	-40	-16	>25	
<u>Meadow Pipit</u>	5	99	-27	-34	-16	>25	

15. Table of declines >25% for BBS Northern Ireland 2004-2009

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
<u>Greenfinch</u>	5	68	-42	-48	-30	>25	
<u>Starling</u>	5	98	-34	-51	-15	>25	
<u>Meadow Pipit</u>	5	76	-33	-36	-25	>25	
<u>Mistle Thrush</u>	5	74	-28	-39	-16	>25	
<u>Skylark</u>	5	36	-27	-38	-20	>25	

16. Table of population increases for BBS UK 1995-2009

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
<u>Chiffchaff</u>	14	1360	52	45	61		
<u>Nuthatch</u>	14	435	66	47	82		
<u>Stonechat</u>	14	164	68	48	138		
<u>Buzzard</u>	14	842	72	57	91		
<u>Blackcap</u>	14	1451	73	65	85		

<u>Tree Sparrow</u>	14	162	73	38	118		
Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
<u>Goldfinch</u>	14	1455	73	64	86		
<u>Canada Goose</u>	14	444	93	56	130		
<u>Great Spotted Woodpecker</u>	14	975	139	123	155		
<u>Greylag Goose</u>	14	159	148	12	343		
<u>Red Kite</u>	14	68	475	236	956		
<u>Barn Owl</u>	14	43	501	315	774		
<u>Ring-necked Parakeet</u>	14	51	842	325	2647		

17. Table of population increases for BBS England 1995-2009

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
<u>Chiffchaff</u>	14	1142	53	46	62		
<u>Green Woodpecker</u>	14	723	56	44	66		
<u>Blackcap</u>	14	1245	61	54	69		
<u>Goldfinch</u>	14	1197	63	53	73		
<u>Gadwall</u>	14	32	69	16	160		
<u>Nuthatch</u>	14	365	71	53	91		
<u>Golden Plover</u>	14	20	79	1	161		
<u>Canada Goose</u>	14	413	82	46	120		
<u>Great Spotted Woodpecker</u>	14	850	120	106	133		
<u>Buzzard</u>	14	536	146	117	179		
<u>Greylag Goose</u>	14	131	199	109	392		
<u>Barn Owl</u>	14	40	459	295	688		
<u>Ring-necked Parakeet</u>	14	51	842	337	3434		
<u>Red Kite</u>	14	45	7839	3570	7886		

18. Table of population increases for BBS Scotland 1995-2009

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
<u>Tree Pipit</u>	14	32	51	10	118		
<u>Dunnoch</u>	14	137	56	35	79		
<u>Snipe</u>	14	56	57	14	127		
<u>Stonechat</u>	14	37	62	44	221		
<u>Whitethroat</u>	14	74	94	40	167		
<u>House Martin</u>	14	59	114	46	190		
<u>Redstart</u>	14	13	118	17	124		
<u>Goldfinch</u>	14	83	123	66	184		
<u>Jay</u>	14	18	134	.	.		
<u>Crossbill</u>	14	24	159	59	379		
<u>Blackcap</u>	14	51	209	114	338		
<u>Chiffchaff</u>	14	42	274	161	540		
<u>Great Spotted Woodpecker</u>	14	43	311	202	462		

19. Table of population increases for BBS Wales 1995-2009

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
Pheasant	14	89	51	18	94		
Great Tit	14	168	51	30	75		
Collared Dove	14	70	58	16	103		
Goldfinch	14	123	59	30	109		
Blackcap	14	115	74	47	109		
House Sparrow	14	119	87	51	131		
Stonechat	14	37	141	51	278		
Great Spotted Woodpecker	14	71	178	125	253		

20. Table of population increases for BBS Northern Ireland 1995-2009

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
Wren	14	90	63	23	99		
Song Thrush	14	74	66	21	111		
Coal Tit	14	60	66	18	108		
Woodpigeon	14	81	77	38	120		
Jackdaw	14	73	77	22	122		
Willow Warbler	14	77	84	41	113		
Dunnoek	14	68	95	26	130		
Linnet	14	35	104	22	225		
Hooded Crow	14	78	108	60	151		
Pheasant	14	37	171	53	261		
Great Tit	14	69	172	109	199		
Goldfinch	14	43	728	.	.		

Go to Breeding performance

- [BBS – UK alerts – 13 years](#)
- [BBS – England alerts – 13 years](#)
- [BBS – Scotland alerts – 13 years](#)
- [BBS – Wales alerts – 13 years](#)
- [BBS – Northern Ireland alerts – 13 years](#)
- [BBS – UK alerts – 10 years](#)
- [BBS – England alerts – 10 years](#)
- [BBS – Scotland alerts – 10 years](#)
- [BBS – Wales alerts – 10 years](#)
- [BBS – Northern Ireland alerts – 10 years](#)
- [BBS – UK alert – 5 years](#)
- [BBS – England alerts – 5 years](#)
- [BBS – Scotland alerts – 5 years](#)
- [BBS – Wales alerts – 5 years](#)
- [BBS – Northern Ireland alerts – 5 years](#)
- [BBS – UK population increases of >50%](#)
- [BBS – England population increases of >50%](#)
- [BBS – Scotland population increases of >50%](#)
- [BBS – Wales population increases of >50%](#)
- [BBS – Northern Ireland population increases of >50%](#)

1. Table of declines >25% for BBS UK 1995-2009

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
<u>Willow Tit</u>	14	52	-76	-82	-67	>50	
<u>Turtle Dove</u>	14	170	-74	-79	-69	>50	
<u>Wood Warbler</u>	14	54	-62	-73	-46	>50	
<u>Yellow Wagtail</u>	14	156	-55	-62	-47	>50	
<u>Whinchat</u>	14	77	-55	-67	-41	>50	
<u>Grey Partridge</u>	14	228	-54	-60	-45	>50	
<u>Pied Flycatcher</u>	14	41	-51	-65	-33	>50	
<u>Cuckoo</u>	14	731	-48	-52	-43	>25	
<u>Spotted Flycatcher</u>	14	199	-47	-60	-33	>25	
<u>Starling</u>	14	1734	-45	-48	-41	>25	
<u>Curlew</u>	14	504	-41	-46	-35	>25	
<u>Redshank</u>	14	85	-35	-48	-14	>25	
<u>Dipper</u>	14	57	-35	-53	-10	>25	
<u>Corn Bunting</u>	14	143	-33	-45	-22	>25	
<u>Swift</u>	14	1022	-31	-40	-22	>25	
<u>Little Owl</u>	14	101	-29	-42	-17	>25	
<u>Kestrel</u>	14	641	-28	-34	-19	>25	

2. Table of declines >25% for BBS England 1995-2009

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
<u>Willow Tit</u>	14	46	-76	-82	-69	>50	
<u>Turtle Dove</u>	14	167	-74	-79	-69	>50	
<u>Cuckoo</u>	14	572	-63	-66	-60	>50	
<u>Nightingale</u>	14	30	-57	-70	-32	>50	
<u>Yellow Wagtail</u>	14	153	-55	-63	-46	>50	
<u>Spotted Flycatcher</u>	14	139	-52	-62	-41	>50	
<u>Starling</u>	14	1421	-51	-54	-47	>50	
<u>Grey Partridge</u>	14	203	-50	-56	-40	>25	
<u>Tree Pipit</u>	14	73	-50	-63	-28	>25	
<u>Whinchat</u>	14	33	-45	-67	-17	>25	
<u>Swift</u>	14	882	-32	-41	-21	>25	
<u>Linnet</u>	14	937	-32	-36	-26	>25	
<u>Curlew</u>	14	317	-30	-37	-22	>25	
<u>Mistle Thrush</u>	14	918	-30	-36	-25	>25	
<u>Willow Warbler</u>	14	900	-30	-37	-24	>25	
<u>Corn Bunting</u>	14	136	-29	-41	-13	>25	
<u>Little Owl</u>	14	98	-28	-41	-14	>25	

3. Table of declines >25% for BBS Scotland 1995-2009

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
<u>Kestrel</u>	14	43	-58	-71	-38	>50	
<u>Curlew</u>	14	121	-53	-60	-43	>50	

<u>Lapwing</u>	Species	14	Period (yrs)	89	Plots (n)	-37	Change (%)	-50	Lower limit	-21	Upper limit	>25	Alert	Comment
	<u>Meadow Pipit</u>	14		201		-31		-41		-23		>25		
	<u>Starling</u>	14		144		-29		-40		-12		>25		

4. Table of declines >25% for BBS Wales 1995-2009

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
<u>Starling</u>	14	82	-63	-72	-49	>50	
<u>Goldcrest</u>	14	82	-52	-69	-22	>50	
<u>Swift</u>	14	67	-50	-64	-28	>50	
<u>Curlew</u>	14	37	-49	-61	-35	>25	
<u>Yellowhammer</u>	14	37	-35	-54	-17	>25	
<u>Cuckoo</u>	14	56	-34	-50	-16	>25	
<u>Linnet</u>	14	91	-31	-51	-5	>25	

5. Table of declines >25% for BBS Northern Ireland 1995-2009

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
<u>Skylark</u>	14	35	-36	-47	-29	>25	

6. Table of declines >25% for BBS UK 1999-2009

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
<u>Turtle Dove</u>	10	158	-67	-72	-62	>50	
<u>Willow Tit</u>	10	48	-65	-73	-54	>50	
<u>Whinchat</u>	10	72	-46	-60	-33	>25	
<u>Wood Warbler</u>	10	52	-43	-61	-21	>25	
<u>Yellow Wagtail</u>	10	152	-42	-51	-34	>25	
<u>Pied Flycatcher</u>	10	40	-42	-58	-24	>25	
<u>Dipper</u>	10	62	-41	-56	-21	>25	
<u>Starling</u>	10	1841	-41	-44	-37	>25	
<u>Grey Partridge</u>	10	220	-39	-48	-29	>25	
<u>Spotted Flycatcher</u>	10	199	-37	-52	-21	>25	
<u>Cuckoo</u>	10	714	-35	-40	-30	>25	
<u>Little Owl</u>	10	106	-34	-45	-25	>25	
<u>Curlew</u>	10	532	-32	-38	-26	>25	
<u>Goldcrest</u>	10	860	-29	-32	-17	>25	

7. Table of declines >25% for BBS England 1999-2009

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
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<u>Turtle Dove</u>	10	156	-67	-72	-62	>50	
Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
<u>Willow Tit</u>	10	43	-63	-72	-53	>50	
<u>Nightingale</u>	10	32	-59	-70	-41	>50	
<u>Cuckoo</u>	10	548	-49	-52	-45	>25	
<u>Spotted Flycatcher</u>	10	136	-44	-53	-34	>25	
<u>Starling</u>	10	1501	-44	-46	-40	>25	
<u>Yellow Wagtail</u>	10	148	-43	-52	-32	>25	
<u>Whinchat</u>	10	32	-40	-60	-17	>25	
<u>Tree Pipit</u>	10	76	-35	-54	-15	>25	
<u>Redshank</u>	10	66	-33	-49	-12	>25	
<u>Little Owl</u>	10	103	-33	-45	-20	>25	
<u>Mistle Thrush</u>	10	983	-31	-34	-26	>25	
<u>Grey Partridge</u>	10	198	-30	-40	-19	>25	
<u>Swift</u>	10	940	-27	-33	-20	>25	

8. Table of declines >25% for BBS Scotland 1999-2009

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
<u>Kestrel</u>	10	41	-43	-59	-12	>25	
<u>Curlew</u>	10	117	-42	-51	-31	>25	
<u>Goldcrest</u>	10	102	-42	-49	-25	>25	
<u>Starling</u>	10	152	-35	-46	-22	>25	
<u>Mallard</u>	10	99	-33	-45	-23	>25	
<u>Meadow Pipit</u>	10	193	-28	-36	-20	>25	
<u>Red Grouse</u>	10	47	-25	-38	-12	>25	

9. Table of declines >25% for BBS Wales 1999-2009

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
<u>Goldcrest</u>	10	91	-53	-64	-35	>50	
<u>Swift</u>	10	75	-50	-65	-34	>50	
<u>Starling</u>	10	87	-48	-57	-36	>25	
<u>Curlew</u>	10	38	-41	-51	-26	>25	
<u>Linnet</u>	10	101	-37	-54	-20	>25	
<u>Tree Pipit</u>	10	33	-35	-53	-6	>25	
<u>Treecreeper</u>	10	44	-34	-53	-13	>25	
<u>House Martin</u>	10	96	-30	-44	-13	>25	
<u>Cuckoo</u>	10	59	-27	-39	-11	>25	

10. Table of declines >25% for BBS Northern Ireland 1999-2009

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
<u>Skylark</u>	10	36	-47	-60	-42	>25	
<u>Rook</u>	10	86	-41	-55	-25	>25	

Starling Species	10 Period (yrs)	90 Plots (n)	-31 Change (%)	-44 Lower limit	-16 Upper limit	>25 Alert	Comment
Greenfinch	10	60	-27	-43	-10	>25	

11. Table of declines >25% for BBS UK 2004-2009

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
<u>Turtle Dove</u>	5	140	-51	-59	-44	>50	
<u>Willow Tit</u>	5	48	-41	-52	-25	>25	
<u>Stonechat</u>	5	258	-36	-33	-17	>25	
<u>Dipper</u>	5	72	-35	-54	-8	>25	
<u>Goldcrest</u>	5	973	-33	-34	-22	>25	
<u>Kingfisher</u>	5	69	-32	-45	-13	>25	
<u>Yellow Wagtail</u>	5	155	-31	-40	-22	>25	
<u>Grey Partridge</u>	5	240	-30	-37	-19	>25	
<u>Whinchat</u>	5	76	-30	-43	-14	>25	
<u>Starling</u>	5	1988	-27	-31	-21	>25	

12. Table of declines >25% for BBS England 2004-2009

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
<u>Turtle Dove</u>	5	139	-51	-57	-44	>50	
<u>Stonechat</u>	5	120	-45	-49	-27	>25	
<u>Willow Tit</u>	5	43	-39	-53	-24	>25	
<u>Nightingale</u>	5	32	-34	-49	-9	>25	
<u>Cuckoo</u>	5	553	-33	-36	-28	>25	
<u>Yellow Wagtail</u>	5	152	-32	-41	-19	>25	
<u>Spotted Flycatcher</u>	5	134	-31	-41	-20	>25	
<u>Tree Pipit</u>	5	83	-27	-41	-13	>25	
<u>Grey Partridge</u>	5	217	-26	-33	-15	>25	
<u>Starling</u>	5	1623	-26	-30	-21	>25	

13. Table of declines >25% for BBS Scotland 2004-2009

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
<u>Goldcrest</u>	5	124	-53	-58	-40	>50	Non-breeders included
<u>Kestrel</u>	5	46	-43	-57	-18	>25	
<u>Stonechat</u>	5	58	-41	-36	-4	>25	
<u>Grey Heron</u>	5	56	-29	-41	-11	>25	
<u>Mistle Thrush</u>	5	102	-27	-42	-13	>25	
<u>Starling</u>	5	168	-27	-40	-11	>25	

14. Table of declines >25% for BBS Wales 2004-2009

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
<u>Swift</u>	5	75	-39	-52	-26	>25	
<u>Linnet</u>	5	104	-34	-45	-23	>25	
<u>Goldcrest</u>	5	95	-33	-43	-19	>25	
<u>Starling</u>	5	85	-30	-40	-16	>25	
<u>Meadow Pipit</u>	5	99	-27	-34	-16	>25	

15. Table of declines >25% for BBS Northern Ireland 2004-2009

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
<u>Greenfinch</u>	5	68	-42	-48	-30	>25	
<u>Starling</u>	5	98	-34	-51	-15	>25	
<u>Meadow Pipit</u>	5	76	-33	-36	-25	>25	
<u>Mistle Thrush</u>	5	74	-28	-39	-16	>25	
<u>Skylark</u>	5	36	-27	-38	-20	>25	

16. Table of population increases for BBS UK 1995-2009

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
<u>Chiffchaff</u>	14	1360	52	45	61		
<u>Nuthatch</u>	14	435	66	47	82		
<u>Stonechat</u>	14	164	68	48	138		
<u>Buzzard</u>	14	842	72	57	91		
<u>Blackcap</u>	14	1451	73	65	85		
<u>Tree Sparrow</u>	14	162	73	38	118		
<u>Goldfinch</u>	14	1455	73	64	86		
<u>Canada Goose</u>	14	444	93	56	130		
<u>Great Spotted Woodpecker</u>	14	975	139	123	155		
<u>Greylag Goose</u>	14	159	148	12	343		
<u>Red Kite</u>	14	68	475	236	956		
<u>Barn Owl</u>	14	43	501	315	774		
<u>Ring-necked Parakeet</u>	14	51	842	325	2647		

17. Table of population increases for BBS England 1995-2009

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
<u>Chiffchaff</u>	14	1142	53	46	62		
<u>Green Woodpecker</u>	14	723	56	44	66		
<u>Blackcap</u>	14	1245	61	54	69		
<u>Goldfinch</u>	14	1197	63	53	73		
<u>Gadwall</u>	14	32	69	16	160		
<u>Nuthatch</u>	14	365	71	53	91		

<u>Golden Plover</u>	14	20	79	1	161		
Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
<u>Canada Goose</u>	14	413	82	46	120		
<u>Great Spotted Woodpecker</u>	14	850	120	106	133		
<u>Buzzard</u>	14	536	146	117	179		
<u>Greylag Goose</u>	14	131	199	109	392		
<u>Barn Owl</u>	14	40	459	295	688		
<u>Ring-necked Parakeet</u>	14	51	842	337	3434		
<u>Red Kite</u>	14	45	7839	3570	7886		

18. Table of population increases for BBS Scotland 1995-2009

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
<u>Tree Pipit</u>	14	32	51	10	118		
<u>Duncock</u>	14	137	56	35	79		
<u>Snipe</u>	14	56	57	14	127		
<u>Stonechat</u>	14	37	62	44	221		
<u>Whitethroat</u>	14	74	94	40	167		
<u>House Martin</u>	14	59	114	46	190		
<u>Redstart</u>	14	13	118	17	124		
<u>Goldfinch</u>	14	83	123	66	184		
<u>Jay</u>	14	18	134	.	.		
<u>Crossbill</u>	14	24	159	59	379		
<u>Blackcap</u>	14	51	209	114	338		
<u>Chiffchaff</u>	14	42	274	161	540		
<u>Great Spotted Woodpecker</u>	14	43	311	202	462		

19. Table of population increases for BBS Wales 1995-2009

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
<u>Pheasant</u>	14	89	51	18	94		
<u>Great Tit</u>	14	168	51	30	75		
<u>Collared Dove</u>	14	70	58	16	103		
<u>Goldfinch</u>	14	123	59	30	109		
<u>Blackcap</u>	14	115	74	47	109		
<u>House Sparrow</u>	14	119	87	51	131		
<u>Stonechat</u>	14	37	141	51	278		
<u>Great Spotted Woodpecker</u>	14	71	178	125	253		

20. Table of population increases for BBS Northern Ireland 1995-2009

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
<u>Wren</u>	14	90	63	23	99		
<u>Song Thrush</u>	14	74	66	21	111		
<u>Coal Tit</u>	14	60	66	18	108		

Woodpigeon	14	81	77	38	120		
Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
Jackdaw	14	73	77	22	122		
Willow Warbler	14	77	84	41	113		
Dunnoch	14	68	95	26	130		
Linnet	14	35	104	22	225		
Hooded Crow	14	78	108	60	151		
Pheasant	14	37	171	53	261		
Great Tit	14	69	172	109	199		
Goldfinch	14	43	728	.	.		

Breeding performance

- 1. [Clutch size](#)
- 2. [Brood size](#)
- 3. [Egg-stage nest failure rate](#)
- 4. [Chick-stage nest failure rate](#)

1. Table of significant trends in Clutch size measured between 1968-2009

Species	Period (yrs)	Mean annual sample	Trend	Predicted in first year	Predicted in last year	Change	Comment
Magpie	41	43	Linear decline	5.8 eggs	4.83 eggs	-0.97 eggs	
Great Tit	41	289	Linear decline	8.19 eggs	7.33 eggs	-0.86 eggs	
Long-tailed Tit	41	39	Curvilinear	7.72 eggs	6.88 eggs	-0.84 eggs	
Grey Heron	41	15	Linear decline	4.05 eggs	3.45 eggs	-0.6 eggs	Non-breeders include
Hen Harrier	41	12	Curvilinear	5.41 eggs	4.85 eggs	-0.56 eggs	Small sample
Peregrine	41	17	Linear decline	3.55 eggs	3.11 eggs	-0.44 eggs	Small sample
Moorhen	41	97	Linear decline	6.43 eggs	6.07 eggs	-0.36 eggs	
Greenfinch	41	91	Linear decline	4.76 eggs	4.56 eggs	-0.2 eggs	
Chaffinch	41	86	Curvilinear	4.23 eggs	4.05 eggs	-0.18 eggs	
Nightjar	41	18	Linear decline	2 eggs	1.83 eggs	-0.17 eggs	Small sample
Pied Wagtail	41	60	Linear decline	5.1 eggs	4.94 eggs	-0.16 eggs	
Golden Plover	41	13	Linear decline	3.98 eggs	3.84 eggs	-0.14 eggs	Small sample
Common Sandpiper	41	12	Curvilinear	3.99 eggs	3.89 eggs	-0.1 eggs	Small sample
Grey Wagtail	41	38	Curvilinear	4.73 eggs	4.64 eggs	-0.09 eggs	
Buzzard	41	34	Curvilinear	2.2 eggs	2.21 eggs	0.01 eggs	
Yellowhammer	41	43	Curvilinear	3.36 eggs	3.39 eggs	0.03 eggs	
Lapwing	41	127	Linear increase	3.69 eggs	3.83 eggs	0.14 eggs	
Mistle Thrush	41	33	Linear increase	3.89 eggs	4.04 eggs	0.15 eggs	
Little Owl	41	21	Linear increase	3.41 eggs	3.6 eggs	0.19 eggs	Small sample
Duncock	41	100	Linear increase	3.94 eggs	4.18 eggs	0.24 eggs	
Pied Flycatcher	41	336	Linear increase	6.55 eggs	6.86 eggs	0.31 eggs	
Skylark	41	36	Linear increase	3.37 eggs	3.7 eggs	0.33 eggs	
Redstart	41	48	Curvilinear	5.9 eggs	6.25 eggs	0.35 eggs	
Tree Sparrow	41	247	Curvilinear	4.74 eggs	5.14 eggs	0.4 eggs	
Barn Owl	41	38	Linear increase	4.62 eggs	5.08 eggs	0.46 eggs	
Starling	41	76	Linear increase	4.43 eggs	5 eggs	0.57 eggs	
SandMartin	41	31	Linear increase	3.86 eggs	4.93 eggs	1.07 eggs	

2. Table of significant trends in Brood size measured between 1968-2009

Species	Period (yrs)	Mean annual sample	Trend	Predicted in first year	Predicted in last year	Change	Comment
Great Tit	41	596	Linear decline	7.37 chicks	6.19 chicks	-1.18 chicks	
Blue Tit	41	644	Curvilinear	7.8 chicks	7.18 chicks	-0.62 chicks	
SandMartin	41	46	Curvilinear	3.12 chicks	2.54 chicks	-0.58 chicks	
Magpie	41	75	Curvilinear	3.12 chicks	2.57 chicks	-0.55 chicks	
Yellow Wagtail	41	12	Linear decline	4.83 chicks	4.31 chicks	-0.52 chicks	Small sample
Coal Tit	41	74	Curvilinear	7.31 chicks	6.81 chicks	-0.5 chicks	
Chiffchaff	41	39	Linear decline	5.14 chicks	4.67 chicks	-0.47 chicks	
Carrion Crow	41	79	Curvilinear	2.89 chicks	2.43 chicks	-0.46 chicks	Includes Hooded Crow
Grey Heron	41	92	Curvilinear	2.72 chicks	2.29 chicks	-0.43 chicks	Non-breeders include
House Sparrow	41	140	Linear decline	3.48 chicks	3.06 chicks	-0.42 chicks	
Bullfinch	41	36	Curvilinear	4.12 chicks	3.73 chicks	-0.39 chicks	
Long-tailed Tit	41	31	Curvilinear	6.67 chicks	6.3 chicks	-0.37 chicks	
Corn Bunting	41	12	Curvilinear	3.12 chicks	2.75 chicks	-0.37 chicks	Small sample
Greenfinch	41	113	Linear decline	4.1 chicks	3.76 chicks	-0.34 chicks	
Raven	41	69	Linear decline	3.17 chicks	2.88 chicks	-0.29 chicks	

Pied Wagtail	41	118	Linear decline	4.52 chicks	4.34 chicks	-0.18 chicks	
Species	Period (yrs)	Mean annual sample	Trend	Predicted in first year	Predicted in last year	Change	Comment
Rook	41	82	Curvilinear	2.21 chicks	2.07 chicks	-0.14 chicks	
Turtle Dove	41	15	Curvilinear	1.82 chicks	1.72 chicks	-0.1 chicks	Small sample
Jackdaw	41	108	Curvilinear	2.7 chicks	2.6 chicks	-0.1 chicks	
Robin	41	203	Curvilinear	4.39 chicks	4.31 chicks	-0.08 chicks	
Chaffinch	41	138	Curvilinear	3.59 chicks	3.54 chicks	-0.05 chicks	
Wren	41	99	Curvilinear	4.71 chicks	4.67 chicks	-0.04 chicks	
Blackbird	41	235	Curvilinear	3.34 chicks	3.31 chicks	-0.03 chicks	
Yellowhammer	41	65	Curvilinear	2.97 chicks	2.98 chicks	0.01 chicks	
Stock Dove	41	161	Curvilinear	1.82 chicks	1.83 chicks	0.01 chicks	
Spotted Flycatcher	41	129	Curvilinear	3.62 chicks	3.64 chicks	0.02 chicks	
Linnet	41	122	Curvilinear	4.08 chicks	4.11 chicks	0.03 chicks	
Swallow	41	751	Curvilinear	4.1 chicks	4.15 chicks	0.05 chicks	
Collared Dove	41	72	Linear increase	1.78 chicks	1.84 chicks	0.06 chicks	
Grey Wagtail	41	81	Curvilinear	4.01 chicks	4.07 chicks	0.06 chicks	
Buzzard	41	104	Curvilinear	1.87 chicks	1.95 chicks	0.08 chicks	
Stonechat	41	65	Curvilinear	4.64 chicks	4.74 chicks	0.1 chicks	
Kestrel	41	139	Curvilinear	3.77 chicks	3.88 chicks	0.11 chicks	
Duncock	41	109	Curvilinear	3.41 chicks	3.53 chicks	0.12 chicks	
Tree Pipit	41	29	Curvilinear	4.29 chicks	4.47 chicks	0.18 chicks	Small sample
Mute Swan	41	67	Curvilinear	4.43 chicks	4.61 chicks	0.18 chicks	
Skylark	41	65	Curvilinear	3.11 chicks	3.31 chicks	0.2 chicks	
Peregrine	41	44	Linear increase	2.35 chicks	2.59 chicks	0.24 chicks	
Sparrowhawk	41	69	Curvilinear	3.14 chicks	3.42 chicks	0.28 chicks	
Dipper	41	142	Curvilinear	3.43 chicks	3.76 chicks	0.33 chicks	
Merlin	41	55	Linear increase	3.48 chicks	3.85 chicks	0.37 chicks	
Tree Sparrow	41	327	Curvilinear	3.76 chicks	4.15 chicks	0.39 chicks	
Starling	41	214	Linear increase	3.3 chicks	3.71 chicks	0.41 chicks	
Redstart	41	86	Curvilinear	5.14 chicks	5.57 chicks	0.43 chicks	
Jay	41	11	Linear increase	3.41 chicks	3.89 chicks	0.48 chicks	Small sample
Nuthatch	41	70	Curvilinear	4.35 chicks	5.22 chicks	0.87 chicks	
Moorhen	41	84	Linear increase	2.8 chicks	3.7 chicks	0.9 chicks	

3. Table of significant trends in Daily failure rate (eggs) measured between 1968-2009

Species	Period (yrs)	Mean annual sample	Trend	Predicted in first year	Predicted in last year	Change	Comment
Woodlark	41	21	Curvilinear	0.0624 nests/day	0.0247 nests/day	-0.0377 nests/day	Small sample
Long-tailed Tit	41	56	Linear decline	0.034 nests/day	0.0079 nests/day	-0.0261 nests/day	
Redshank	41	31	Linear decline	0.0398 nests/day	0.014 nests/day	-0.0258 nests/day	
Magpie	41	49	Linear decline	0.0274 nests/day	0.0022 nests/day	-0.0252 nests/day	
Dipper	41	103	Curvilinear	0.0279 nests/day	0.0033 nests/day	-0.0246 nests/day	
Snipe	41	14	Linear decline	0.032 nests/day	0.0132 nests/day	-0.0188 nests/day	Small sample
Yellowhammer	41	63	Curvilinear	0.0501 nests/day	0.0323 nests/day	-0.0178 nests/day	
Carrian Crow	41	48	Linear decline	0.0178 nests/day	0.0013 nests/day	-0.0165 nests/day	Includes Hooded Crow
Woodpigeon	41	89	Curvilinear	0.0461 nests/day	0.0309 nests/day	-0.0152 nests/day	
Wood Warbler	41	21	Linear decline	0.0206 nests/day	0.0058 nests/day	-0.0148 nests/day	Small sample
Sand Martin	41	26	Linear decline	0.0146 nests/day	0 nests/day	-0.0146 nests/day	Small sample
Robin	41	202	Linear decline	0.023 nests/day	0.011 nests/day	-0.012 nests/day	
Pied Wagtail	41	82	Linear decline	0.0186 nests/day	0.0067 nests/day	-0.0119 nests/day	
Stock Dove	41	103	Linear decline	0.0163 nests/day	0.0052 nests/day	-0.0111 nests/day	
Greenfinch	41	126	Linear decline	0.0249 nests/day	0.0156 nests/day	-0.0093 nests/day	
Starling	41	120	Linear decline	0.0114 nests/day	0.0023 nests/day	-0.0091 nests/day	
Treecreeper	41	21	Curvilinear	0.0236 nests/day	0.0146 nests/day	-0.009 nests/day	Small sample
Redstart	41	73	Linear decline	0.0111 nests/day	0.0023 nests/day	-0.0088 nests/day	
Mistle Thrush	41	55	Linear decline	0.0252 nests/day	0.0168 nests/day	-0.0084 nests/day	
Blackcap	41	48	Linear decline	0.0222 nests/day	0.0142 nests/day	-0.008 nests/day	
Wheatear	41	16	Curvilinear	0.0079 nests/day	0.0002 nests/day	-0.0077 nests/day	Small sample
Buzzard	41	28	Linear decline	0.0083 nests/day	0.0006 nests/day	-0.0077 nests/day	Small sample
Barn Owl	41	27	Linear decline	0.0081 nests/day	0.0005 nests/day	-0.0076 nests/day	Small sample
Tawny Owl	41	59	Linear decline	0.0089 nests/day	0.0015 nests/day	-0.0074 nests/day	Nocturnal species
Grey Wagtail	41	58	Linear decline	0.0176 nests/day	0.0102 nests/day	-0.0074 nests/day	

Nuthatch	41	50	Linear decline	0.0095 nests/day	0.0021 nests/day	-0.0074 nests/day	
Species	Period (yrs)	Mean annual sample	Trend	Predicted in first year	Predicted in last year	Change	Comment
House Sparrow	41	109	Linear decline	0.0111 nests/day	0.0041 nests/day	-0.007 nests/day	
Wren	41	139	Linear decline	0.0188 nests/day	0.0121 nests/day	-0.0067 nests/day	
Marsh Tit	41	21	Curvilinear	0.0096 nests/day	0.0029 nests/day	-0.0067 nests/day	Small sample
Collared Dove	41	60	Curvilinear	0.0315 nests/day	0.0259 nests/day	-0.0056 nests/day	
Jackdaw	41	59	Linear decline	0.0072 nests/day	0.0018 nests/day	-0.0054 nests/day	
Kestrel	41	41	Linear decline	0.0059 nests/day	0.0006 nests/day	-0.0053 nests/day	
Tree Sparrow	41	326	Linear decline	0.0086 nests/day	0.0034 nests/day	-0.0052 nests/day	
Merlin	41	24	Linear decline	0.007 nests/day	0.0019 nests/day	-0.0051 nests/day	Small sample
Sparrowhawk	41	33	Linear decline	0.0048 nests/day	0.0006 nests/day	-0.0042 nests/day	
Great Tit	41	526	Curvilinear	0.0063 nests/day	0.0029 nests/day	-0.0034 nests/day	
Coal Tit	41	55	Linear decline	0.0048 nests/day	0.0016 nests/day	-0.0032 nests/day	
Pied Flycatcher	41	409	Curvilinear	0.006 nests/day	0.0029 nests/day	-0.0031 nests/day	
Sedge Warbler	41	41	Curvilinear	0.0144 nests/day	0.0116 nests/day	-0.0028 nests/day	
Duncock	41	140	Curvilinear	0.0261 nests/day	0.0237 nests/day	-0.0024 nests/day	
Raven	41	22	Curvilinear	0.0027 nests/day	0.0006 nests/day	-0.0021 nests/day	Small sample
Blue Tit	41	571	Curvilinear	0.0042 nests/day	0.0023 nests/day	-0.0019 nests/day	
Spotted Flycatcher	41	116	Curvilinear	0.0186 nests/day	0.0185 nests/day	-0.0001 nests/day	
Tree Pipit	41	13	Curvilinear	0.0515 nests/day	0.0518 nests/day	0.0003 nests/day	Small sample
Grey Heron	41	18	Curvilinear	0 nests/day	0.0004 nests/day	0.0004 nests/day	Non-breeders include
Hen Harrier	41	10	Curvilinear	0.0002 nests/day	0.0008 nests/day	0.0006 nests/day	Small sample
Bullfinch	41	51	Curvilinear	0.0326 nests/day	0.0375 nests/day	0.0049 nests/day	
Lapwing	41	133	Linear increase	0.0143 nests/day	0.0213 nests/day	0.007 nests/day	
Chaffinch	41	163	Curvilinear	0.0305 nests/day	0.0376 nests/day	0.0071 nests/day	
Willow Warbler	41	66	Linear increase	0.0094 nests/day	0.017 nests/day	0.0076 nests/day	
Ringed Plover	41	125	Linear increase	0.0228 nests/day	0.0307 nests/day	0.0079 nests/day	
Blackbird	41	263	Curvilinear	0.0263 nests/day	0.0363 nests/day	0.01 nests/day	
Moorhen	41	113	Curvilinear	0.0132 nests/day	0.0252 nests/day	0.012 nests/day	
Reed Bunting	41	50	Linear increase	0.008 nests/day	0.0223 nests/day	0.0143 nests/day	
Oystercatcher	41	115	Curvilinear	0.015 nests/day	0.0331 nests/day	0.0181 nests/day	
Nightjar	41	23	Linear increase	0.0121 nests/day	0.0386 nests/day	0.0265 nests/day	Small sample

4. Table of significant trends in Daily failure rate (chicks) measured between 1968-2009

Species	Period (yrs)	Mean annual sample	Trend	Predicted in first year	Predicted in last year	Change	Comment
Corn Bunting	41	12	Curvilinear	0.0441 nests/day	0.0194 nests/day	-0.0247 nests/day	Small sample
Sand Martin	41	49	Linear decline	0.0182 nests/day	0.0005 nests/day	-0.0177 nests/day	
Meadow Pipit	41	61	Linear decline	0.0266 nests/day	0.0105 nests/day	-0.0161 nests/day	
Skylark	41	53	Linear decline	0.0474 nests/day	0.0319 nests/day	-0.0155 nests/day	
Maggpie	41	47	Linear decline	0.0166 nests/day	0.0012 nests/day	-0.0154 nests/day	
Reed Warbler	41	117	Linear decline	0.0202 nests/day	0.0059 nests/day	-0.0143 nests/day	
Grey Wagtail	41	57	Linear decline	0.0211 nests/day	0.0084 nests/day	-0.0127 nests/day	
Blackbird	41	216	Linear decline	0.0288 nests/day	0.0192 nests/day	-0.0096 nests/day	
Tree Sparrow	41	222	Linear decline	0.015 nests/day	0.0056 nests/day	-0.0094 nests/day	
Redstart	41	52	Linear decline	0.0123 nests/day	0.0034 nests/day	-0.0089 nests/day	
Jackdaw	41	57	Linear decline	0.0113 nests/day	0.0025 nests/day	-0.0088 nests/day	
House Sparrow	41	102	Curvilinear	0.0144 nests/day	0.0071 nests/day	-0.0073 nests/day	
Carrión Crow	41	41	Linear decline	0.0076 nests/day	0.0011 nests/day	-0.0065 nests/day	Includes Hooded Crow
Merlin	41	28	Linear decline	0.0086 nests/day	0.0025 nests/day	-0.0061 nests/day	Small sample
Collared Dove	41	54	Linear decline	0.017 nests/day	0.0112 nests/day	-0.0058 nests/day	
Stock Dove	41	68	Linear decline	0.012 nests/day	0.0065 nests/day	-0.0055 nests/day	
Pied Wagtail	41	91	Linear decline	0.0124 nests/day	0.0084 nests/day	-0.004 nests/day	
Starling	41	134	Linear decline	0.0058 nests/day	0.002 nests/day	-0.0038 nests/day	
Peregrine	41	24	Linear decline	0.0035 nests/day	0.0009 nests/day	-0.0026 nests/day	Small sample
Tawny Owl	41	89	Curvilinear	0.0035 nests/day	0.0011 nests/day	-0.0024 nests/day	Nocturnal species
Nuthatch	41	57	Linear decline	0.0045 nests/day	0.0021 nests/day	-0.0024 nests/day	
Barn Owl	41	120	Linear decline	0.0022 nests/day	0.0002 nests/day	-0.002 nests/day	
Yellowhammer	41	50	Curvilinear	0.0451 nests/day	0.0434 nests/day	-0.0017 nests/day	
Dipper	41	79	Curvilinear	0.0064 nests/day	0.0057 nests/day	-0.0007 nests/day	
Treecreeper	41	22	Curvilinear	0.015 nests/day	0.0146 nests/day	-0.0004 nests/day	Small sample

Raven	41	30	Curvilinear	0.0003 nests/day	0.0001 nests/day	-0.0002 nests/day	Small sample
Species	Period (yrs)	Mean annual sample	Linear trend	Predicted in first year	Predicted in last year	Change	Comment
Swallow	41	462	Linear increase	0.0028 nests/day	0.0046 nests/day	0.0018 nests/day	
Blue Tit	41	406	Linear increase	0.0063 nests/day	0.0083 nests/day	0.002 nests/day	
Dunnoek	41	114	Curvilinear	0.0243 nests/day	0.0271 nests/day	0.0028 nests/day	
Pied Flycatcher	41	332	Linear increase	0.0035 nests/day	0.0071 nests/day	0.0036 nests/day	
Spotted Flycatcher	41	105	Linear increase	0.0098 nests/day	0.0146 nests/day	0.0048 nests/day	
Willow Warbler	41	122	Linear increase	0.0153 nests/day	0.0202 nests/day	0.0049 nests/day	
Coal Tit	41	57	Curvilinear	0.0029 nests/day	0.0082 nests/day	0.0053 nests/day	
Nightjar	41	21	Curvilinear	0.0012 nests/day	0.0071 nests/day	0.0059 nests/day	Small sample
Linnet	41	107	Linear increase	0.0158 nests/day	0.0218 nests/day	0.006 nests/day	
Long-tailed Tit	41	39	Linear increase	0.0078 nests/day	0.0176 nests/day	0.0098 nests/day	
Bullfinch	41	34	Curvilinear	0.0323 nests/day	0.046 nests/day	0.0137 nests/day	
Tree Pipit	41	20	Curvilinear	0.0338 nests/day	0.0491 nests/day	0.0153 nests/day	Small sample
Garden Warbler	41	19	Linear increase	0.0103 nests/day	0.028 nests/day	0.0177 nests/day	Small sample

Discussion

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) ([here](#)).
2. Identify species not on the BoCC3 lists but which raise alerts on account of long-term declines and, conversely, currently listed species where recovery may be sufficient to downgrade their listing status in the future ([here](#)).
3. Briefly review declines along waterways and in scrub and wetland habitats as shown by the WBS/WBBS and CES schemes ([here](#)).
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 ([here](#)).
5. Identify those species that have shown rapid long-term population increases ([here](#)).
6. Discuss patterns of changes in breeding performance and relationships between trends in abundance and breeding performance([here](#)).
7. Summarise the overall patterns found ([here](#)).

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 summary tables.

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.

Latest long-term alerts

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 42 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. Some short-term declines might stem, however, from chance fluctuations in abundance, from which the population is able to recover without assistance. The steep 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).

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 have automatically satisfied criteria for UK decline, but amber-listed birds may be listed for other reasons (see Help on species accounts).

Long-term trends of 'Birds of Conservation Concern' 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 A1, over the maximum period available (usually the 42 years 1967–2009) and over 25 years (1984–2009). The table thus updates the figures that were used to produce the current BoCC3 red list.

The 19 species in Table A1 are listed in descending year=2011&s= 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](#), [House Sparrow](#) 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 A1 Latest trends for red-listed species

Species	Period (yrs)	Source	Change (%)	Lower limit	Upper limit	Alert	Comment
Tree Sparrow	42	CBC/BBS England	-96	-98	-93	>50	
Tree Sparrow	25	CBC/BBS England	-81	-91	-64	>50	
Grey Partridge	42	CBC/BBS UK	-91	-93	-87	>50	
Grey Partridge	25	CBC/BBS UK	-79	-83	-71	>50	
Turtle Dove	42	CBC/BBS UK	-90	-95	-86	>50	
Turtle Dove	25	CBC/BBS UK	-86	-91	-81	>50	
Willow Tit	42	CBC/BBS UK	-90	-96	-83	>50	
Willow Tit	25	CBC/BBS UK	-87	-93	-80	>50	
Spotted Flycatcher	42	CBC/BBS UK	-89	-93	-84	>50	
Spotted Flycatcher	25	CBC/BBS UK	-81	-87	-74	>50	
Lesser Redpoll	42	CBC/BBS England	-89	-96	-74	>50	
Lesser Redpoll	25	CBC/BBS England	-93	-97	-87	>50	
Tree Pipit	42	CBC/BBS England	-87	-94	-76	>50	
Tree Pipit	25	CBC/BBS England	-88	-93	-78	>50	
Starling	42	CBC/BBS England	-87	-90	-82	>50	
Starling	25	CBC/BBS England	-80	-83	-76	>50	
Corn Bunting	42	CBC/BBS UK	-87	-94	-76	>50	
Corn Bunting	25	CBC/BBS UK	-76	-88	-61	>50	
Yellow Wagtail	42	CBC/BBS UK	-78	-89	-52	>50	
Yellow Wagtail	25	CBC/BBS UK	-75	-84	-64	>50	
Linnet	42	CBC/BBS England	-76	-82	-70	>50	
Linnet	25	CBC/BBS England	-34	-47	-21	>25	
Cuckoo	42	CBC/BBS England	-73	-80	-62	>50	
Cuckoo	25	CBC/BBS England	-73	-77	-67	>50	

Species	Period	Source	Change	Lower	Upper	Alert	Comment
Marsh Tit	25 (yrs)	CBC/BBS UK	-43 (%)	-57 limit	-27 limit	>50	
<u>House Sparrow</u>	32	CBC/BBS England	-71	-79	-60	>50	
<u>House Sparrow</u>	25	CBC/BBS England	-49	-61	-28	>25	
<u>Skylark</u>	42	CBC/BBS England	-63	-69	-58	>50	
<u>Skylark</u>	25	CBC/BBS England	-39	-45	-28	>25	
<u>Lesser Spotted Woodpecker</u>	31	CBC to 1999	-60	-81	40		Small sample
<u>Lesser Spotted Woodpecker</u>	25	CBC to 1999	-73	-86	-31	>50	Small sample
<u>Yellowhammer</u>	42	CBC/BBS UK	-57	-66	-48	>50	
<u>Yellowhammer</u>	25	CBC/BBS UK	-54	-60	-48	>50	
<u>Song Thrush</u>	42	CBC/BBS UK	-50	-57	-42	>25	
<u>Song Thrush</u>	25	CBC/BBS UK	-2	-15	9		
<u>Lapwing</u>	42	CBC/BBS UK	-34	-61	4		
<u>Lapwing</u>	25	CBC/BBS UK	-52	-62	-35	>50	

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 A2 in descending year=2011&s= of longest-term percentage change (normally over the 42 years 1967–2009). Where available the 25-year change (1984–2009) is also shown.

Table A2 Latest trends for declining amber-listed species

Species	Period (yrs)	Source	Change (%)	Lower limit	Upper limit	Alert	Comment
<u>Redshank</u>	34	WBS/WBBS waterways	-69	-90	-41	>50	
<u>Redshank</u>	25	WBS/WBBS waterways	-68	-86	-52	>50	
<u>House Martin</u>	42	CBC/BBS England	-64	-89	23		
<u>House Martin</u>	25	CBC/BBS England	-66	-90	52		
<u>Whitethroat</u>	42	CBC/BBS UK	-61	-73	-49	>50	
<u>Whitethroat</u>	25	CBC/BBS UK	117	80	165		
<u>Willow Warbler</u>	42	CBC/BBS England	-60	-71	-49	>50	
<u>Willow Warbler</u>	25	CBC/BBS England	-62	-68	-56	>50	
<u>Mistle Thrush</u>	42	CBC/BBS UK	-52	-61	-43	>50	
<u>Mistle Thrush</u>	25	CBC/BBS UK	-42	-49	-35	>25	
<u>Meadow Pipit</u>	42	CBC/BBS England	-50	-77	-23	>25	
<u>Meadow Pipit</u>	25	CBC/BBS England	-35	-56	-17	>25	
<u>Bullfinch</u>	42	CBC/BBS UK	-45	-57	-31	>25	
<u>Bullfinch</u>	25	CBC/BBS UK	-16	-27	-3		
<u>Little Grebe</u>	34	WBS/WBBS waterways	-40	-71	15		
<u>Little Grebe</u>	25	WBS/WBBS waterways	-22	-58	48		
<u>Common Sandpiper</u>	34	WBS/WBBS waterways	-40	-56	-27	>25	
<u>Common Sandpiper</u>	25	WBS/WBBS waterways	-44	-55	-32	>25	
<u>Curlew</u>	42	CBC/BBS England	-38	-81	16		
<u>Curlew</u>	25	CBC/BBS England	-28	-61	18		
<u>Grey Wagtail</u>	34	WBS/WBBS waterways	-35	-50	-15	>25	
<u>Grey Wagtail</u>	25	WBS/WBBS waterways	26	9	49		
<u>Dunnock</u>	42	CBC/BBS UK	-33	-42	-21	>25	
<u>Dunnock</u>	25	CBC/BBS UK	12	-1	26		
<u>Reed Bunting</u>	42	CBC/BBS UK	-20	-40	3		
<u>Reed Bunting</u>	25	CBC/BBS UK	24	4	50		

Four species raise high alerts, having shown significant declines of greater than 50%. [Whitethroat](#) shows a massive decline over the 42-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 not as clear, but show shallow declines over the ten-year period to 2009. [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. Continuing decline for [Mistle Thrush](#) has taken its 42-year trend over the 50% threshold for rapid decline. It now joins the list of potential red-list candidates.

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 changed little since 1994, however.

[Bullfinch](#) was moved from the red to the amber list at the 2009 review. Its 42-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](#) and [Meadow Pipit](#) 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 42-year period and has ceased to raise any alerts for population decline.

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 currently surpass red or amber criteria but which were not recognised in the 2009 listings (Table A3). These species may be candidates for conservation listing at the next review.

Table A3 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	34	WBS/WBBS waterways	-92	-98	-81	>50	Small sample
Snipe	25	WBS/WBBS waterways	-93	-98	-82	>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	42	CBC/BBS UK	-54	-71	-25	>50	
Little Owl	25	CBC/BBS UK	-60	-72	-45	>50	
Tawny Owl	25	CBC/BBS UK	-33	-47	-17	>25	
Dipper	34	WBS/WBBS waterways	-32	-49	-15	>25	

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. 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](#) now meets red-list criteria for population decline but, as an introduced species, is not eligible for any conservation listing. [Tawny Owl](#) has newly passed the criteria for amber listing, with a decline >25% over the 25-year period. 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.

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 trends allow 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 waterways trends 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](#).

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 A2 or A3, as appropriate. Even where WBS/WBBS is not the headline trend for a species, however, the waterways data provide valuable supplementary information from this sensitive habitat.

Table A4 lists all statistically significant declines of greater than 25% recorded from the full period of waterway monitoring (nominally 1975–2009). It does not include [Little Grebe](#), for which the decline is not statistically significant (Table A2). Four species are included for which WBS/WBBS is not the headline trend and so are not listed in Tables A2 or A3. These are discussed briefly below.

The trends for [Yellow Wagtail](#) and [Reed Bunting](#) are consistent in direction with the 42-year trends reported from CBC/BBS, but in each case the declines on waterways have been more severe. 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 [Reed Bunting](#), recovery along waterways has also been weaker than in the countryside as a whole.

For [Sedge Warbler](#), the headline trend for the UK is a non-significant 42-year shallow decline, 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.

Table A4 Population declines of greater than 25% recorded by the joint Waterways Bird Survey/Waterways Breeding Bird Survey (WBS/WBBS) between 1975 and 2009

Species	Period (yrs)	Source	Change (%)	Lower limit	Upper limit	Alert	Comment
Yellow Wagtail	34	WBS/WBBS waterways	-94	-98	-89	>50	Small sample
Snipe	34	WBS/WBBS waterways	-92	-98	-81	>50	
Redshank	34	WBS/WBBS waterways	-69	-90	-41	>50	
Pied Wagtail	34	WBS/WBBS waterways	-67	-76	-59	>50	
Reed Bunting	34	WBS/WBBS waterways	-58	-69	-40	>50	
Common Sandpiper	34	WBS/WBBS waterways	-40	-56	-27	>25	
Sedge Warbler	34	WBS/WBBS waterways	-37	-56	-12	>25	
Grey Wagtail	34	WBS/WBBS waterways	-35	-50	-15	>25	
Dipper	34	WBS/WBBS waterways	-32	-49	-15	>25	

A full set of alerts raised by WBS/WBBS, and long-term increases detected by that index, are tabulated in WBS/WBBS alerts and population increases.

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 25 years (Table A5).

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 A1). Similarly, [Willow Warbler](#), [Reed Bunting](#), and [Whitethroat](#) are amber listed.

Table A5 Population declines of greater than 25% recorded by the Constant Effort Sites scheme between 1984 and 2009

Species	Period (yrs)	Source	Change (%)	Lower limit	Upper limit	Alert	Comment
Linnet	25	CES adults	-94	-98	-83	>50	Small sample
Willow Warbler	25	CES adults	-68	-75	-60	>50	
Lesser Whitethroat	25	CES adults	-66	-82	-51	>50	Small sample
Reed Bunting	25	CES adults	-61	-72	-49	>50	
Willow Tit	25	CES adults	-53	-82	-9	>50	
Sedge Warbler	25	CES adults	-40	-58	-24	>25	
Reed Warbler	25	CES adults	-35	-49	-13	>25	
Whitethroat	25	CES adults	-35	-52	-11	>25	

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 CES alerts and population increases.

Ten-year trends and evidence of 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 B1 the best change estimates over the most recent ten-year period for which we have data (1999–2009), for all of the declining species listed in Tables A1–A3 (here).

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 [Tawny Owl](#)) whose declines, for reasons explained here, 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 B1 Ten-year trends for species that have shown long-term declines

Species	Period (yrs)	Source	Change (%)	Lower limit	Upper limit	Alert	Comment
Turtle Dove	10	CBC/BBS UK	-68	-73	-62	>50	
Willow Tit	10	CBC/BBS UK	-65	-76	-56	>50	
Nightingale	10	BBS England	-59	-70	-41	>50	
Cuckoo	10	CBC/BBS England	-51	-54	-47	>50	
Lesser Spotted Woodpecker	10	CBC to 1999	-51	-75	-22	>50	Small sample
Redshank	10	WBS/WBBS waterways	-51	-65	-36	>50	
Whinchat	10	BBS UK	-46	-60	-33	>25	
Starling	10	CBC/BBS England	-44	-46	-39	>25	
Wood Warbler	10	BBS UK	-43	-61	-21	>25	
Yellow Wagtail	10	CBC/BBS UK	-42	-52	-31	>25	
Pied Flycatcher	10	BBS UK	-42	-58	-24	>25	
Snipe	10	WBS/WBBS waterways	-40	-67	-12	>25	
Woodcock	10	CBC to 1999	-40	-62	-11	>25	Small sample
Spotted Flycatcher	10	CBC/BBS UK	-38	-52	-14	>25	
Grey Partridge	10	CBC/BBS UK	-36	-46	-27	>25	
Tree Pipit	10	CBC/BBS England	-36	-52	-20	>25	
Little Owl	10	CBC/BBS UK	-35	-46	-24	>25	
Willow Warbler	10	CBC/BBS England	-27	-32	-23	>25	
Mistle Thrush	10	CBC/BBS UK	-25	-29	-20		
Tawny Owl	10	CBC/BBS UK	-25	-38	-12		
Swift	10	BBS UK	-25	-32	-18		
Curlew	10	CBC/BBS England	-24	-31	-17		
Dipper	10	WBS/WBBS waterways	-22	-32	-8		
Marsh Tit	10	CBC/BBS UK	-22	-34	-10		
Lesser Redpoll	10	CBC/BBS England	-20	-56	22		
Linnet	10	CBC/BBS England	-20	-25	-13		
Common Sandpiper	10	WBS/WBBS waterways	-19	-31	-8		
Red Grouse	10	BBS UK	-17	-30	-3		
Corn Bunting	10	CBC/BBS UK	-15	-33	4		
House Martin	10	CBC/BBS England	-14	-22	-7		
Skylark	10	CBC/BBS England	-11	-14	-7		
Meadow Pipit	10	CBC/BBS England	-9	-18	5		
Yellowhammer	10	CBC/BBS UK	-9	-14	-4		
House Sparrow	10	CBC/BBS England	-7	-12	-2		

<u>Lapwing</u>	Species	10 ⁶ Period (yrs)	CBC/BBS UK Source	-6 Change (%)	-17 ⁶ Lower limit	6 Upper limit	Alert	Comment
<u>Grey Wagtail</u>		10	WBS/WBBS waterways	1	-9	13		
<u>Grasshopper Warbler</u>		10	BBS UK	4	-20	22		
<u>Little Grebe</u>		10	WBS/WBBS waterways	6	-28	59		
<u>Song Thrush</u>		10	CBC/BBS UK	14	9	19		
<u>Whitethroat</u>		10	CBC/BBS UK	15	9	21		
<u>Bullfinch</u>		10	CBC/BBS UK	16	5	24		
<u>Dunnoek</u>		10	CBC/BBS UK	17	13	20		
<u>Reed Bunting</u>		10	CBC/BBS UK	32	18	47		
<u>Tree Sparrow</u>		10	CBC/BBS England	35	7	66		

See Birds of Conservation Concern pages for information on red and amber criteria

As indicated at the top of Table B1, 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 B1 must be a cause of serious conservation concern. Two ([Lesser Spotted Woodpecker](#) and [Woodcock](#)) have provided very little monitoring data during the most recent 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 losses smaller than 11%, or with no measurable population change, over the ten-year period are [Meadow Pipit](#), [Yellowhammer](#), [House Sparrow](#), [Lapwing](#), [Grey Wagtail](#), [Grasshopper Warbler](#), and [Little Grebe](#).

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 [Dunnoek](#) and [Bullfinch](#) 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.

Increasing species

Population changes of species for which our best trend estimate from CBC/BBS (usually over 42 years) or from WBS/WBBS (a maximum of 34 years) shows an increase of more than 50% are shown in Table C1, below. There are 30 species listed: this is three more than last year, with [Greylag Goose](#), [Goldfinch](#) and [Chiffchaff](#) now added. Twenty of the 27 species have more than doubled their population size over the periods under review.

Two of the fastest-increasing species in this report are, however, not included in Table C1, because their monitoring data cover too short a period. Both are introduced. The population of [Ring-necked Parakeet](#) is estimated to have risen by 842% (more than a ninefold increase) over the 14 years 1995–2009. Arguably, however, this is more a conservation problem than a success. An unmitigated success is the growth of the reintroduced [Red Kite](#), now estimated through BBS at 475% during 1995–2009. Attention should also be drawn to the rise of [Cetti's Warbler](#), which has increased by an estimated 267% over the recent ten-year period.

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 63% on CBC/BBS plots over 42 years, but declined by 67% on WBS/WBBS plots over the past 34 years. The former index 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 C1 Long-term population increases of greater than 50% from CBC/BBS (1967-2009) or WBS/WBBS (1975-2009), using the best survey for each species

Species	Period (yrs)	Source	Change (%)	Lower limit	Upper limit	Alert	Comment
Buzzard	42	CBC/BBS England	652	380	2116		
Greylag Goose	16	WBS/WBBS waterways	461	126	1247		
Great Spotted Woodpecker	42	CBC/BBS UK	403	264	693		
Collared Dove	37	CBC/BBS UK	400	240	674		
Shelduck	31	CBC to 1999	300	94	787		Small sample
Mute Swan	42	CBC/BBS UK	234	58	625		
Green Woodpecker	42	CBC/BBS England	214	132	341		
Nuthatch	42	CBC/BBS UK	206	111	314		
Blackcap	42	CBC/BBS UK	177	126	239		
Woodpigeon	42	CBC/BBS UK	170	36	592		
Canada Goose	28	WBS/WBBS waterways	169	47	710		
Mallard	42	CBC/BBS UK	167	101	227		
Stock Dove	42	CBC/BBS England	166	99	302		
Sparrowhawk	34	CBC/BBS England	147	60	284		
Carrion Crow	42	CBC/BBS England	119	76	175		
Long-tailed Tit	42	CBC/BBS England	117	60	191		
Great Tit	42	CBC/BBS UK	110	86	139		
Jackdaw	42	CBC/BBS UK	107	27	246		
Reed Warbler	42	CBC/BBS UK	107	15	312		
Tufted Duck	34	WBS/WBBS waterways	104	-16	426		
Magpie	42	CBC/BBS UK	98	63	145		
Coot	34	WBS/WBBS waterways	90	29	253		
Pheasant	42	CBC/BBS England	90	50	170		
Wren	42	CBC/BBS UK	81	56	102		
Goosander	28	WBS/WBBS waterways	74	11	224		
Oystercatcher	34	WBS/WBBS waterways	73	38	179		
Coal Tit	42	CBC/BBS UK	68	1	190		
Pied Wagtail	42	CBC/BBS UK	63	24	125		
Goldfinch	42	CBC/BBS England	55	21	108		
Chiffchaff	42	CBC/BBS UK	51	22	90		

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 159% over 34 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. [Greylag Goose](#), [Shelduck](#), [Canada Goose](#), [Tufted Duck](#), [Coot](#) and [Goosander](#) are other wildfowl among this report's increasing species. [Oystercatchers](#) have increased by 73% on WBS/WBBS plots over the last 34 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).

Two widespread raptors have shown remarkable recoveries from low population levels caused by pesticides in the 1950s and 1960s, assisted by a relaxation of illegal predator control by shooting interests. [Buzzards](#) increased by a remarkable 652% between 1967 and 2009, with a rapid increase of 88% over the last ten years alone. [Sparrowhawks](#), too scarce for CBC to monitor until the mid 1970s, showed a 147% increase over the 34-year period from 1975 to 2009. 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](#) holds 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.

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 here for further information. The CES scheme provides an index of breeding performance accrued over all nesting attempts in a particular year. CES results also take into account any changes in the survival rates of fledglings in the first few months after leaving the nest, 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 inversely 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.

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 these breeding parameters are included in the Summary tables. 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 mean FPBA are included in Table D1. In total, 36 species exhibited significant trends in FPBA over the past 20 years or more, of which six were negative, indicating that reproductive output has decreased over time. Birds exhibiting declines in productivity include one BoCC red-listed species ([Nightjar](#)), three amber-listed species ([Willow Warbler](#), [Bullfinch](#) and [Reed Bunting](#)) and two green-listed species ([Greenfinch](#) and [Chaffinch](#)). While productivity of [Nightjar](#), [Willow Warbler](#) and [Reed Bunting](#) has been falling consistently for the past 40 years, trends for the other three 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 timing of food availability and of offspring food demand, 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), and this mechanism could therefore underpin the productivity declines detected for [Nightjar](#) and [Willow Warbler](#). 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](#) and [Willow Warbler](#) by reducing food availability for both parents and offspring. Both 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).

Woodland passerines that depend on short-lived peaks in the availability of larval Lepidoptera to provide food for their nestlings may also suffer reduced productivity as a result of climate-induced changes in phenology. 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). Contrary to predictions, the NRS data set provides no evidence for any change 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. Similarly, the results presented in this report provide no evidence that [Great Tit](#) productivity has changed, although that of [Chaffinch](#), another woodland insectivore heavily reliant on moth larvae to provision its offspring, has decreased significantly.

The reduction in [Chaffinch](#) breeding success is primarily due to increasing failure rates during incubation. Declining nest survival at either the egg or chick stage is also implicated in the productivity declines of [Nightjar](#), [Willow Warbler](#), [Bullfinch](#) and [Reed Bunting](#), suggesting that increasing predation pressure might be responsible. However, 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). Increasing human activity in the countryside, resulting from a growing population, could 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). Further research into the impacts of nest predators on population trajectories, at a variety of spatial scales, is urgently required.

Increased grazing pressure by deer, numbers of which are increasing rapidly in many areas of the UK (Newson *et al.* 2011), has been identified as a possible driver of population declines, the removal of the herb and shrub layer potentially reducing the availability of both food and well-concealed nesting sites (Fuller *et al.* 2005). This could have contributed to the observed declines in productivity of both [Willow Warbler](#) and [Bullfinch](#). A recent study using BTO/JNCC/RSPB Breeding Bird Survey deer data indicated that declines in [Willow Warbler](#) were most pronounced in areas where Reeves's muntjac had increased at the fastest rate (Newson *et al.* 2011), in agreement with a previous study looking at regional variation in [Willow Warbler](#) population trends (Morrison *et al.* 2010). While a similar negative relationship was identified for [Bullfinch](#), it was not statistically significant. Causes of decline in the breeding success, and indeed the population decline, of this species are still unclear despite a significant number of demographic studies (Siriwardena *et al.* 1998a, 1999, 2000b, 2001, Proffitt *et al.* 2004).

Declining food availability may also be an issue for [Reed Bunting](#). Reduced access to winter stubbles due to changes in farming practices has been linked to declines in survival rates of a range of farmland passerines, resulting in population declines (Siriwardena *et al.* 1998b, Peach *et al.* 1999, Siriwardena *et al.* 2000b). If adults 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 were driven by a fall in productivity (Siriwardena *et al.* 1999, 2000b).

The colonisation of urban habitats by [Greenfinch](#) may also have increased the proportion of data originating from gardens, which may represent a relatively resource-poor breeding environment when compared with their more traditional farmland habitats, resulting in the smaller broods and clutch sizes observed. Similar reductions in reproductive output across an urban gradient have been observed for tit species, although results from localised studies are conflicting (see Chamberlain *et al.* 2009 for review) and more research is needed to see whether these are representative at a national scale.

As [Chaffinch](#) and [Greenfinch](#) have both exhibited concurrent declines in productivity and increases in population size, we cannot currently exclude the possibility that increasing levels of intraspecific competition are reducing reproductive output. The recent outbreak of trichomonosis, which has significantly and rapidly reduced the abundance of [Greenfinch](#) at a national scale (Robinson *et al.* 2010b), may provide a good test of the hypothesis that [Greenfinch](#) productivity declines over the last 50

years represent a density-dependent response.

Productivity has increased significantly over time for 30 species (Table D1), with positive trends in FPBA recorded across a wide variety of taxonomic groups. Population trends can be calculated for 26 of these species, 14 of which have significantly increased in abundance over the same period, including several raptors ([Sparrowhawk](#), [Buzzard](#)), the pigeons ([Stock Dove](#), [Woodpigeon](#), [Collared Dove](#)), the corvids ([Magpie](#), [Jackdaw](#), [Carion Crow](#)), and some of the smaller passerines ([Wren](#), [Robin](#), [Reed Warbler](#), [Long-tailed Tit](#), [Nuthatch](#)). It is therefore possible that increasing productivity has contributed to the population growth exhibited by these species over the past 40 years.

Conversely, eight species, with the exception of [Kestrel](#) all passerines ([Skylark](#), [Dipper](#), [Dunnock](#), [Blackbird](#), [Starling](#), [House Sparrow](#), [Tree Sparrow](#)), have declined in number as productivity has increased, suggesting that density-dependent reduction in intraspecific competition may have exerted a positive influence on breeding success.

Table D1 Significant trends in fledglings per breeding attempt measured between 1968 and 2009

Species	Period (yrs)	Mean annual sample	Trend	Predicted in first year	Predicted in last year	Change	Comment
Nightjar	41	13	Linear decline	1.44 fledglings	0.71 fledglings	-0.73 fledglings	Small sample
Reed Bunting	41	28	Linear decline	2.76 fledglings	2.21 fledglings	-0.55 fledglings	Small sample
Willow Warbler	41	32	Linear decline	3.49 fledglings	3.01 fledglings	-0.48 fledglings	
Chaffinch	41	56	Curvilinear	1.61 fledglings	1.45 fledglings	-0.16 fledglings	
Greenfinch	41	59	Curvilinear	2.16 fledglings	2.04 fledglings	-0.12 fledglings	
Bullfinch	41	18	Curvilinear	1.36 fledglings	1.3 fledglings	-0.06 fledglings	Small sample
Dunnock	41	57	Curvilinear	1.68 fledglings	1.72 fledglings	0.04 fledglings	
Collared Dove	41	27	Curvilinear	0.84 fledglings	0.95 fledglings	0.11 fledglings	Small sample
Blackbird	41	107	Curvilinear	1.46 fledglings	1.61 fledglings	0.15 fledglings	
Woodpigeon	41	39	Curvilinear	0.56 fledglings	0.76 fledglings	0.2 fledglings	
Yellowhammer	41	28	Curvilinear	0.77 fledglings	1.07 fledglings	0.3 fledglings	Small sample
Stock Dove	41	66	Linear increase	1 fledglings	1.43 fledglings	0.43 fledglings	
Reed Warbler	41	82	Linear increase	2.38 fledglings	2.83 fledglings	0.45 fledglings	
Sedge Warbler	41	24	Linear increase	3.13 fledglings	3.59 fledglings	0.46 fledglings	Small sample
House Sparrow	41	57	Curvilinear	2.36 fledglings	2.84 fledglings	0.48 fledglings	
Wren	41	60	Linear increase	2.57 fledglings	3.06 fledglings	0.49 fledglings	
Buzzard	41	22	Curvilinear	1.17 fledglings	1.67 fledglings	0.5 fledglings	Small sample
Skylark	41	23	Linear increase	1.05 fledglings	1.55 fledglings	0.5 fledglings	Small sample
Robin	41	89	Linear increase	2.25 fledglings	2.81 fledglings	0.56 fledglings	
Tawny Owl	41	56	Linear increase	1.39 fledglings	1.96 fledglings	0.57 fledglings	Nocturnal species
Merlin	41	21	Curvilinear	3.15 fledglings	3.75 fledglings	0.6 fledglings	Small sample
Kestrel	41	38	Curvilinear	3.02 fledglings	3.63 fledglings	0.61 fledglings	
Peregrine	41	12	Linear increase	1.78 fledglings	2.39 fledglings	0.61 fledglings	Small sample
Pied Wagtail	41	46	Linear increase	3.03 fledglings	3.76 fledglings	0.73 fledglings	
Grey Wagtail	41	26	Linear increase	2.61 fledglings	3.45 fledglings	0.84 fledglings	Small sample
Jackdaw	41	36	Linear increase	1.9 fledglings	2.84 fledglings	0.94 fledglings	
Sparrowhawk	41	23	Linear increase	2.81 fledglings	3.83 fledglings	1.02 fledglings	Small sample
Tree Sparrow	41	179	Linear increase	2.77 fledglings	3.8 fledglings	1.03 fledglings	
Barn Owl	41	24	Linear increase	2.43 fledglings	3.48 fledglings	1.05 fledglings	Small sample
Long-tailed Tit	41	21	Linear increase	2.01 fledglings	3.12 fledglings	1.11 fledglings	Small sample
Dipper	41	55	Linear increase	2.26 fledglings	3.39 fledglings	1.13 fledglings	
Nuthatch	41	22	Linear increase	4.4 fledglings	5.66 fledglings	1.26 fledglings	Small sample
Starling	41	63	Linear increase	2.88 fledglings	4.22 fledglings	1.34 fledglings	
Carion Crow	41	23	Linear increase	1.89 fledglings	3.31 fledglings	1.42 fledglings	Includes Hooded Crow
Redstart	41	34	Linear increase	3.8 fledglings	5.42 fledglings	1.62 fledglings	
Magpie	41	31	Curvilinear	1.12 fledglings	3.03 fledglings	1.91 fledglings	

See Key to species texts for help with interpretation

Changes in productivity from Constant Effort Sites ringing data

The CES started monitoring populations in 1983, so the changes in productivity shown in Table D2 cover roughly half the 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, five species exhibit significant declines in the proportion of juveniles captured (Table D2). The apparent productivity of [Sedge Warbler](#) and [Goldfinch](#) has fallen by more than 50% over the last 25 years, while [Song Thrush](#), [Blackbird](#) and [Blue Tit](#) show reductions in relative productivity of between 30% and 50%.

Although two of these species, [Song Thrush](#) and [Sedge Warbler](#), have experienced significant population declines, either on CES sites or more widely (based on CBC/BBS figures), previous analyses suggest that falling survival rates are likely to have been a more important contributor to population changes than reduced productivity (Peach *et al.* 1991, 1995a, 1999, Robinson *et al.* 2004, Baillie *et al.* 2009). For species such as [Goldfinch](#) and [Blue Tit](#), where population increase has occurred, reductions in productivity may be driven by density-dependent processes, whereby increased competition for resources in an expanding population reduces the mean breeding success per pair.

Two species, [Chaffinch](#) and [Reed Warbler](#), have shown a significant increase in productivity with, in the case of Chaffinch, reproductive output per adult more than doubling over the last 25 years. The marked difference between this trend and the decline in productivity identified by the NRS data set requires further investigation, but it may be that changes in post-juvenile survival over time are responsible.

Table D2 Changes in productivity indices (percentage juveniles) for CES, 1984-2009, calculated from smoothed trend

Species	Period (yrs)	Plots (n)	Change (%)	Lower limit	Upper limit	Comment
Goldfinch	25	35	-68	-87	-7	
Sedge Warbler	25	71	-57	-72	-35	
Song Thrush	25	90	-43	-58	-22	
Blackbird	25	101	-39	-54	-23	
Blue Tit	25	102	-37	-51	-17	
Reed Warbler	25	61	46	7	106	
Chaffinch	25	84	116	23	309	

See Key to species texts for help with interpretation

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 D3 confirms that, since the mid 1960s, the majority of species exhibiting significant trends show an advancement of laying dates rather than a delay. Thus 44 species are laying between one 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 in 2009. 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 13 days respectively), is greater than that displayed by many resident species. However, the mean laying date of the migrant species is still approximately a fortnight later than that of common residents such as [Blue Tit](#) and [Great Tit](#). 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 is poorly 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 – thus 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 breeding 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). Recent studies in the Netherlands have suggested that the magnitude of disjunction may be mediated by habitat type, with species in more seasonal habitats at greatest risk of negative impacts on productivity (Both *et al.* 2010). The conservation significance of such phenological disjunction remains an active research area with potentially important policy implications for conservation.

Only six species exhibit significant trends towards later laying. These include [Woodpigeon](#), added to the suite of species for which long-term productivity trends are produced for the first time in this report thanks to the efforts of volunteer data inputters. A recent collaboration between BTO and Aberdeen University, using NRS data, identified 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 birds 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 breeding are also related to weather, but that their weather-mediated cues do not show any trend over time (Crick & Sparks 1999).

Table D3 Significant trends in laying date measured between 1968 and 2009

Species	Period (yrs)	Mean annual sample	Trend	Predicted in first year	Predicted in last year	Change	Comment
<u>Magpie</u>	41	33	Linear decline	Apr 24	Mar 25	-30 days	
<u>Long-tailed Tit</u>	41	50	Linear decline	Apr 21	Apr 5	-16 days	
<u>Greenfinch</u>	41	93	Linear decline	May 25	May 9	-16 days	
<u>Corn Bunting</u>	41	14	Linear decline	Jun 28	Jun 13	-15 days	Small sample
<u>Lesser Redpoll</u>	41	10	Curvilinear	May 27	May 13	-14 days	Small sample
<u>Redstart</u>	41	62	Curvilinear	May 21	May 8	-13 days	
<u>Chiffchaff</u>	41	52	Linear decline	May 16	May 3	-13 days	
<u>Coal Tit</u>	41	44	Linear decline	May 3	Apr 20	-13 days	
<u>Carion Crow</u>	41	30	Curvilinear	Apr 17	Apr 4	-13 days	Includes Hooded Crow
<u>Nuthatch</u>	41	28	Linear decline	May 2	Apr 20	-12 days	Small sample
<u>Blackcap</u>	41	39	Curvilinear	May 21	May 10	-11 days	
<u>Pied Flycatcher</u>	41	416	Linear decline	May 21	May 10	-11 days	
<u>Blue Tit</u>	41	417	Linear decline	May 4	Apr 23	-11 days	
<u>Great Tit</u>	41	332	Linear decline	May 5	Apr 24	-11 days	
<u>Treecreeper</u>	41	13	Linear decline	May 7	Apr 26	-11 days	Small sample
<u>Goldfinch</u>	41	23	Linear decline	Jun 7	May 27	-11 days	Small sample
<u>Dipper</u>	41	63	Linear decline	Apr 18	Apr 8	-10 days	
<u>Stonechat</u>	41	40	Curvilinear	May 3	Apr 23	-10 days	
<u>Whitethroat</u>	41	19	Curvilinear	May 26	May 16	-10 days	Small sample
<u>Chaffinch</u>	41	108	Curvilinear	May 10	Apr 30	-10 days	
<u>Sedge Warbler</u>	41	47	Curvilinear	May 29	May 20	-9 days	
<u>Reed Warbler</u>	41	173	Curvilinear	Jun 17	Jun 8	-9 days	
<u>Marsh Tit</u>	41	14	Linear decline	Apr 28	Apr 19	-9 days	Small sample
<u>Kestrel</u>	41	23	Linear decline	May 5	Apr 27	-8 days	Small sample
<u>Oystercatcher</u>	41	48	Linear decline	May 17	May 9	-8 days	
<u>Swallow</u>	41	191	Curvilinear	Jun 19	Jun 11	-8 days	
<u>Tree Pipit</u>	41	19	Linear decline	May 24	May 16	-8 days	Small sample
<u>Robin</u>	41	132	Linear decline	Apr 28	Apr 20	-8 days	
<u>Ring Ouzel</u>	41	21	Linear decline	May 15	May 7	-8 days	Small sample
<u>House Sparrow</u>	41	62	Linear decline	May 25	May 17	-8 days	
<u>Wren</u>	41	88	Linear decline	May 15	May 8	-7 days	
<u>Willow Warbler</u>	41	83	Linear decline	May 20	May 13	-7 days	
<u>Starling</u>	41	84	Curvilinear	Apr 27	Apr 20	-7 days	
<u>Moorhen</u>	41	70	Linear decline	May 10	May 4	-6 days	
<u>Grey Wagtail</u>	41	60	Linear decline	May 8	May 2	-6 days	
<u>Wood Warbler</u>	41	32	Curvilinear	May 24	May 18	-6 days	
<u>Jackdaw</u>	41	26	Curvilinear	Apr 23	Apr 17	-6 days	Small sample
<u>Whinchat</u>	41	27	Linear decline	May 30	May 25	-5 days	Small sample
<u>Garden Warbler</u>	41	22	Linear decline	May 27	May 22	-5 days	Small sample
<u>Peregrine</u>	41	10	Curvilinear	Apr 5	Apr 1	-4 days	Small sample
<u>Tree Sparrow</u>	41	251	Linear decline	May 28	May 24	-4 days	
<u>Reed Bunting</u>	41	47	Curvilinear	May 19	May 15	-4 days	
<u>Pied Wagtail</u>	41	81	Curvilinear	May 18	May 16	-2 days	
<u>Nightjar</u>	41	20	Curvilinear	Jun 17	Jun 16	-1 days	Small sample
<u>Blackbird</u>	41	215	Linear increase	Apr 25	Apr 27	2 days	
<u>Bullfinch</u>	41	33	Linear increase	May 26	Jun 1	6 days	
<u>Yellowhammer</u>	41	26	Linear increase	May 31	Jun 6	6 days	Small sample
<u>Skylark</u>	41	19	Curvilinear	May 25	Jun 1	7 days	Small sample
<u>Stock Dove</u>	41	23	Linear increase	May 30	Jun 11	12 days	Small sample
<u>Woodpigeon</u>	41	78	Linear increase	Jun 1	Jun 21	20 days	

See Key to species texts for help with interpretation

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 it 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.

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Utilities

The tables of population change that appear on the species pages are species-based selections from a single unified table, with data newly calculated for this edition of the report. A number of additional selections from this table, by scheme and time-period, are presented in the Summary tables section. Using the [table generator](#), you can interrogate the master table by data source or time-period, for all species or for your own selection of species, and choose how your extract will be sorted.

This edition of the Bird Trends report is the 13th in a series that began in 1997. Citations for previous editions are listed under Previous reports. Links are given to the full text of ten previous reports, which are still available on line.

The following links are available here to other sections of the report.

Previous reports

Previous reports in this series are listed, from the most recent to the earliest. The first two (Crick *et al.* 1997, 1998) were produced as paper reports, but all subsequent reports are purely web-based and url addresses must be included in their citations.

Note that www.bto.org/about-birds/bird-trends will always link to the home page of the most recent version of this report. Web addresses including a year (e.g. [birdtrends2010](http://www.bto.org/birdtrends2010)) may lead you to earlier reports in the series, now superseded.

Breeding Birds in the Wider Countryside: their conservation status 2010

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Clicking on reference links within 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. Some species pages also present references without links, for which full details are listed within the species page itself.

Where possible, we provide an onward link either to an abstract or, where it is freely available, to the full text of the listed publication. 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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Mute Swan

Cygnus olor

Key facts

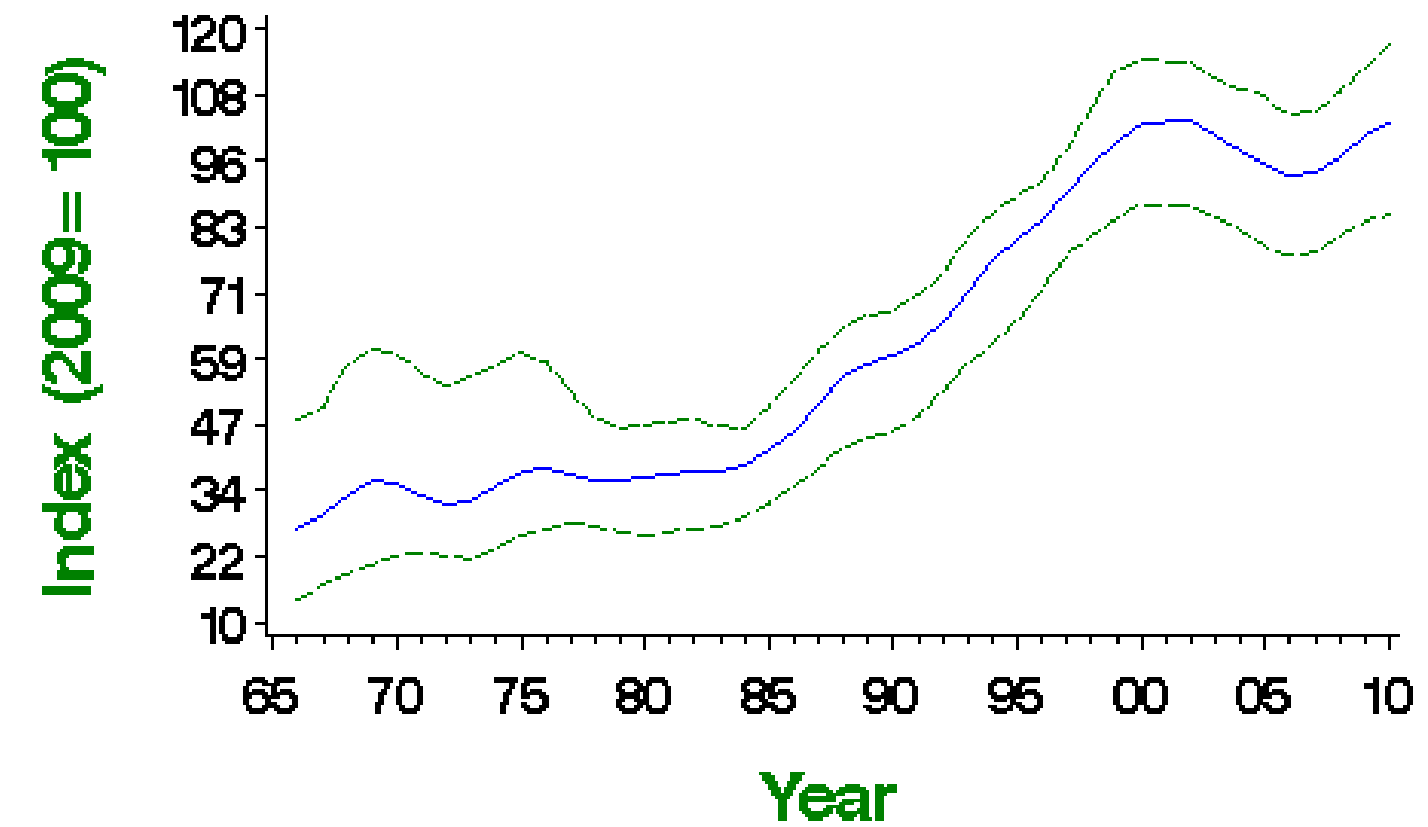
Conservation listings:	Europe: no SPEC category (concentrated in Europe, conservation status favourable) (BiE04) UK: green (BoCC3)
Long-term trend:	UK, England: rapid increase
Population size:	28,000-30,000 adults in 1990 (Delany <i>et al.</i> 1992: APEP06); 23,900-25,600 pairs in 2000 (updated using CBC/BBS trend: BiE04); 28,600-35,200 birds in Britain in 2002 (Rowell & Spray 2004)
Migrant status:	Resident
Nesting habitat:	Ground nester
Primary breeding habitat:	Wetland
Secondary breeding habitat:	
Breeding diet:	Vegetation
Winter diet:	Vegetation

Status summary

Mute Swan populations, which had been fairly stable since the 1960s, increased progressively from the mid 1980s to around 2000, when a new plateau was reached. 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, with little change after 2000 (Holt et al. 2011). After a spell on the amber list from 2002, for reasons unconnected with its UK trend, the species is now green listed once more. There has been widespread moderate increase across Europe since 1980 (PECBMS 2011a).

CBC/BBS UK 1966–2010

Mute Swan



Smoothed population index, relative to an arbitrary 100 in the year given, with 85% confidence limits in green

Population changes in detail

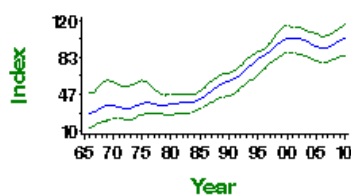
Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS UK	42	1967-2009	98	234	58	625		Small CBC sample
	25	1984-2009	154	154	83	285		
	10	1999-2009	275	1	-15	17		
	5	2004-2009	306	3	-5	11		
CBC/BBS England	42	1967-2009	85	199	36	484		Small CBC sample
	25	1984-2009	131	136	61	235		
	10	1999-2009	233	1	-18	10		
	5	2004-2009	263	0	-13	5		
WBS/WBBS waterways	34	1975-2009	76	100	41	191		
	25	1984-2009	91	83	43	158		
	10	1999-2009	149	9	-16	41		
	5	2004-2009	153	3	-11	19		
BBS UK	14	1995-2009	238	23	3	63		
	10	1999-2009	269	1	-18	13		
	5	2004-2009	305	2	-9	9		
BBS England	14	1995-2009	204	6	-9	29		
	10	1999-2009	229	2	-13	17		
	5	2004-2009	262	-1	-11	5		

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



CBC/BBS UK 1966–2010

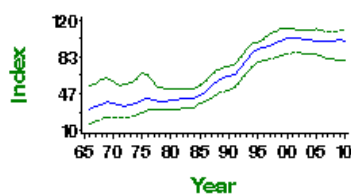
Mute Swan



CBC/BBS UK graph

CBC/BBS England 1966–2010

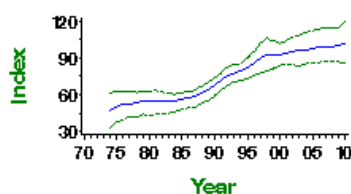
Mute Swan



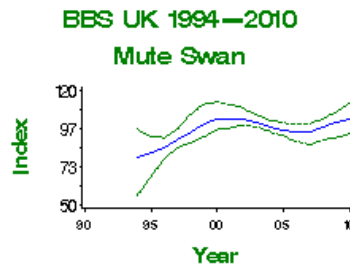
CBC/BBS England graph

WBS/WBBS 1974–2010

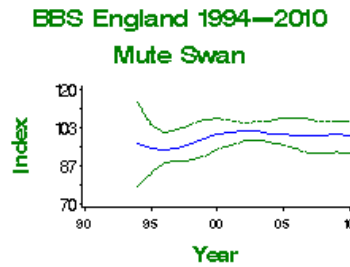
Mute Swan



WBS/WBBS waterways graph



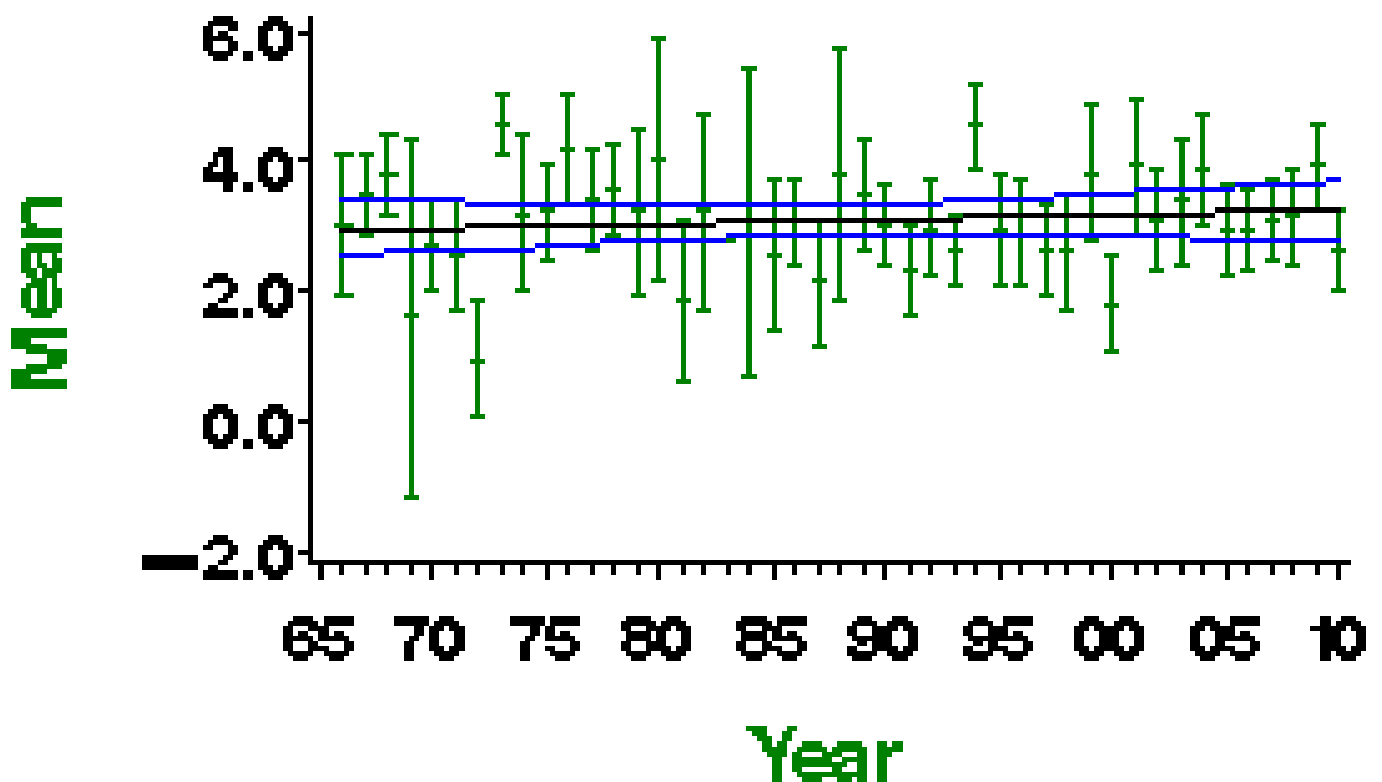
BBS UK graph



BBS England graph

Demographic trends

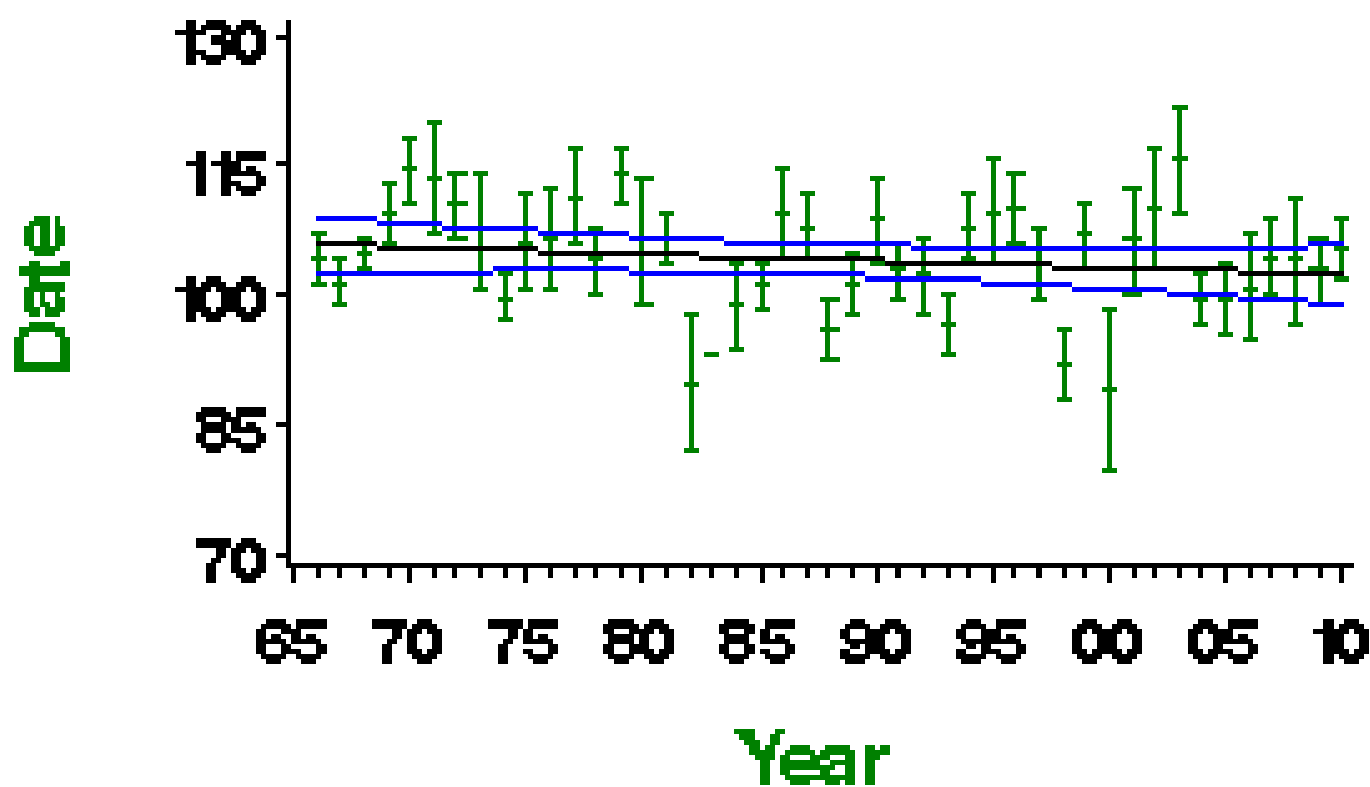
Fledglings per breeding attempt 1966–2010 Mute Swan



Mean number of fledglings produced per nest - green bars represent standard error and black line shows long-term trend

Laying date 1966–2010

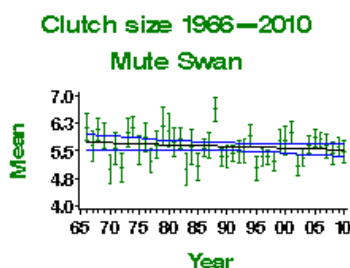
Mute Swan



More on demographic trends

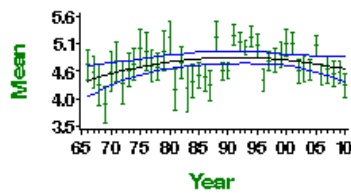
Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Fledglings per breeding attempt	41	1968-2009	19	None					
Clutch size	41	1968-2009	32	None					
Brood size	41	1968-2009	67	Curvilinear	4.43 chicks	4.61 chicks	3.9%		
Nest failure rate at egg stage	41	1968-2009	38	None					
Nest failure rate at chick stage	41	1968-2009	43	None					
Laying date	41	1968-2009	17	None			0 days		Small sample

For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).



Brood size 1966–2010

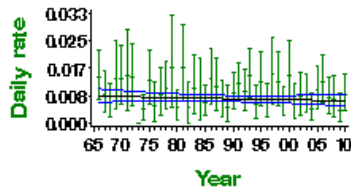
Mute Swan



Mean number of chicks per nest - green bars represent standard error and black line shows long-term trend

Egg stage nest failure rate

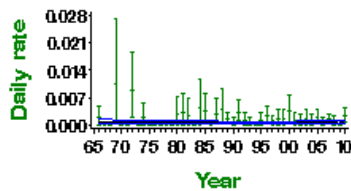
Mute Swan



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Chick stage nest failure rate

Mute Swan



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Causes of change

The increase in this species has been attributed to the banning of lead weights for fishing and the positive implications of this on survival. Milder winters have also been a factor, increasing overwinter survival and having knock-on effects on breeding success.

Change factor	Primary driver	Secondary driver
Demographic	Increased survival	Increased breeding success
Ecological	Other	Climate change

Further information on causes of change

The main hypothesis relating to the factors causing the increase in this species concerns the use of lead as fishing weights (Rowell & Spray 2004, Ward et al. 2007). In the late 1970s lead poisoning was shown to be the largest single cause of death among Mute Swans in England, accounting for the deaths of 3,000-3,500 birds annually (Kirby et al. 1994). There is good evidence showing that lead contamination of Mute Swans in England caused local population declines during the late 1970s and 1980s (Blus 1994, Birkhead & Perrins 1985). The increase in the British Mute Swan population seen between the 1983 and 1990 censuses can thus be explained partly by the ban on the use of lead weights in fishing imposed by the Water Authorities in 1987 (Rowell & Spray 2004). There is no evidence to suggest that lead poisoning was ever a problem in Scotland (e.g. Brown & Brown 1984).

A second, not mutually exclusive, hypothesis is that warmer winter weather has benefited this species. Deaths during the winter due to poor weather are an important cause of mortality in many areas (Spray 1981, Perrins & Sears 1991) and a run of mild winters is likely to have reduced this (Rowell & Spray 2004). Mild winters are not only associated with low mortality but are also followed by high reproductive output (Delany et al. 1992) which has also contributed to the increase in the Mute Swan population. A study examining five years' data on breeding biology found that winter temperature was one of the factors significantly affecting the date of laying, which in turn was related to clutch size, which in itself was the most significant factor determining the number of cygnets fledged (Birkhead et al. 1983), hence demonstrating an effect on breeding performance. Esselink & Beekman (1991) have also shown that mild winters are not only associated with low mortality but are also followed by high reproductive output by enabling adults attain peak body condition. This may have been particularly important in Scotland.

Whilst the recovery of the British Mute Swan population may in large part be attributed to the reduced incidence of lead poisoning, locally other factors may have had an equal or more important contribution to the observed changes (Ward et al. 2007). Recent years have also seen an increase in the availability of suitable breeding habitats, in the form of the large numbers of gravel pits and ponds that have been created. Improvements to the water quality of rivers and canals, as a result of efforts to reduce pollution, may have also helped the species (Coleman et al. 2001, Rowell & Spray 2004). The number and activity of Swan Rescue Centres may also have an effect on the Mute Swan population size (Delany et al. 1992, Perrins & Martin 1999), although there is little documented evidence to support this. Other factors affecting local populations include increased protection of nesting birds; in an English Midlands study area, this was considered a key factor in the reversal of the 1960s and 1970s

decline (Coleman et al. 2001).

In Scotland (and presumably elsewhere), the increased autumn sowing of cereals has improved the winter food supply for swans, enabling a higher proportion of birds to survive the winter (Delany et al. 1992, Ward et al. 2007), although there are no specific analyses to support this.

Species references

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Kirby, J., Delany, S. & Quinn, J. (1994) Mute Swans in Great Britain: a review, current status and long-term trends. *Hydrobiologia* 279-280: 467-482.

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Spray, C.J. (1981) An isolated population of *Cygnus olor* in Scotland. In *Proceedings of 2nd International Swan Symposium*, pp 191-203. Sapporo, Japan 1980. IWRB, Slimbridge.

Ward, R.M., Cranswick, P.A., Kershaw, M., Austin, G.E., Brown, A.W., Brown, L.M., Coleman, J.C., Chisholm, H.K. & Spray, C.J. (2007) Numbers of Mute Swans *Cygnus olor* in Great Britain: results of the national census in 2002. *Wildfowl* 57: 3-20.

This report should be cited as: Baillie, S.R., Marchant, J.H., Leech, D.I., Renwick, A.R., Eglington, S.M., Joys, A.C., Noble, D.G., Barimore, C., Conway, G.J., Downie, I.S., Risely, K. & Robinson, R.A. (2012). *BirdTrends 2011*. BTO Research Report No. 609. BTO, Thetford. <https://www.bto.org/birdtrends>

Key facts

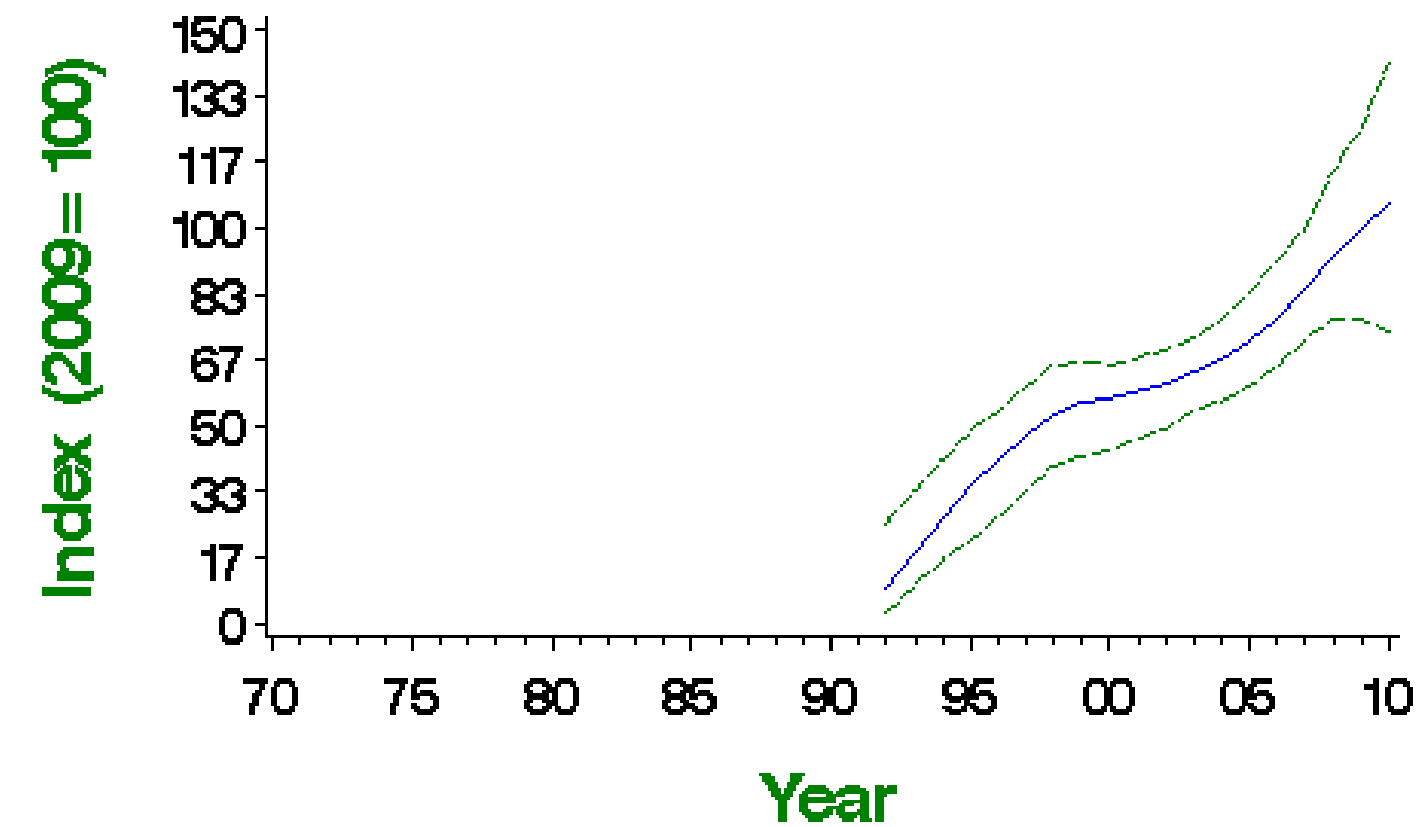
Conservation listings:	Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe) (BiE04) UK: not listed (introduced population); amber (localised NW Scottish population); amber (in winter, localised and >20% of NW European Flyway population) (BoCC3)
Long-term trend:	UK waterways: rapid increase
Population size:	3,200 indigenous pairs in 1997, and 30,900 introduced adults in 1999 (Mitchell <i>et al.</i> 2000, Rehfishch <i>et al.</i> 2002, APEP06); 15,600-15,800 pairs in 2000 (BiE04); 84,500 summering birds in Britain in 2008-09 (Mitchell <i>et al.</i> 2011)

Status summary

Apart from an 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 (Rehfishch *et al.* 2002). This equates across Britain to 170%, or 9.4% per annum, in the period to 2000 (Austiret *al.* 2007). In Scotland, the native population has grown at an annual rate of 11.7% since 1997 and the re-established birds at 9.7% per annum since 1989 (Mitchell *et al.* 2011). 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 resident birds have increased rapidly since the late 1960s (Holt *et al.* 2011).

WBS/WBBS 1992 – 2010

Greylag Goose



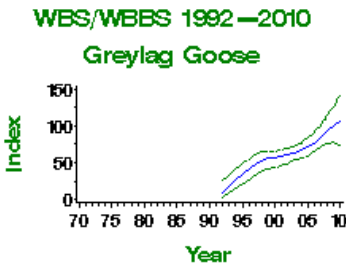
Smoothed population index, relative to an arbitrary 100 in the year given, with 85% confidence limits in green

Population changes in detail

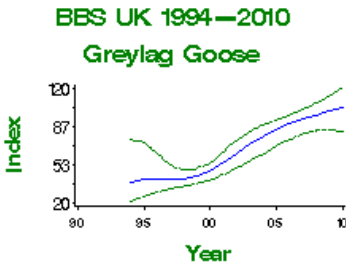
Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
WBS/WBBS waterways	16	1993-2009	38	461	126	1247		
	10	1999-2009	53	79	14	210		
	5	2004-2009	62	50	2	117		

BBS UK Source	Period (yrs)	1995-2009 Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
	10	1999-2009	190	133	80	197		
	5	2004-2009	237	28	1	69		
BBS England	14	1995-2009	131	199	109	392		
	10	1999-2009	158	125	68	187		
	5	2004-2009	198	54	29	76		

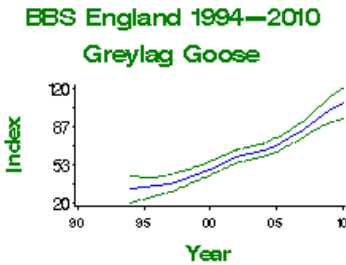
Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



WBS/WBBS waterways graph



BBS UK graph



BBS England graph

Demographic trends

Productivity and survival trends for this species are not currently produced by BTO

This report should be cited as: Baillie, S.R., Marchant, J.H., Leech, D.I., Renwick, A.R., Eglington, S.M., Joys, A.C., Noble, D.G., Barimore, C., Conway, G.J., Downie, I.S., Risely, K. & Robinson, R.A. (2012). BirdTrends 2011. BTO Research Report No. 609. BTO, Thetford. <https://www.bto.org/birdtrends>

Key facts

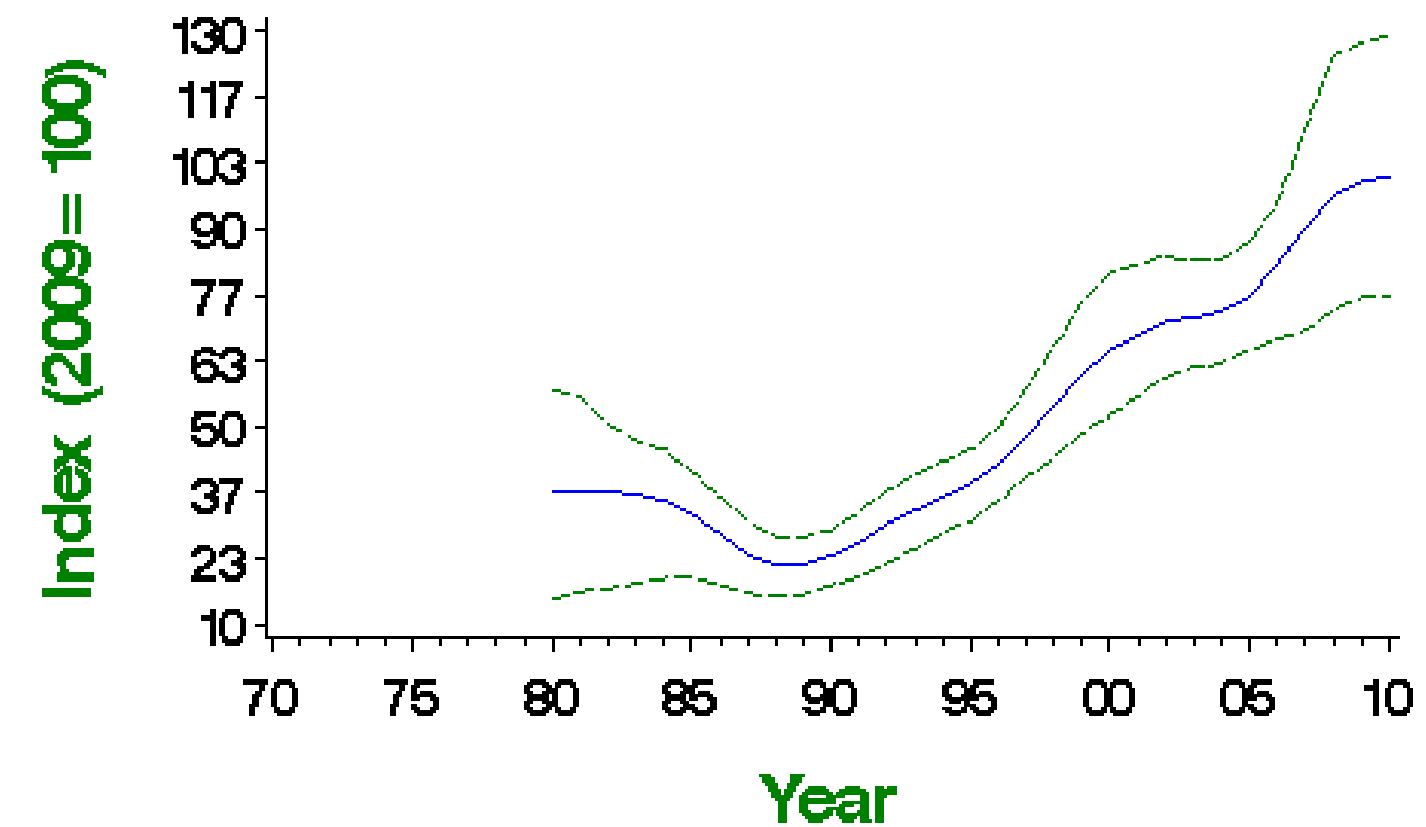
Conservation listings:	Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe) (BiE04) UK: not listed (introduced)
Long-term trend:	UK waterways: rapid increase
Population size:	82,550 adults in 1999 (Rehfishch <i>et al.</i> 2002: APEP06); 88,866 adults in Britain in 2000 (Austin <i>et al.</i> 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 strong long-term increase, but with little change since about 2001 (Holt *et al.* 2011). The economic, social and environmental impacts of rapidly expanding, non-native Canada Goose populations are of growing conservation concern across Europe.

WBS/WBBS 1980–2010

Canada Goose



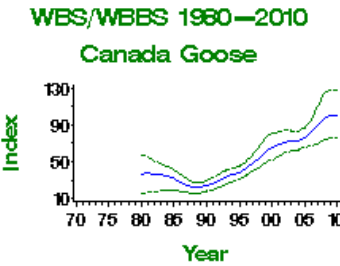
Smoothed population index, relative to an arbitrary 100 in the year given, with 85% confidence limits in green

Population changes in detail

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
WBS/WBBS waterways	28	1981-2009	62	169	47	710		
	25	1984-2009	68	185	75	564		
	10	1999-2009	118	66	7	166		

Source BBS UK	5 Period (yrs)	2004-2009 Years 1995-2009	127 Plots 474	36 Change (%)	7 Lower limit	80 Upper limit	Alert	Comment
	10	1999-2009	511	59	28	83		
	5	2004-2009	589	9	-14	23		
BBS England	14	1995-2009	413	82	46	120		
	10	1999-2009	473	54	21	80		
	5	2004-2009	542	7	-16	25		

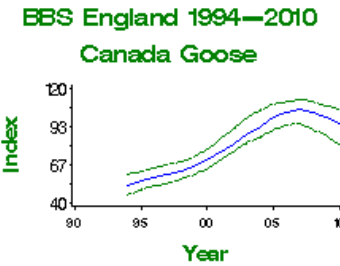
Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



WBS/WBBS waterways graph



BBS UK graph



BBS England graph

Demographic trends

Productivity and survival trends for this species are not currently produced by BTO

Shelduck

Tadorna tadorna

Key facts

Conservation listings:	Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe) (BiE04) UK: amber (localised in winter, >20% of NW European population in winter) (BoCC3)
Long-term trend:	UK: probable increase
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 (Holt et al. 2011). 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.



Smoothed population index, relative to an arbitrary 100 in 1999, with 85% confidence limits in green

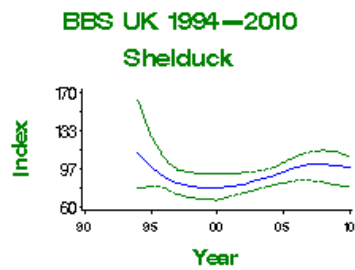
Population changes in detail

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	14	1995-2009	138	2	-38	40		
	10	1999-2009	147	28	-11	65		
	5	2004-2009	162	13	-10	26		
BBS England	14	1995-2009	114	35	-12	68		
	10	1999-2009	120	48	-4	86		
	5	2004-2009	133	29	2	42		

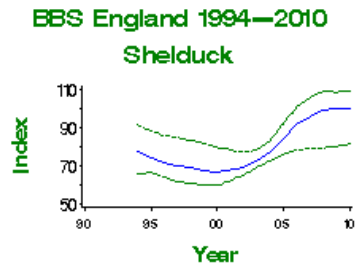
Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See here for more information.



Smoothed population index, relative to an arbitrary 100 in 2009, with 85% confidence limits in green



Smoothed population index, relative to an arbitrary 100 in 2009, with 85% confidence limits in green



Smoothed population index, relative to an arbitrary 100 in 2009, with 85% confidence limits in green

Demographic trends

Productivity and survival trends for this species are not currently produced by BTO

This report should be cited as: Baillie, S.R., Marchant, J.H., Leech, D.I., Renwick, A.R., Eglinton, S.M., Joys, A.C., Noble, D.G., Barimore, C., Conway, G.J., Downie, I.S., Risely, K. & Robinson, R.A. (2012). BirdTrends 2011. BTO Research Report No. 609. BTO, Thetford. <https://www.bto.org/birdtrends>

Mallard

Anas platyrhynchos

Key facts

Conservation listings:	Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe) (BiE04) UK: amber (winter decline) (BoCC3)
Long-term trend:	UK, England: rapid increase
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)

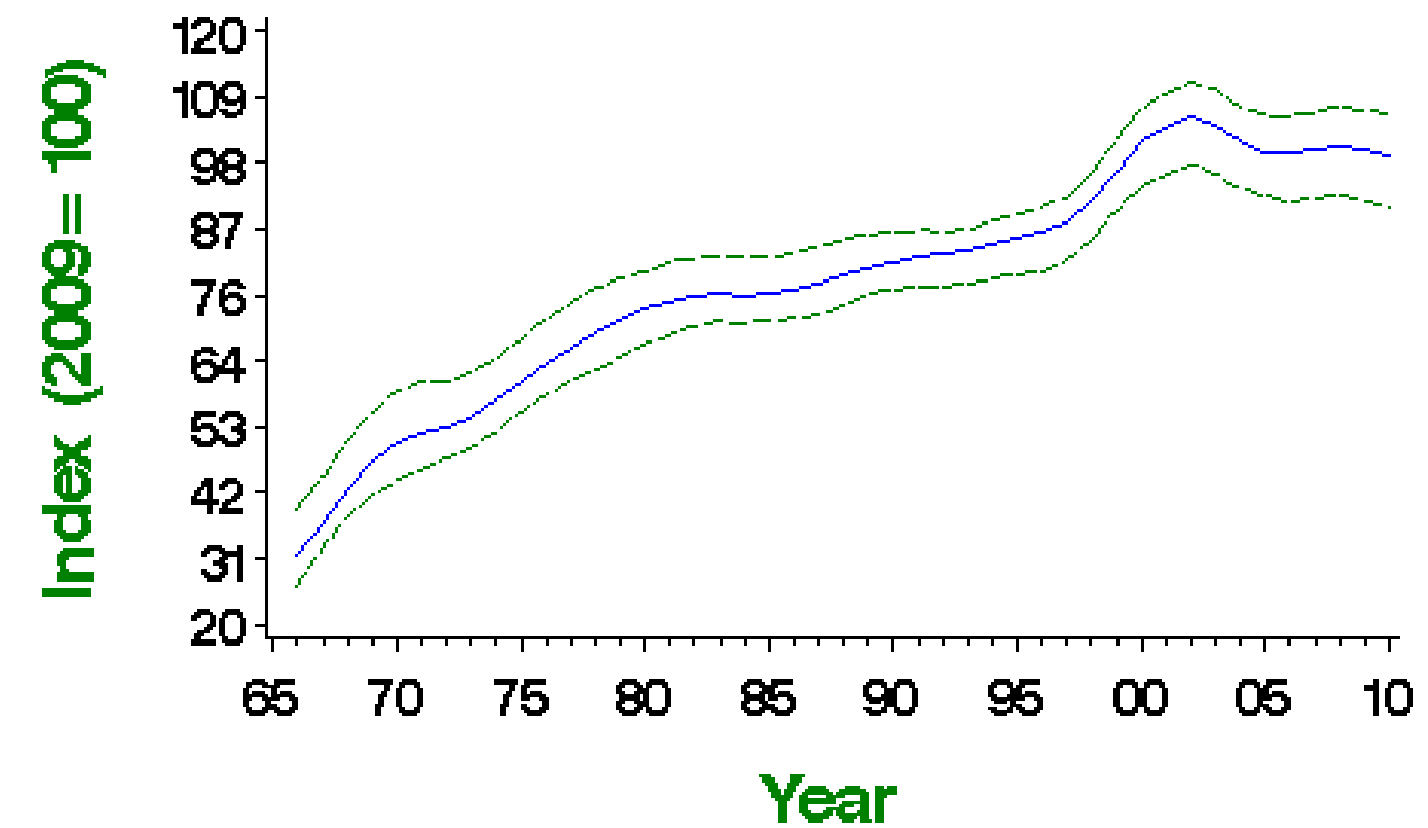
Migrant status:	Resident
Nesting habitat:	Ground nester
Primary breeding habitat:	Wetland
Secondary breeding habitat:	
Breeding diet:	Vegetation
Winter diet:	Vegetation

Status summary

The Mallard has increased steadily as a breeding bird in the UK since the 1960s, especially in England. Winter populations have declined since at least the late 1980s (Holt et al. 2011). 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 2011a).

CBC/BBS UK 1966–2010

Mallard



Smoothed population index, relative to an arbitrary 100 in the year given, with 85% confidence limits in green

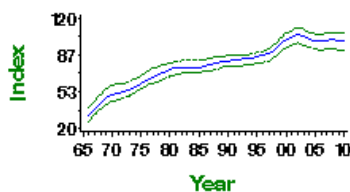
Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS UK	42	1967-2009	519	167	101	227		
	25	1984-2009	797	33	12	51		
	10	1999-2009	1402	4	-4	10		
	5	2004-2009	1564	-1	-7	3		
CBC/BBS England	42	1967-2009	438	209	137	304		
	25	1984-2009	671	45	24	72		
	10	1999-2009	1182	13	6	18		
	5	2004-2009	1324	1	-4	6		
WBS/WBBS waterways	34	1975-2009	159	209	143	300		
	25	1984-2009	188	100	62	156		
	10	1999-2009	298	3	-5	13		
	5	2004-2009	310	1	-4	7		
BBS UK	14	1995-2009	1228	18	8	27		
	10	1999-2009	1361	2	-5	8		
	5	2004-2009	1528	-3	-9	2		
BBS England	14	1995-2009	1034	31	22	41		
	10	1999-2009	1150	13	7	19		
	5	2004-2009	1297	1	-4	5		
BBS Scotland	14	1995-2009	96	-17	-32	-1		
	10	1999-2009	99	-33	-45	-23	>25	
	5	2004-2009	108	-19	-33	-6		
BBS Wales	14	1995-2009	65	-12	-46	39		
	10	1999-2009	74	27	-12	73		
	5	2004-2009	78	4	-23	33		

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



CBC/BBS UK 1966–2010

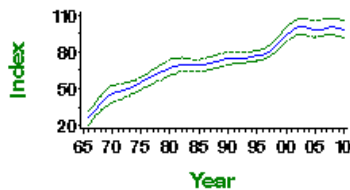
Mallard



CBC/BBS UK graph

CBC/BBS England 1966–2010

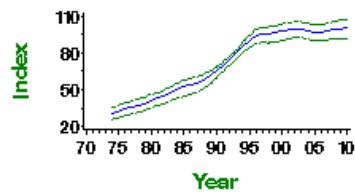
Mallard



CBC/BBS England graph

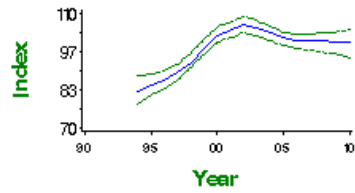
WBS/WBBS 1974—2010

Mallard



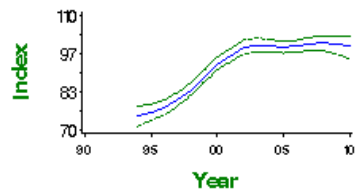
BBS UK 1994—2010

Mallard



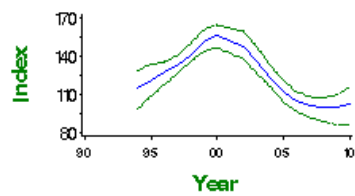
BBS England 1994—2010

Mallard



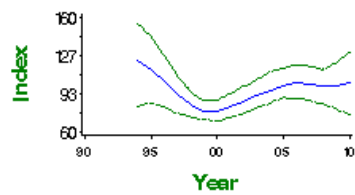
BBS Scotland 1994—2010

Mallard



BBS Wales 1994—2010

Mallard



Demographic trends

Productivity and survival trends for this species are not currently produced by BTO

Causes of change

There is little good evidence available regarding the drivers of the breeding population increase in this species in the UK.

Change factor	Primary driver	Secondary driver
Demographic	Unknown	
Ecological	Unknown	

Further information on causes of change

There are no demographic trends available for this species and there is very little evidence generally relating to the causes of the population increases in the UK.

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. It is also likely that increases may be at least partly attributable to ongoing large-scale releases for shooting (Marchant et al. 1990).

Declines in wintering numbers have been linked to a decrease in continental immigration (Mitchell et al. 2002, Sauter et al. 2010). Guilleman et al. (2010) found trends of increasing average body mass of Mallard in France which were large enough to have major fitness consequences with respect to winter survival, suggesting that overwinter survival has not decreased. Overwinter loss was investigated in Mallard at thirty-five inland waters in the Midlands and southern England (Hill 1984). Duckling mortality was the key factor, explaining 58% of total mortality between years and this was weakly density-dependent. Overwinter loss was higher following years when a large number of young were produced and was the main regulatory factor.

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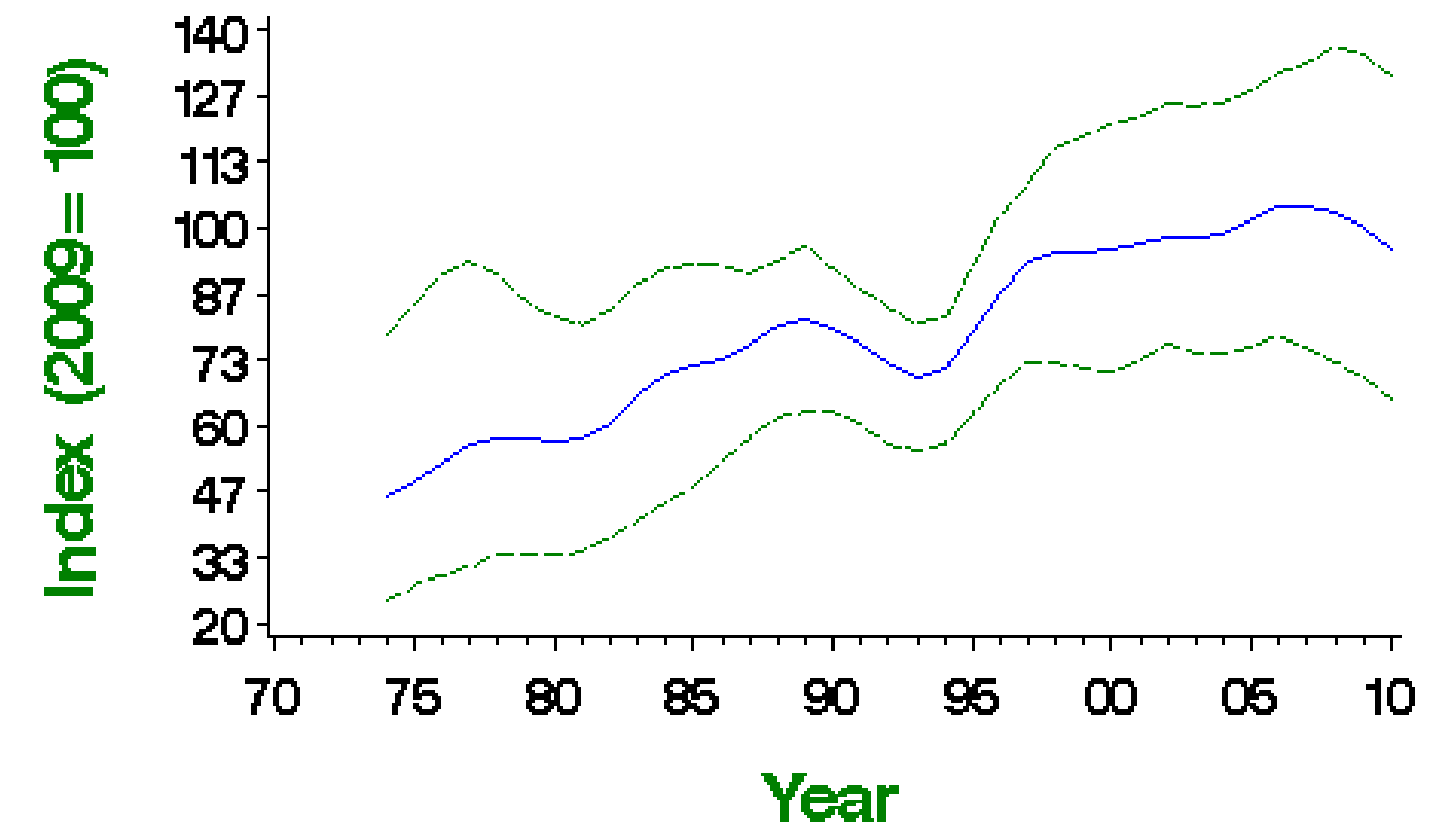
Key facts

Conservation listings:	Europe: SPEC category 3 (declining) (BiE04) UK: amber (European decline) (BoCC3)
Long-term trend:	UK waterways: rapid increase
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 throughout (Holt et al. 2011). 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).

WBS/WBBS 1974–2010
Tufted Duck



Smoothed population index, relative to an arbitrary 100 in the year given, with 85% confidence limits in green

Population changes in detail

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
WBS/WBBS waterways	34	1975-2009	36	104	-16	426		
	25	1984-2009	42	42	-27	202		
	10	1999-2009	61	5	-35	59		
	5	2004-2009	60	1	-20	25		

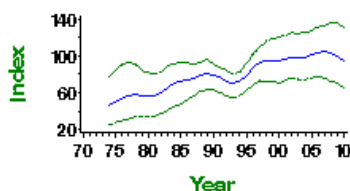
BBS UK Source	Period (yrs)	1995-2009 Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
	10	1999-2009	158	21	-1	45		
	5	2004-2009	171	15	2	29		
BBS England	14	1995-2009	127	35	-3	71		
	10	1999-2009	138	19	-5	45		
	5	2004-2009	152	15	0	28		

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



WBS/WBBS 1974—2010

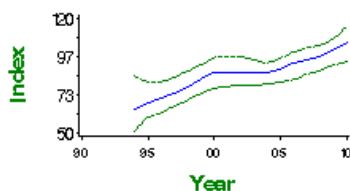
Tufted Duck



WBS/WBBS waterways graph

BBS UK 1994—2010

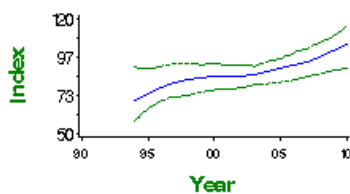
Tufted Duck



BBS UK graph

BBS England 1994—2010

Tufted Duck



BBS England graph

Demographic trends

Productivity and survival trends for this species are not currently produced by BTO

This report should be cited as: Baillie, S.R., Marchant, J.H., Leech, D.I., Renwick, A.R., Eglington, S.M., Joys, A.C., Noble, D.G., Barimore, C., Conway, G.J., Downie, I.S., Risely, K. & Robinson, R.A. (2012). BirdTrends 2011. BTO Research Report No. 609. BTO, Thetford. <https://www.bto.org/birdtrends>

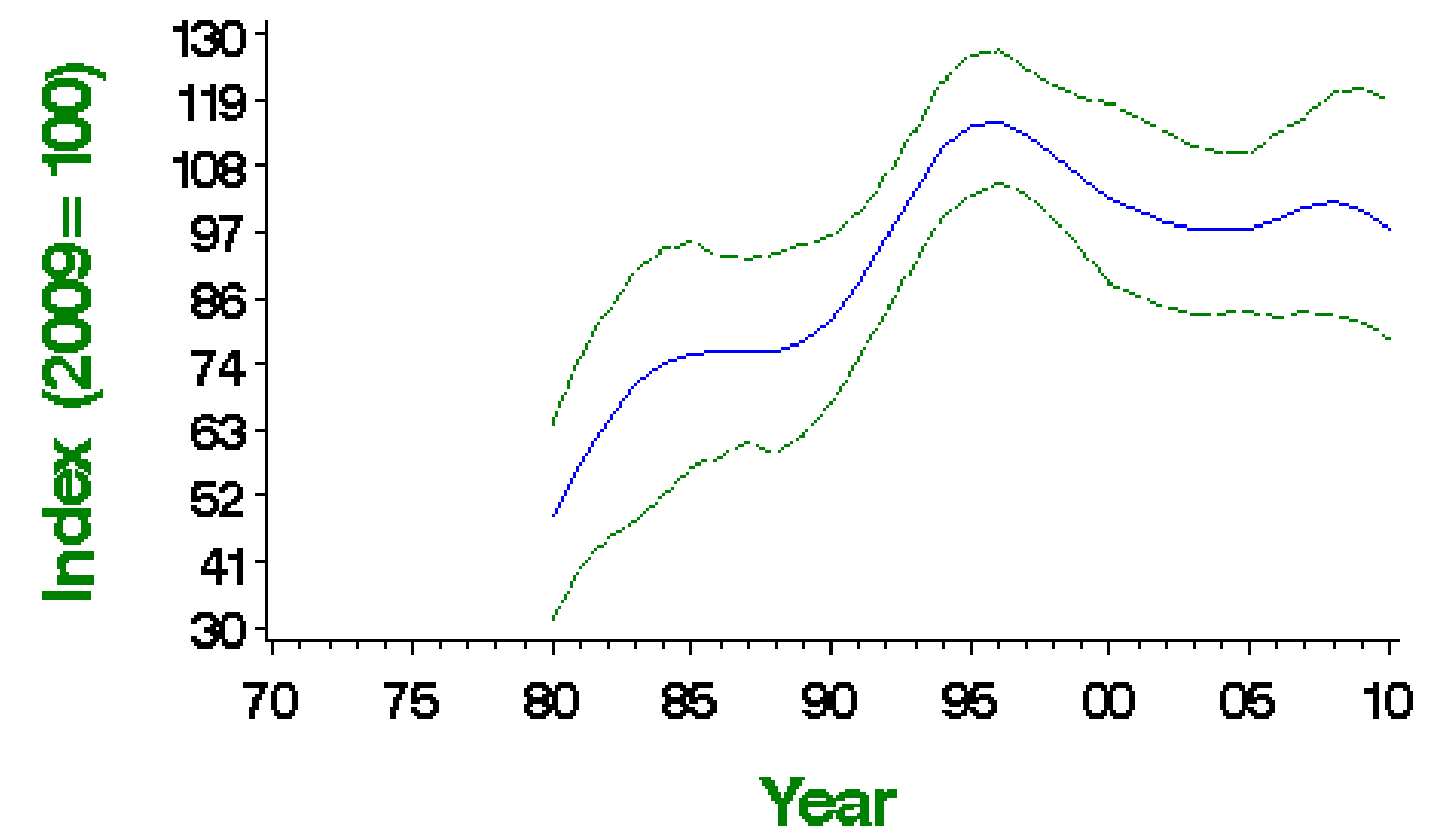
Key facts

Conservation listings:	Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe) (BiE04) UK: green (BoCC3)
Long-term trend:	UK waterways: moderate increase
Population size:	2,600 (2,300-2,900) pairs in 1987 (Gregory <i>et al.</i> 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 (Rehfishch *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 has since fallen back to 1980s levels (Holt *et al.* 2011).

WBS/WBBS 1980–2010
Goosander



Smoothed population index, relative to an arbitrary 100 in the year given, with 85% confidence limits in green

Population changes in detail

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
WBS/WBBS waterways	28	1981-2009	41	74	11	224		
	25	1984-2009	44	34	-13	143		
	10	1999-2009	72	-6	-27	18		
	5	2004-2009	74	3	-14	25		

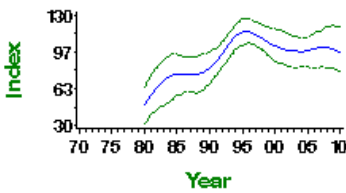
Source	Period (yr)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
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Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



WBS/WBBS 1980–2010

Goosander



WBS/WBBS waterways graph

Demographic trends

Productivity and survival trends for this species are not currently produced by BTO

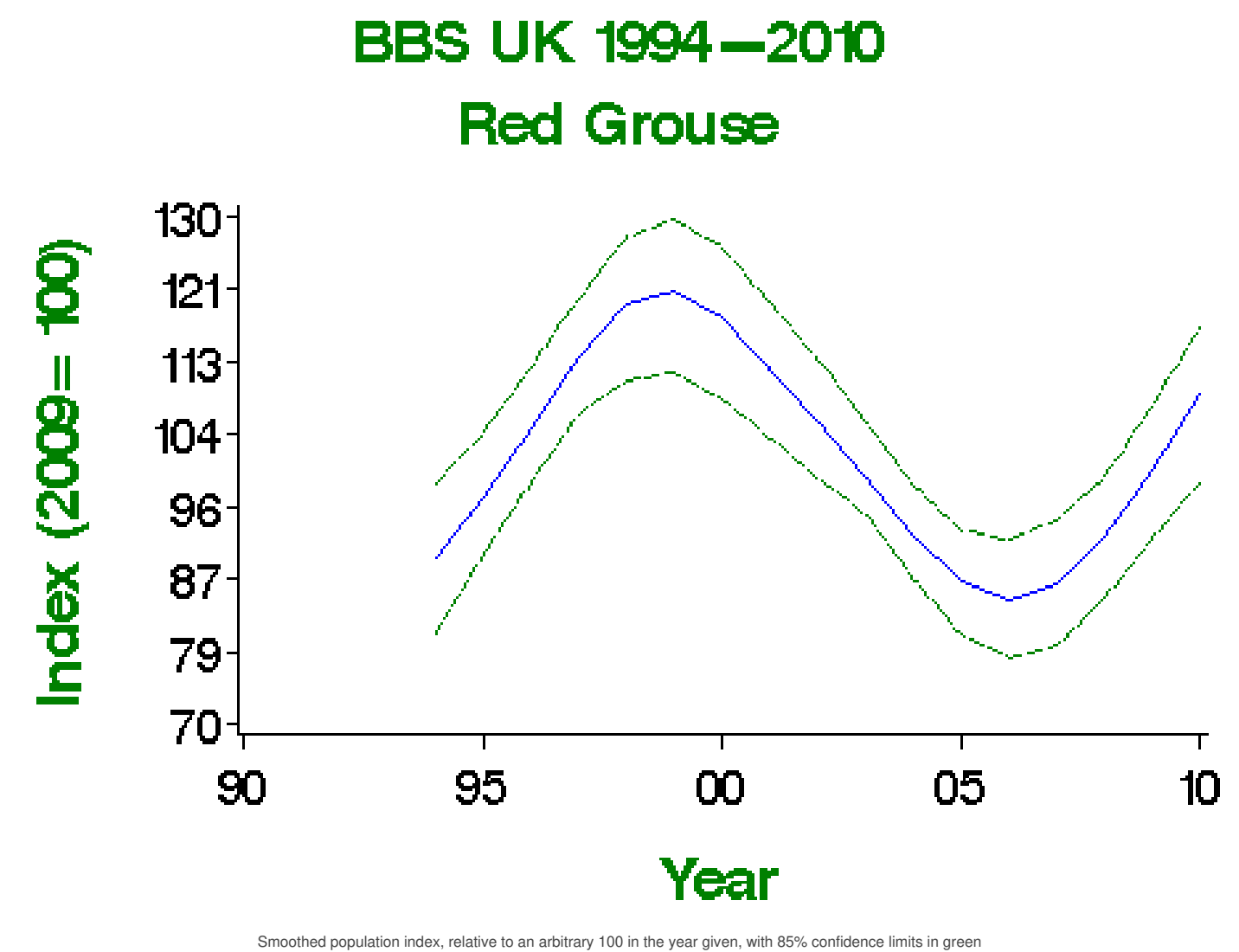
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Key facts

Conservation listings:	Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe) (BiE04) UK: amber (25-50% population decline) (BoCC3) UK Biodiversity Action Plan: priority species
Long-term trend:	UK: decline
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. 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). 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).

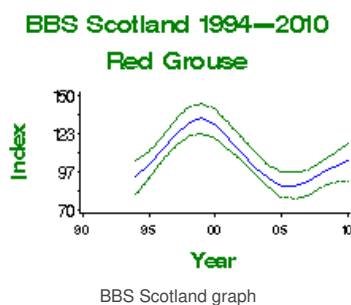
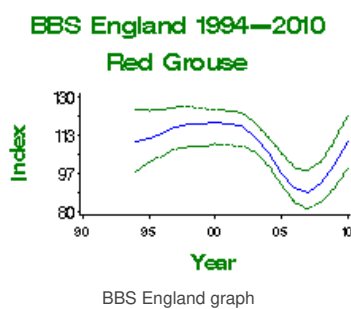
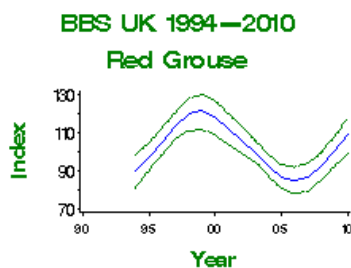


Population changes in detail

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
BBS UK	14	1995-2009	130	3	-11	19		
	10	1999-2009	138	-17	-30	-3		

Source	Period (yrs)	2004-2009 Years	# of Plots (n)	% Change	Lower limit	Upper limit	Alert	Comment
BBS England	14	1995-2009	164	-10	16	45		
	10	1999-2009	84	-15	29	55		
	5	2004-2009	110	-5	7	25		
BBS Scotland	14	1995-2009	53	-2	-18	16		
	10	1999-2009	47	-25	-38	-12	>25	
	5	2004-2009	46	9	-10	23		

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



Demographic trends

Productivity and survival trends for this species are not currently produced by BTO

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Key facts

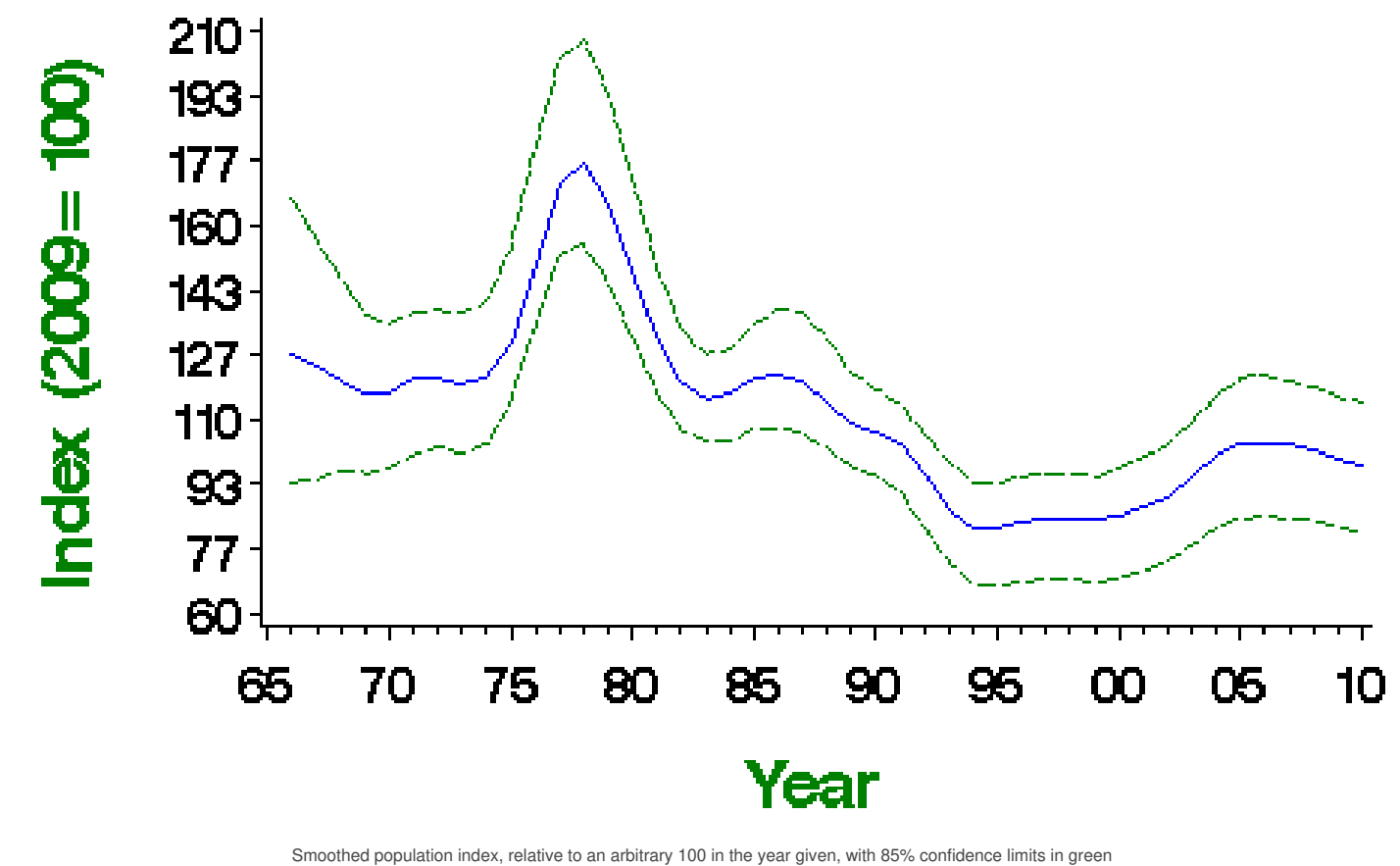
Conservation listings:	Europe: SPEC category 2 (declining) (BiE04) UK: not listed (introduced)
Long-term trend:	UK, England: possible shallow decline
Population size:	72,000-200,000 territories in 2000 (1988-91 Atlas estimate updated using CBC/BBS trend: BiE04, APEP06)

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. PACEC 2006). The effects on native fauna of such vast-scale releases of this species and Watson et al. 2007).

CBC/BBS UK 1966–2010

Red–legged Partridge



Smoothed population index, relative to an arbitrary 100 in the year given, with 85% confidence limits in green

Population changes in detail

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS UK	42	1967-2009	209	-19	-48	24		
	25	1984-2009	329	-14	-34	6		
	10	1999-2009	592	19	12	27		
	5	2004-2009	691	0	-6	5		
CBC/BBS England	42	1967-2009	204	-22	-50	16		
	25	1984-2009	321	-17	-37	3		

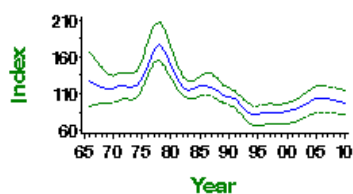
Source	Period (yrs)	1999-2009 Years	Plots (n)	Change (%)	lower limit	upper limit	Alert	Comment
	5	2004-2009	666	0	-6	4		
BBS UK	14	1995-2009	523	27	14	38		
	10	1999-2009	580	19	11	27		
	5	2004-2009	679	2	-3	7		
BBS England	14	1995-2009	509	22	9	32		
	10	1999-2009	563	17	8	25		
	5	2004-2009	656	1	-5	6		

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



CBC/BBS UK 1966–2010

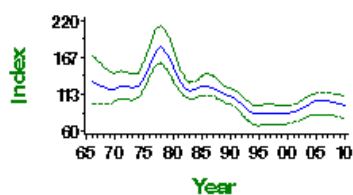
Red-legged Partridge



CBC/BBS UK graph

CBC/BBS England 1966–2010

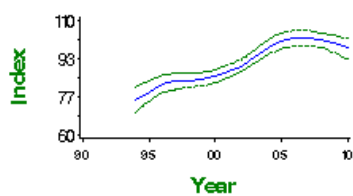
Red-legged Partridge



CBC/BBS England graph

BBS UK 1994–2010

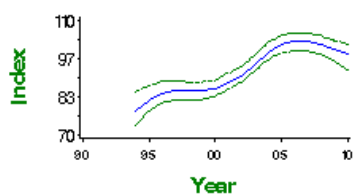
Red-legged Partridge



BBS UK graph

BBS England 1994–2010

Red-legged Partridge



BBS England graph

Demographic trends

Productivity and survival trends for this species are not currently produced by BTO

Grey Partridge

Perdix perdix

Key facts

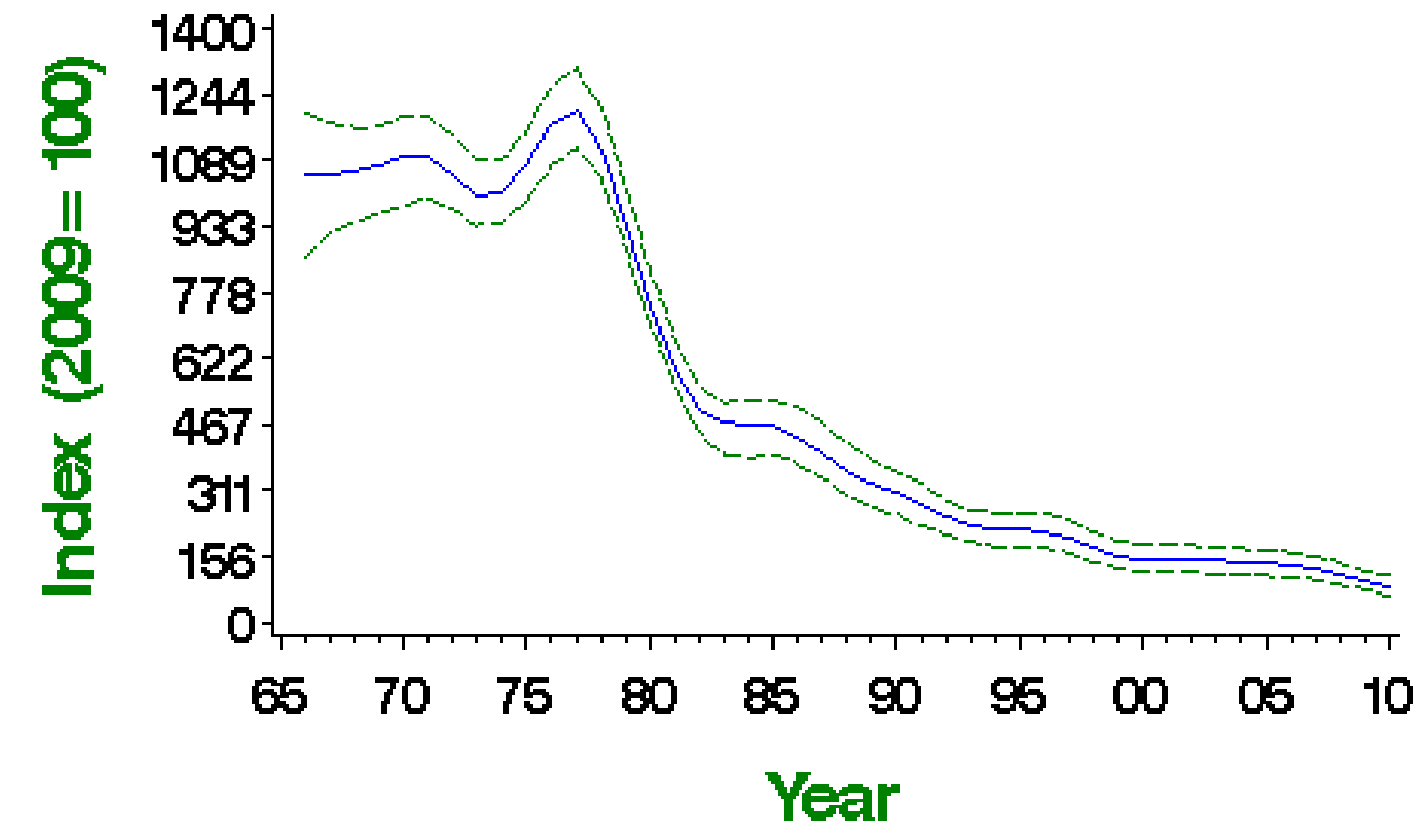
Conservation listings:	Europe: SPEC category 3 (vulnerable) (BiE04) UK: red (>50% population decline) (BoCC3) UK Biodiversity Action Plan: click here, priority species
Long-term trend:	UK, England: rapid decline
Population size:	70,000-75,000 pairs in 2000 (1988-91 Atlas estimate updated using CBC/BBS trend: BiE04, APEP06)
Migrant status:	Resident
Nesting habitat:	Ground nester
Primary breeding habitat:	Farmland
Secondary breeding habitat:	
Breeding diet:	Animal
Winter diet:	Vegetation

Status summary

This native gamebird has declined enormously and, despite years of research and the application of a government Biodiversity Action Plan, the continuing decline shown by CBC/BBS suggests that all efforts to boost the population in the wider countryside have so far been unsuccessful. Grey Partridge is one of the most strongly decreasing bird species in Europe, with rapid declines evident in all regions (PECBMS 2009, 2011a).

CBC/BBS UK 1966–2010

Grey Partridge



Smoothed population index, relative to an arbitrary 100 in the year given, with 85% confidence limits in green

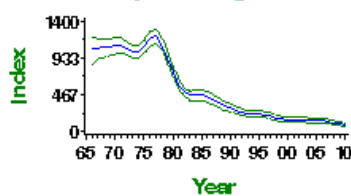
Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS UK	42	1967-2009	128	-91	-93	-87	>50	
	25	1984-2009	164	-79	-83	-71	>50	
	10	1999-2009	228	-36	-46	-27	>25	
	5	2004-2009	245	-31	-39	-21	>25	
CBC/BBS England	42	1967-2009	115	-90	-93	-87	>50	
	25	1984-2009	146	-78	-82	-69	>50	
	10	1999-2009	206	-28	-38	-17	>25	
	5	2004-2009	222	-27	-35	-15	>25	
BBS UK	14	1995-2009	228	-54	-60	-45	>50	
	10	1999-2009	220	-39	-48	-29	>25	
	5	2004-2009	240	-30	-37	-19	>25	
BBS England	14	1995-2009	203	-50	-56	-40	>25	
	10	1999-2009	198	-30	-40	-19	>25	
	5	2004-2009	217	-26	-33	-15	>25	

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



CBC/BBS UK 1966—2010

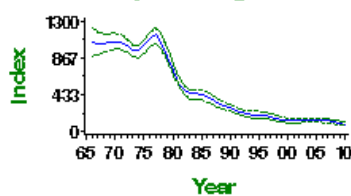
Grey Partridge



CBC/BBS UK graph

CBC/BBS England 1966—2010

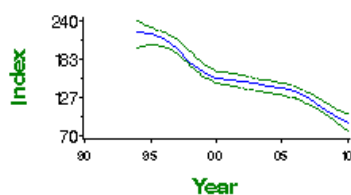
Grey Partridge



CBC/BBS England graph

BBS UK 1994—2010

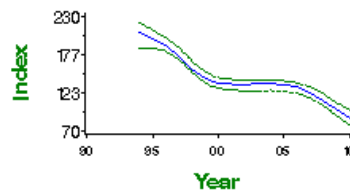
Grey Partridge



BBS UK graph

BBS England 1994–2010

Grey Partridge



BBS England graph

Demographic trends

Productivity and survival trends for this species are not currently produced by BTO

Causes of change

The ultimate factor behind the decline is the deterioration of the bird's agricultural habitat. There is convincing evidence showing that a steep drop in chick survival rate as a result of decreasing chick food availability due to agricultural intensification is the primary driver of population declines. A reduction of hen survival rate during incubation, lower nest success and reduction of winter survival, related to increased predation rates, have all been reported as also playing secondary roles.

Change factor	Primary driver	Secondary driver
Demographic	Decreased breeding success	Reduced adult survival
Ecological	Agricultural intensification	Increased predation

Further information on causes of change

The ultimate factor behind the decline of this species is the deterioration of the bird's agricultural habitat (Aebischer & Ewald 2004). A detailed field and modelling study in the 1980s provides excellent evidence relating to the ecology and population dynamics of the Grey Partridge in a large (62 sq km) study area in Sussex (Potts 1980, Potts 1986). Potts (1980, 1986) identified a reduction in chick survival during the first six weeks after hatching due to a herbicide-induced fall in cereal invertebrate abundance as the primary reason for the decline. More recently, the intensive use of broad-spectrum insecticides on cereals in the summer has been associated with a further reduction in average chick survival rate (Aebischer & Potts 1998). A field study involving an experimental set-up using sprayed and non-sprayed fields confirmed that invertebrate food supplies were important as it was shown that use of pesticides reduced food available to chicks, resulting in lower chick survival and thus depleting numbers of birds being recruited into the population (Rands 1985). Further support for this comes from Sotherton et al. (1993), who also both found that chick survival rate was lower in sprayed areas as compared to unsprayed areas.

Potts also identified two other causes for the decline: the disappearance of nesting cover as field boundaries were removed to improve farming efficiency and lower brood production resulting from increased predation. There is evidence from various sources indicating that a reduction of hen survival rate during incubation, lower nest success and a reduction of winter survival, related to increased predation rates, have been influential in the continued population decrease from the 1970s (Potts & Aebischer 1995, Tapper et al. 1996, Bro et al. 2000, De Leo et al. 2004, Panek 2005).

Aebischer & Ewald (2010) offer convincing evidence that, since 2002, local Grey Partridge recoveries have been made possible by sympathetic management of rotational set-aside to provide cover for chicks. In an area of nearly 1000 ha in Hertfordshire, set-aside was used for habitat creation and Grey Partridge breeding density increased sixfold. However, the disappearance of rotational set-aside in 2007, which halved the amount of brood-rearing habitat, with concurrent poor weather, reversed the increase and effectively removed this potential mechanism for national population recovery.

Over-shooting due to failure to separate Grey Partridges from Red-legs can have local population effects, but this is not likely to be a national problem (Aebischer & Ewald 2004). Aebischer & Ewald (2010) showed that on Partridge Count Scheme (PCS) sites, the annual change in spring density in recent years was not related to either shooting pressure or intensity of Red-legged Partridge releasing and suggest that provision of brood-rearing habitats and game cover increased with the latter, which probably counteracted the shooting losses of Grey Partridges on Red-legged Partridge shoots.

In some areas, parasite-mediated apparent competition with the Pheasant may be influencing the decline and subsequent recovery of wild Grey Partridges (Tompkinson et al. 2000a, b). However, the evidence for this is conflicting, as Sage et al. (2002) found no deleterious fitness effects of the parasite and Brown et al. (2006) found that poor wild brood survival was indicative of low habitat and food quality rather than of a high rate of parasite infection.

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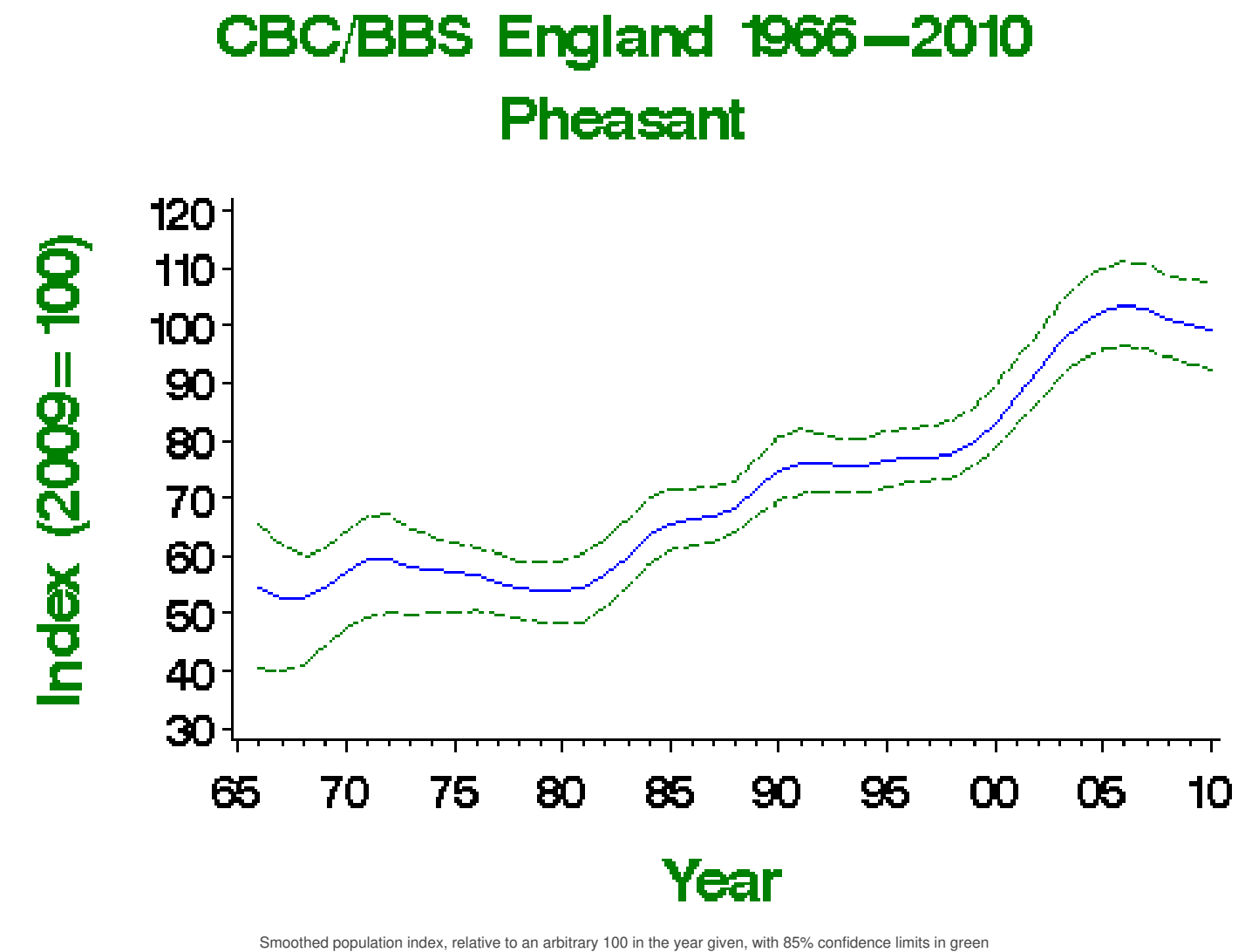
This report should be cited as: Baillie, S.R., Marchant, J.H., Leech, D.I., Renwick, A.R., Eglington, S.M., Joys, A.C., Noble, D.G., Barimore, C., Conway, G.J., Downie, I.S., Risely, K. & Robinson, R.A. (2012). *BirdTrends 2011*. BTO Research Report No. 609. BTO, Thetford. <https://www.bto.org/birdtrends>

Key facts

Conservation listings:	Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe) (BiE04) UK: not listed (introduced)
Long-term trend:	England: moderate increase
Population size:	1,800,000-1,900,000 females in 2000 (Robertson <i>et al.</i> 1989, updated using CBC/BBS trend: BiE04, APEP06); at least 35,000,000 captive-reared birds released each autumn (PACEC 2006)
Migrant status:	Resident
Nesting habitat:	Ground nester
Primary breeding habitat:	Farmland
Secondary breeding habitat:	Woodland
Breeding diet:	Vegetation
Winter diet:	Vegetation

Status summary

Pheasants have increased in abundance since the 1960s, at a rate that appears to be accelerating. 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).



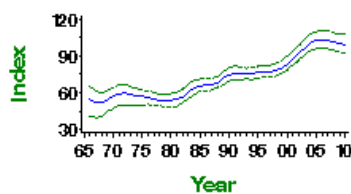
Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS England	42	1967-2009	592	90	50	170		
	25	1984-2009	925	58	33	86		
	10	1999-2009	1648	25	19	31		
	5	2004-2009	1878	0	-4	3		
BBS UK	14	1995-2009	1697	34	26	40		
	10	1999-2009	1890	28	22	33		
	5	2004-2009	2169	4	1	7		
BBS England	14	1995-2009	1433	34	26	41		
	10	1999-2009	1596	25	20	30		
	5	2004-2009	1826	1	-2	4		
BBS Scotland	14	1995-2009	126	17	-3	40		
	10	1999-2009	134	26	11	43		
	5	2004-2009	158	13	1	25		
BBS Wales	14	1995-2009	89	51	18	94		
	10	1999-2009	103	67	35	101		
	5	2004-2009	119	10	-3	21		
BBS N.Ireland	14	1995-2009	37	171	53	261		
	10	1999-2009	45	67	28	112		
	5	2004-2009	53	42	21	69		

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



CBC/BBS England 1966–2010

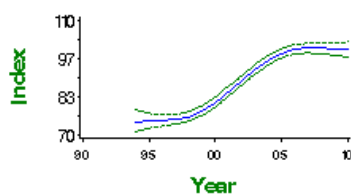
Pheasant



CBC/BBS England graph

BBS UK 1994–2010

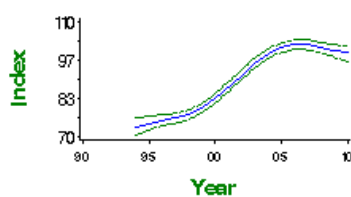
Pheasant



BBS UK graph

BBS England 1994–2010

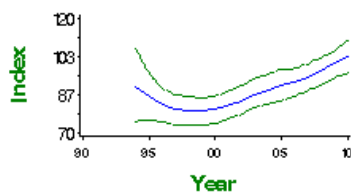
Pheasant



BBS England graph

BBS Scotland 1994–2010

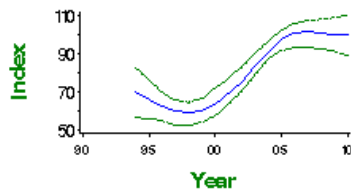
Pheasant



BBS Scotland graph

BBS Wales 1994–2010

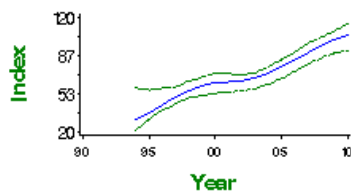
Pheasant



BBS Wales graph

BBS N. Ireland 1994–2010

Pheasant



BBS N.Ireland graph

Demographic trends

Productivity and survival trends for this species are not currently produced by BTO

Causes of change

The population size of this species is principally determined by releases of reared birds for shooting, which have increased sixfold since 1960. Little is known about the impacts of changes in demographic parameters among wild-breeding birds.

Change factor	Primary driver	Secondary driver
Demographic	Unknown	
Ecological	Other	

Further information on causes of change

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 sixfold since 1960 ([game-bag data](#)) and were recently running at around 35 million birds annually (PACEC 2006). Robertson (1991) studied records of Pheasant nests from the Nest Record Scheme and found that productivity is probably too low to sustain a population. There is little else known about changes in demographic parameters of Pheasants in the UK.

High Pheasant densities potentially have negative effects, which have not been adequately studied, on native UK birds: these include their effect on the structure of the field layer in woodland, 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. 2000), although Sage et al. (2002) found that this had no population impact.

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Red-throated Diver

Gavia stellata

Key facts

Conservation listings:	Europe: SPEC category 3 (depleted) (BiE04) UK: amber (European status) (BoCC3)
Long-term trend:	UK: increase
Population size:	935-1,500 pairs in 1994 (Gibbons <i>et al.</i> 1997: BiE04, APEP06); 1,255 (1,014-1,551) pairs in 2006 (Dillon <i>et al.</i> 2009)

Status summary

Population trends are not monitored by the BTO, but JNCC's 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.

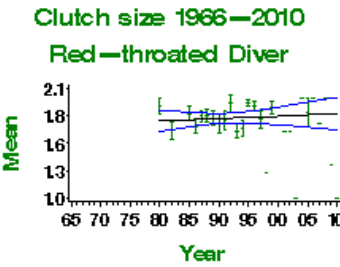
Population changes in detail

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

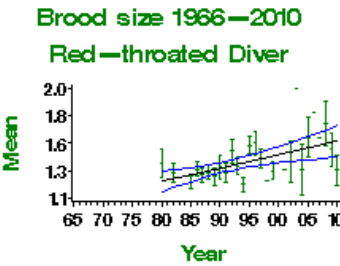
Demographic trends

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Clutch size	29	1980-2009	19	None					Small sample
Brood size	29	1980-2009	30	Linear increase	1.24 chicks	1.56 chicks	25.7%		Small sample
Nest failure rate at egg stage	29	1980-2009	11	Linear increase	0.61% nests/day	2.55% nests/day	318.0%		Small sample
Nest failure rate at chick stage	29	1980-2009	16	None					Small sample

For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).



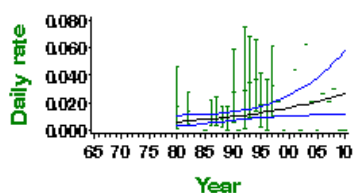
Mean number of eggs per nest - green bars represent standard error and black line shows long-term trend



Mean number of chicks per nest - green bars represent standard error and black line shows long-term trend

Egg stage nest failure rate

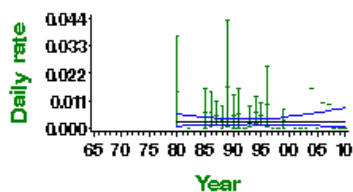
Red-throated Diver



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Chick stage nest failure rate

Red-throated Diver



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

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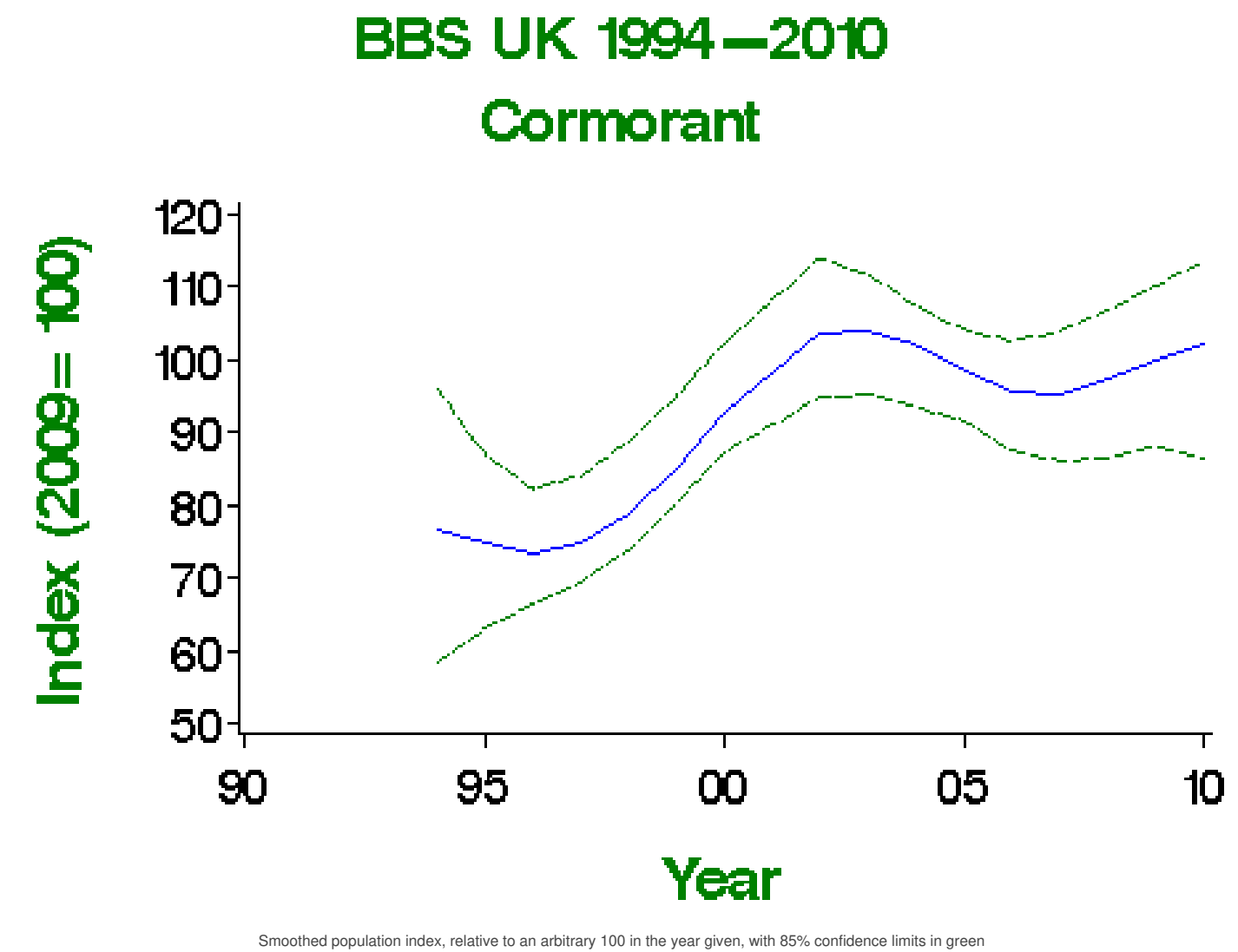
Key facts

Conservation listings:	Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe) (BiE04) UK: green (species level); amber (race <i>carbo</i> , >20% of European breeders; race <i>sinensis</i> , localised breeding) (BoCC3)
Long-term trend:	UK: increase
Population size:	9,018 pairs in 1998-2002 (Mitchell <i>et al.</i> 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 (Rehfishch *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 JNCC 2011). 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 non-breeding birds recorded on BBS, the generally upward trend probably adds little information 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 may now be in shallow decline (Holt *et al.* 2011). Although the species is now green listed, both races that occur in the UK warrant amber listing, for reasons unconnected with the UK trend.

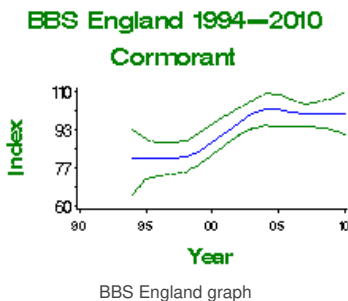
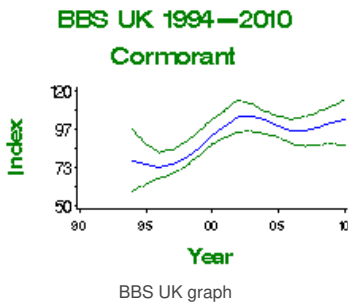


Population changes in detail

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
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BBS UK Source	Period (yrs)	1995-2009 Years	2000 Plots	24 Change (%)	Lower limit	Upper limit	Alert	Non-breeders included Comment
	10	1999-2009	269	17	-9	41		Non-breeders included
	5	2004-2009	314	-2	-18	14		Non-breeders included
BBS England	14	1995-2009	191	24	5	46		Non-breeders included
	10	1999-2009	224	20	3	38		Non-breeders included
	5	2004-2009	265	-2	-13	10		Non-breeders included

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



Demographic trends

Productivity and survival trends for this species are not currently produced by BTO

This report should be cited as: Baillie, S.R., Marchant, J.H., Leech, D.I., Renwick, A.R., Eglington, S.M., Joys, A.C., Noble, D.G., Barimore, C., Conway, G.J., Downie, I.S., Risely, K. & Robinson, R.A. (2012). BirdTrends 2011. BTO Research Report No. 609. BTO, Thetford. <https://www.bto.org/birdtrends>

Grey Heron

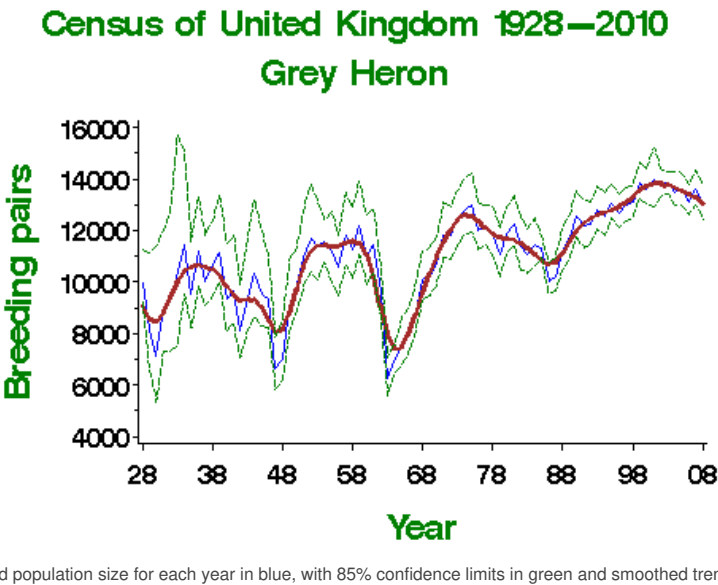
Ardea cinerea

Key facts

Conservation listings:	Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe) (BiE04) UK: green (BoCC3)
Long-term trend:	UK, Wales, Scotland: shallow increase England: moderate increase
Population size:	14,200 nests in 2003 (Heronries Survey 2003: APEP06); 12,014 (11,532-12,627) nests in 2010 (Heronries Census)

Status summary

The 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 2011a).

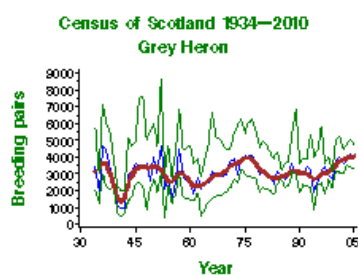
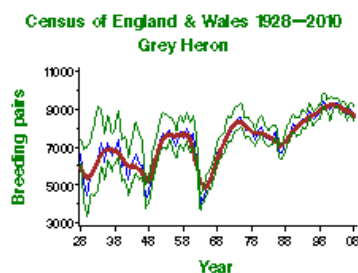
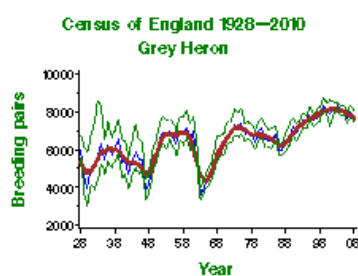


Population changes in detail

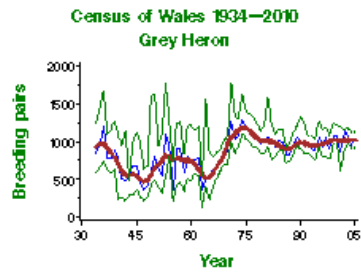
Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
Heronries UK	80	1929-2009	325	48				
	25	1984-2009	523	15				
	10	1999-2009	595	-6				
	5	2004-2009	610	-7				
Heronries England and Wales	80	1929-2009	269	53				
	25	1984-2009	422	14				
	10	1999-2009	482	-7				
	5	2004-2009	495	-7				
Heronries England	80	1929-2009	227	52				
	25	1984-2009	350	15				
	10	1999-2009	410	-7				
	5	2004-2009	421	-7				
Heronries Scotland	74	1935-2009	46	24				
	25	1984-2009	80	50				
	10	1999-2009	91	27				

Source	Period (yrs)	2004-2009 Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
Heronries Wales	74	1935-2009	42	11				
	25	1984-2009	69	12				
	10	1999-2009	70	6				
	5	2004-2009	73	6				
BBS UK	14	1995-2009	646	2	-8	14		Non-breeders included
	10	1999-2009	725	-8	-14	0		Non-breeders included
	5	2004-2009	805	-18	-22	-11		Non-breeders included
BBS England	14	1995-2009	532	-3	-13	8		Non-breeders included
	10	1999-2009	600	-1	-9	6		Non-breeders included
	5	2004-2009	677	-15	-20	-9		Non-breeders included
BBS Scotland	14	1995-2009	49	9	-15	41		Non-breeders included
	10	1999-2009	51	-22	-34	-4		Non-breeders included
	5	2004-2009	56	-29	-41	-11	>25	Non-breeders included
BBS Wales	14	1995-2009	44	-4	-30	28		Non-breeders included
	10	1999-2009	48	-12	-32	11		Non-breeders included
	5	2004-2009	48	-21	-35	-7		Non-breeders included

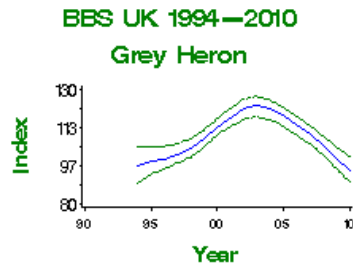
Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



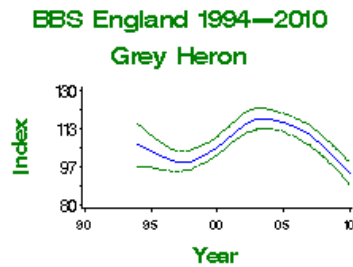
Grey Heron Scotland graph



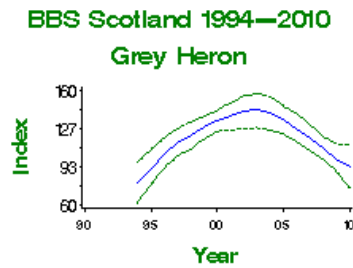
Grey Heron Wales graph



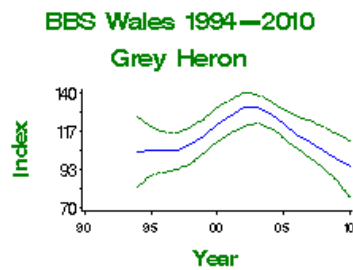
Smoothed population index, relative to an arbitrary 100 in 2009, with 85% confidence limits in green



Smoothed population index, relative to an arbitrary 100 in 2009, with 85% confidence limits in green



Smoothed population index, relative to an arbitrary 100 in 2009, with 85% confidence limits in green



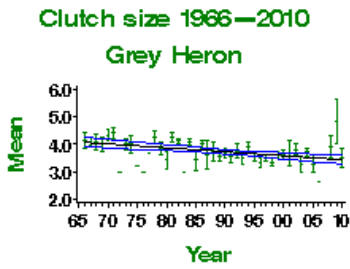
Smoothed population index, relative to an arbitrary 100 in 2009, with 85% confidence limits in green

Demographic trends

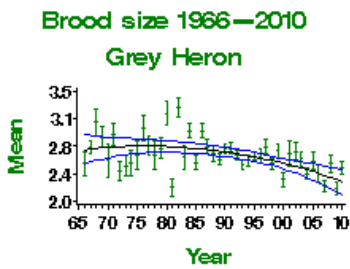
Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Clutch size	41	1968-2009	15	Linear decline	4.05 eggs	3.45 eggs	-14.7%		Small sample
Brood size	41	1968-2009	92	Curvilinear	2.72 chicks	2.29 chicks	-15.7%		

Nest failure rate at egg stage	41	1968-2009	18	Curvilinear	0.00% nests/day	0.04% nests/day			
Variable	Period	Years	Mean annual	Trend	Modelled in	Modelled in	Change	Alert	Small sample
Nest failure rate at chick stage	(yrs)	1968-2009	sample	None	first year	2009			Comment

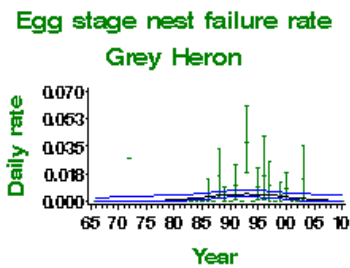
For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).



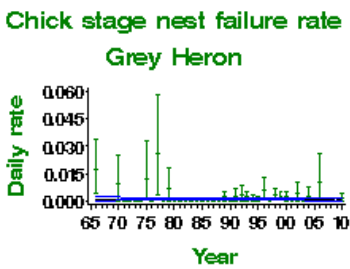
Mean number of eggs per nest - green bars represent standard error and black line shows long-term trend



Mean number of chicks per nest - green bars represent standard error and black line shows long-term trend



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

This report should be cited as: Baillie, S.R., Marchant, J.H., Leech, D.I., Renwick, A.R., Eglington, S.M., Joys, A.C., Noble, D.G., Barimore, C., Conway, G.J., Downie, I.S., Risely, K. & Robinson, R.A. (2012). BirdTrends 2011. BTO Research Report No. 609. BTO, Thetford. <https://www.bto.org/birdtrends>

Key facts

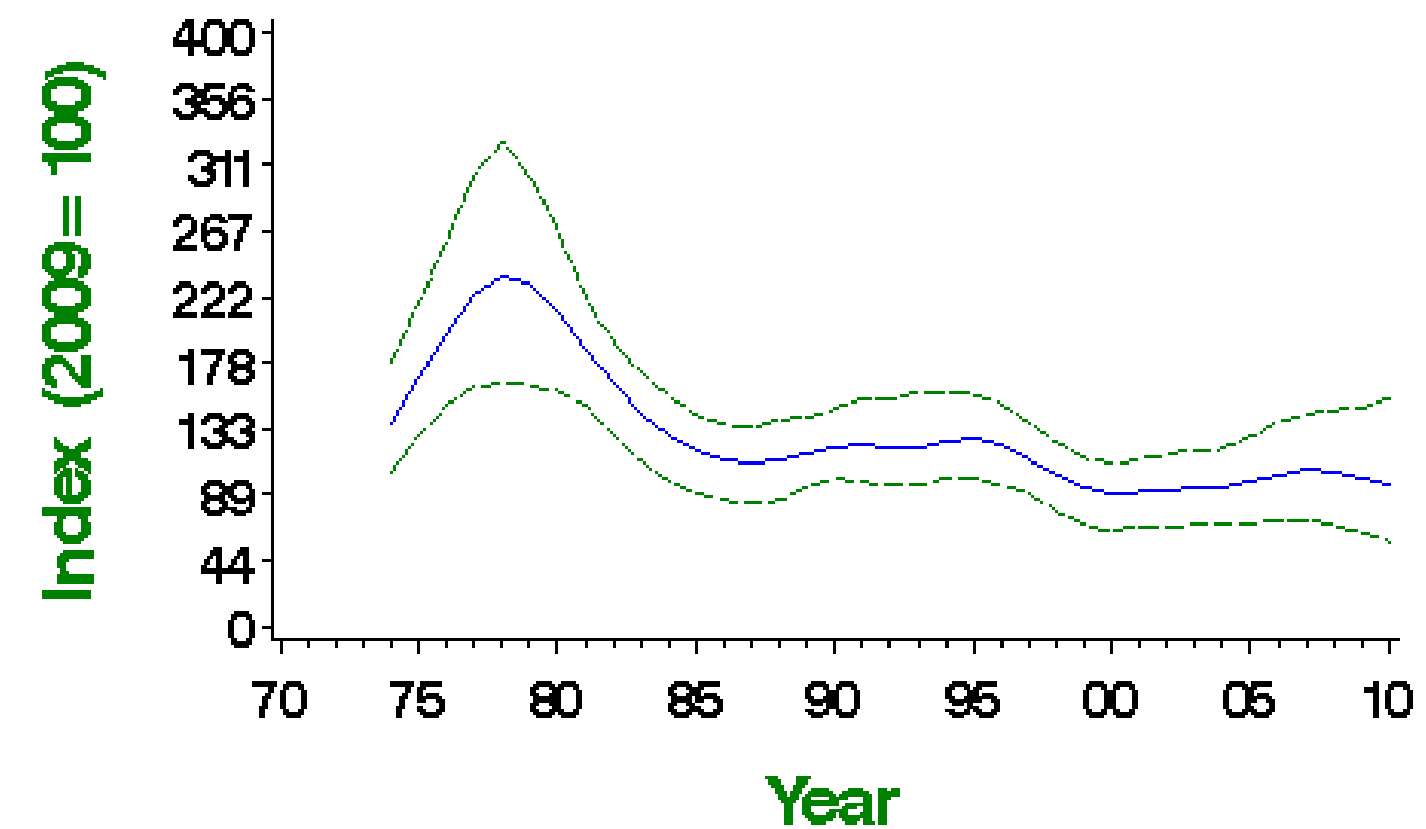
Conservation listings:	Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe) (BiE04) UK: amber (25-50% population decline) (BoCC3)
Long-term trend:	UK: uncertain
Population size:	5,900-12,000 pairs in 1990 (1988-91 Atlas: APEP06); 3,800-13,000 pairs in 2000 (updated 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 (Holt et al. 2011).

WBS/WBBS 1974–2010

Little Grebe



Smoothed population index, relative to an arbitrary 100 in the year given, with 85% confidence limits in green

Population changes in detail

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
WBS/WBBS waterways	34	1975-2009	21	-40	-71	15		
	25	1984-2009	21	-22	-58	48		
	10	1999-2009	25	6	-28	59		

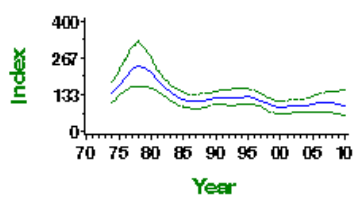
Source	Period (yrs)	2004-2009 Years	25 Plots	6 Change (%)	-25 Lower limit	61 Upper limit	Alert	Comment
BBS UK	10	1999-2009	78	1	-20	23		
	5	2004-2009	87	-11	-25	10		
BBS England	14	1995-2009	55	1	-27	34		
	10	1999-2009	62	-13	-33	9		
	5	2004-2009	68	-13	-30	4		

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



WBS/WBBS 1974—2010

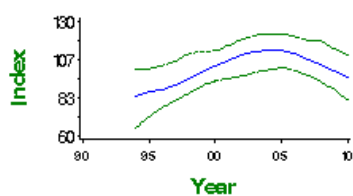
Little Grebe



WBS/WBBS waterways graph

BBS UK 1994—2010

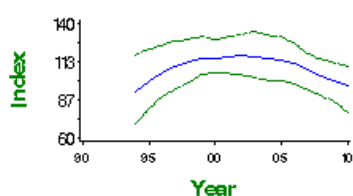
Little Grebe



BBS UK graph

BBS England 1994—2010

Little Grebe



BBS England graph

Demographic trends

Productivity and survival trends for this species are not currently produced by BTO

This report should be cited as: Baillie, S.R., Marchant, J.H., Leech, D.I., Renwick, A.R., Eglington, S.M., Joys, A.C., Noble, D.G., Barimore, C., Conway, G.J., Downie, I.S., Risely, K. & Robinson, R.A. (2012). BirdTrends 2011. BTO Research Report No. 609. BTO, Thetford. <https://www.bto.org/birdtrends>

Key facts

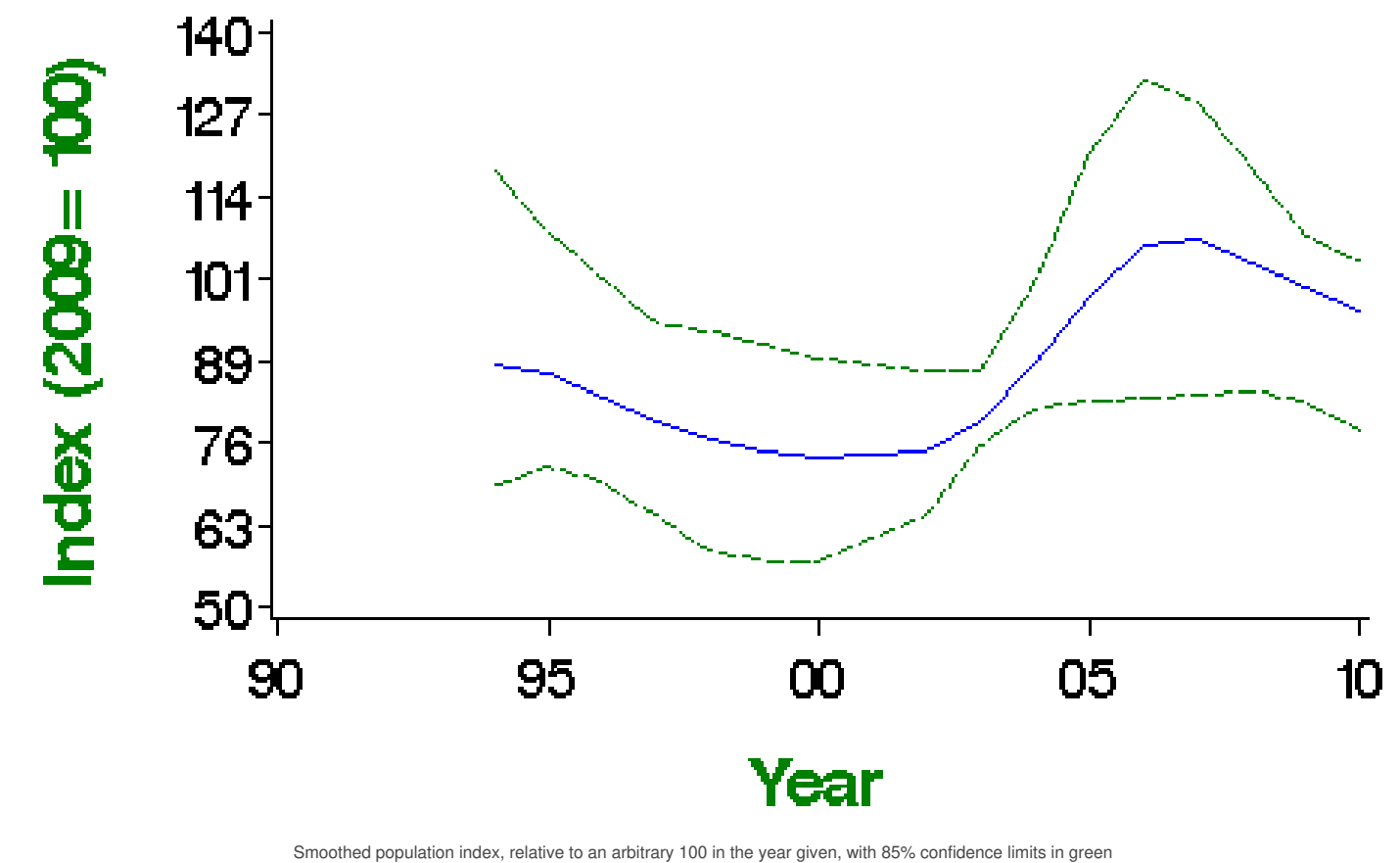
Conservation listings:	Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe) (BiE04) UK: green (BoCC3)
Long-term trend:	UK: probable increase
Population size:	9,400 adults in 1990 (1988-91 Atlas: APEP06); 6,100 pairs in 2000 (updated using BBS trend: BiE04)

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 (Holt et al. 2011).

BBS UK 1994–2010

Great Crested Grebe

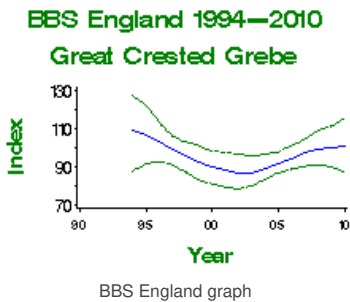
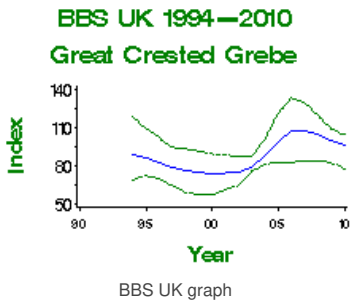


Population changes in detail

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
BBS UK	14	1995-2009	69	16	-27	56		
	10	1999-2009	74	35	-6	96		
	5	2004-2009	84	13	-11	21		
BBS England	14	1995-2009	63	-6	-23	20		
	10	1999-2009	68	9	-12	32		

Source	5 Period (yrs)	2004-2009 Years	77 Plots (n)	13 Change (%)	6 Lower limit	30 Upper limit	Alert	Comment
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Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



Demographic trends

Productivity and survival trends for this species are not currently produced by BTO

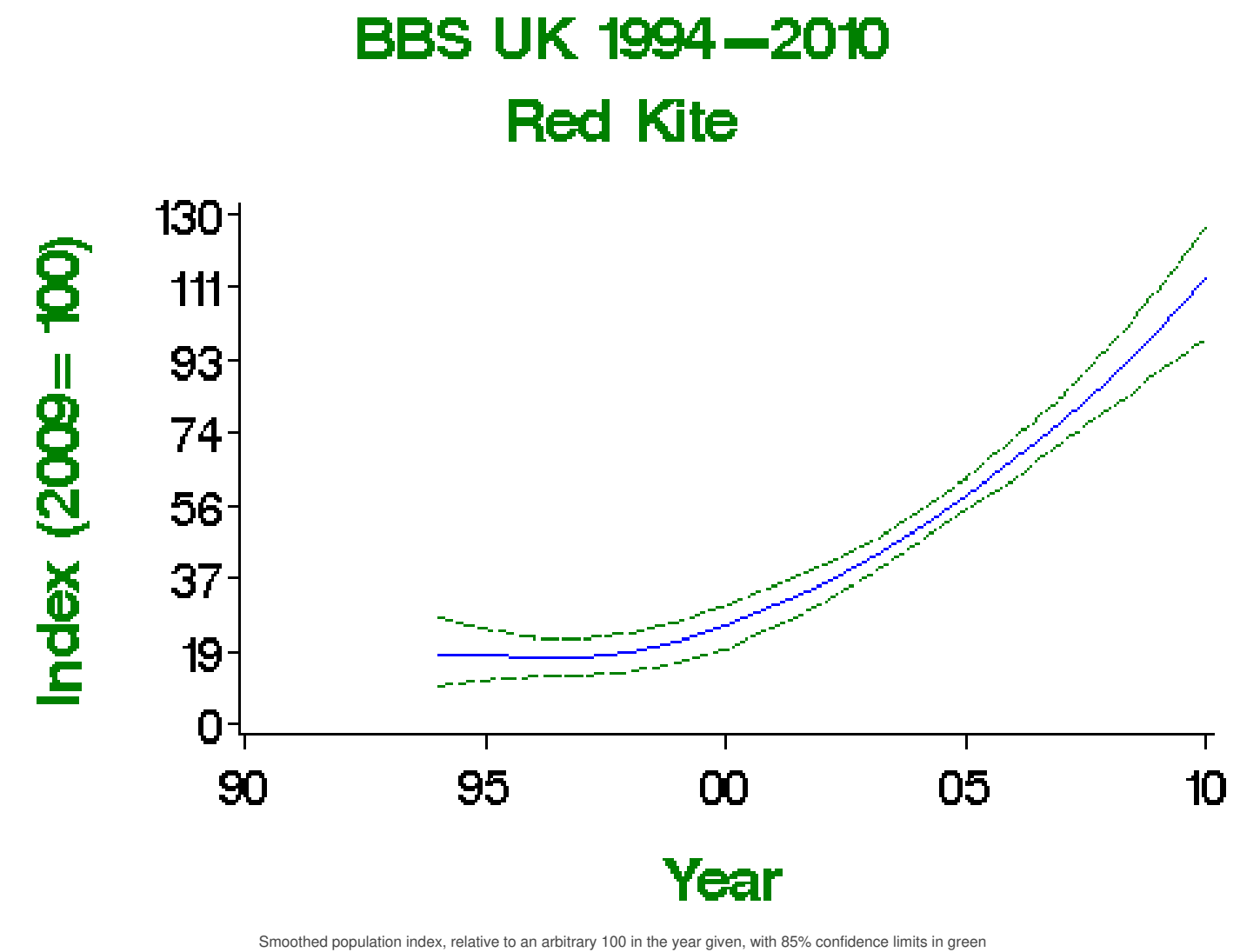
This report should be cited as: Baillie, S.R., Marchant, J.H., Leech, D.I., Renwick, A.R., Eglington, S.M., Joys, A.C., Noble, D.G., Barimore, C., Conway, G.J., Downie, I.S., Risely, K. & Robinson, R.A. (2012). BirdTrends 2011. BTO Research Report No. 609. BTO, Thetford. <https://www.bto.org/birdtrends>

Key facts

Conservation listings:	Europe: SPEC category 2 (concentrated in Europe, declining) (BiE04) UK: amber (European decline) (BoCC3)
Long-term trend:	UK, England: rapid increase
Population size:	372-490 pairs in 2000 (Wotton <i>et al.</i> 2002b: BiE04, APEP06); more than 1,500 pairs in 2008 (Holling <i>et al.</i> 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).

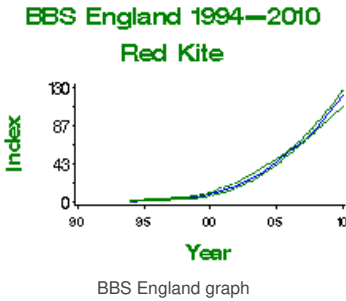
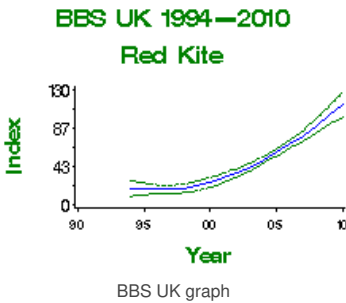


Population changes in detail

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
BBS UK	14	1995-2009	68	475	236	956		

Source	10 Period (yrs)	1999-2009 Years	90 Plots	375 Change (%)	237 Lower limit	630 Upper limit	Alert	Comment
BBS England	14	1995-2009	45	7839	3570	7886		
	10	1999-2009	61	1581	1139	2311		
	5	2004-2009	90	189	137	241		

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



Demographic trends

Productivity and survival trends for this species are not currently produced by BTO

This report should be cited as: Baillie, S.R., Marchant, J.H., Leech, D.I., Renwick, A.R., Eglington, S.M., Joys, A.C., Noble, D.G., Barimore, C., Conway, G.J., Downie, I.S., Risely, K. & Robinson, R.A. (2012). BirdTrends 2011. BTO Research Report No. 609. BTO, Thetford. <https://www.bto.org/birdtrends>

Hen Harrier

Circus cyaneus

Key facts

Conservation listings:	Europe: SPEC category 3 (vulnerable) (BiE04) UK: red (historical decline) (BoCC3)
Long-term trend:	UK: probable increase
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); 646 territorial pairs in 2010 (Holling & RBBP 2011b)
Migrant status:	Resident
Nesting habitat:	Ground nester
Primary breeding habitat:	Moorland
Secondary breeding habitat:	
Breeding diet:	Animal
Winter diet:	Animal

Status summary

This species was red listed because of substantial declines over the last two centuries. 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 41% increase was recorded in the UK and Isle of Man during 1998-2004, possibly due to increased use of non-moorland habitats, but with decreases in the Southern Uplands, east Highlands and England, all being areas with many managed grouse moors (Sim et al. 2007a). The latest survey, in 2010, reveals a decline of almost 20% since the 2004 survey (Holling & RBBP 2011b).

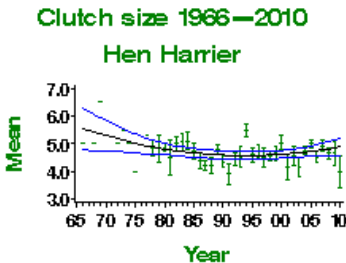
Population changes in detail

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

Demographic trends

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Clutch size	41	1968-2009	12	Curvilinear	5.41 eggs	4.85 eggs	-10.3%		Small sample
Brood size	41	1968-2009	19	None					Small sample
Nest failure rate at egg stage	41	1968-2009	10	Curvilinear	0.02% nests/day	0.08% nests/day	300.0%		Small sample
Nest failure rate at chick stage	41	1968-2009	14	None					Small sample

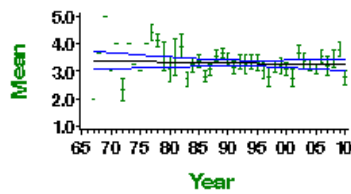
For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).



Mean number of eggs per nest - green bars represent standard error and black line shows long-term trend

Brood size 1966–2010

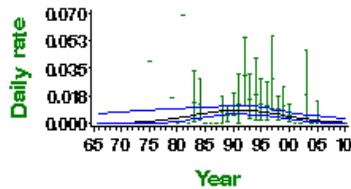
Hen Harrier



Mean number of chicks per nest - green bars represent standard error and black line shows long-term trend

Egg stage nest failure rate

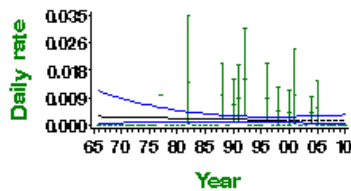
Hen Harrier



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Chick stage nest failure rate

Hen Harrier



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Causes of change

Based on multiple field studies providing good evidence, the main driver of declines in Hen Harrier populations appears to have been illegal persecution, causing a reduction in nesting success, annual productivity and survival of breeding females.

Change factor	Primary driver	Secondary driver
Demographic	Decreased breeding success	Decreased survival
Ecological	Other	

Further information on causes of change

Demographic data presented here show that clutch size decreased by 12% between 1968 and 2008 (although 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). The daily failure rate of nests at the egg stage have increased by 500%. However, this is based on extremely small sample sizes so these figures have to be treated with caution.

There is good evidence showing that, although the Hen Harrier has 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 (Redpath & Thirgood 1997, Thompson et al. 2009). A study combining Atlas data and a two-year field study provided good evidence that nesting success, annual productivity and survival of female Hen Harriers was lower on grouse moors than on other moorland or in young conifer forests, due to destruction by humans (Bibby & Etheridge 1993, Etheridge et al. 1997). Fielding et al. (2011) conclude that illegal killing is the biggest single factor affecting the species and that it is having a dramatic impact on the population in core areas of its range in northern England and Scotland.

Recovery of the Welsh harrier population, in contrast to those elsewhere in the UK, has been attributed to an increase in the breeding productivity, apparently due to a combination of cessation of human interference in recent years and warmer temperatures, leading to increased productivity (Whitfield et al. 2008). Whitfield et al. (2008) also provide strong field-based evidence from the Welsh harrier population that human interference has been the primary driver of population change, through its impact on breeding productivity (specifically, an increased proportion of breeding females laying eggs, combined with a general increase in the average number of young fledged).

In areas where illegal persecution is minimal, food availability restricts numbers. Good-quality recent studies found that rough grass, a preferred habitat for field voles, is a critical foraging habitat for Orkney Hen Harriers (Amar & Redpath 2005, Amar et al. 2008) and that habitat characteristics around harrier nest-sites (at a 1-km radius) can have a strong influence on breeding performance (Amar et al. 2002). A field experiment showed that food shortage just before the laying period resulted in low levels of polygyny and reduced nesting success among secondary females, resulting in reduced productivity (Amar & Redpath 2002, Amar et al. 2005). The area of rough grassland has decreased during the same period as sheep numbers have increased and this is thought have reduced food supplies (Amar et al. 2003, 2005, Amar & Redpath 2005), but there was no detectable effect of rough grass area on fledging success or fledged brood size (Amar et al. 2008). Further, these studies provide no

evidence that the effects on breeding success have an impact on abundance. However, Redpath et al. (2002a) present good evidence from a different field study in Scotland which also shows that food availability, notably numbers of field voles, can influence population change in Hen Harriers, where there is no persecution. Harrier densities were highest in areas and years where their small prey animals were most abundant. Clutch size was positively correlated with the number of field voles, although fledging success was not significantly correlated with the relative abundance of small prey (Redpath & Thirgood 1999, Redpath et al. 2002a). Madders (2000) also highlighted the importance of foraging habitat in Scotland, finding that the extent of young first-rotation forestry, the preferred foraging habitat in this area, is currently in decline and states that this has contributed to many of the reported changes in local Hen Harrier populations (although no specific research into demographic parameters were presented).

There is some evidence that climate also affects demography, although this is secondary to drivers outlined above and there is no evidence for effects on abundance. In Scotland, chick mortality increased in cold temperatures and annual values of harrier fledged brood size were positively related to summer temperature (Redpath et al. 2002b) and warmer temperatures led to increased productivity (in the absence of persecution) in Wales (Whitfield et al. 2008).

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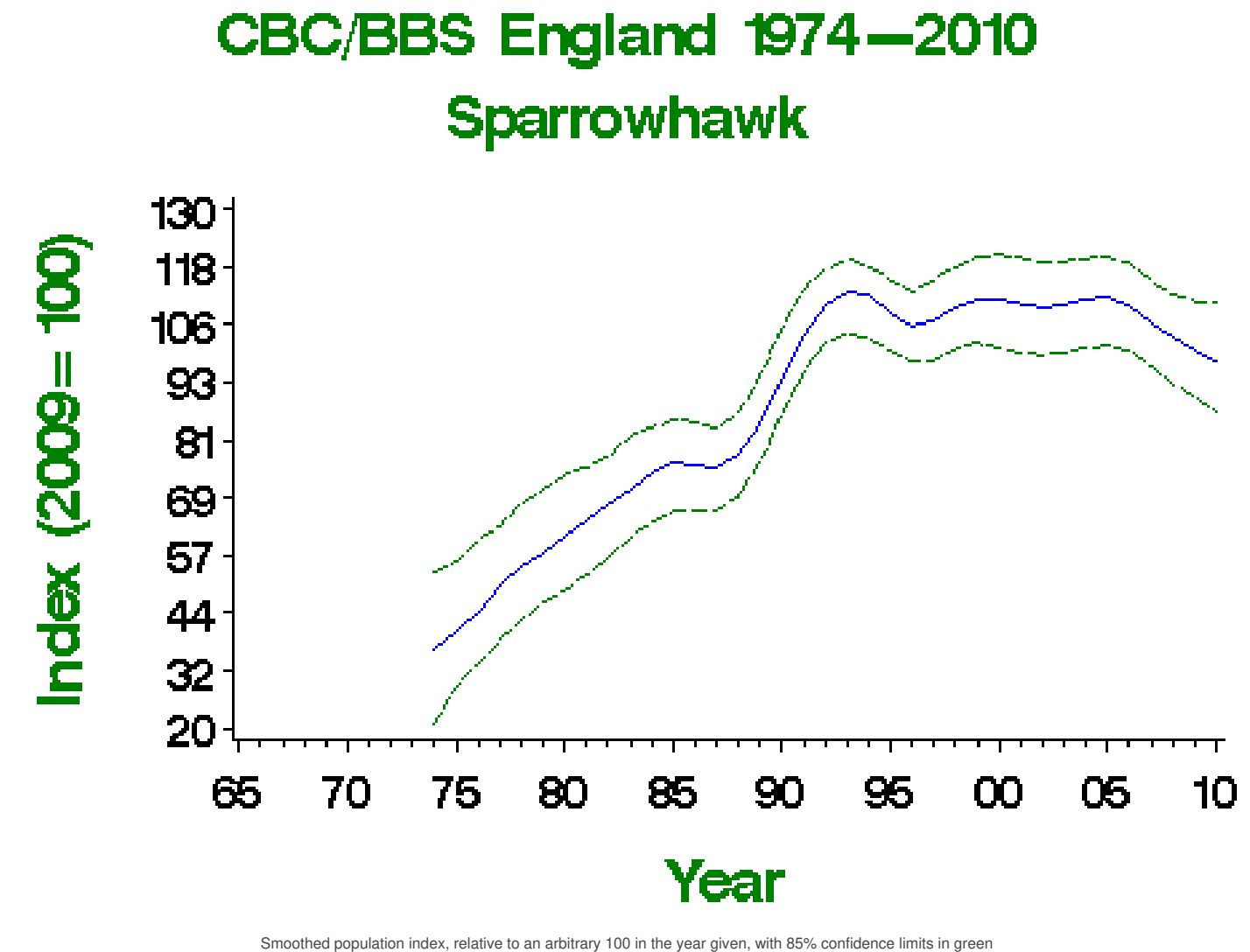
Key facts

Conservation listings:	Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe) (BiE04) UK: green (BoCC3)
Long-term trend:	England: rapid increase
Population size:	40,100 pairs in 2000 (1988-91 Atlas estimate updated using CBC/BBS trend: BiE04, APEP06)

Migrant status:	Resident
Nesting habitat:	Above-ground nester
Primary breeding habitat:	Woodland
Secondary breeding habitat:	
Breeding diet:	Animal
Winter diet:	Animal

Status summary

Between the 1970s and the mid 1990s, the CBC charted a steep increase in this species. Many former haunts especially in the Midlands and east of England were reoccupied between the two atlas periods (Gibbons et al. 1993). The population has stabilised since the mid 1990s and more recently has begun to fall again.

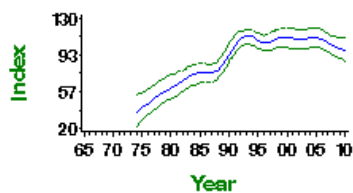


Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS England	34	1975-2009	151	147	60	284		
	25	1984-2009	195	35	7	74		
	10	1999-2009	318	-10	-19	-2		
	5	2004-2009	348	-10	-17	-1		
BBS UK	14	1995-2009	341	-8	-18	3		
	10	1999-2009	374	-15	-23	-5		
	5	2004-2009	419	-14	-21	-5		
BBS England	14	1995-2009	280	-7	-18	3		
	10	1999-2009	306	-9	-17	-1		
	5	2004-2009	341	-10	-18	-1		

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.

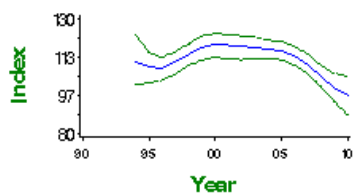


CBC/BBS England 1974—2010 Sparrowhawk



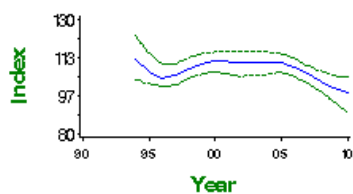
CBC/BBS England graph

BBS UK 1994—2010 Sparrowhawk



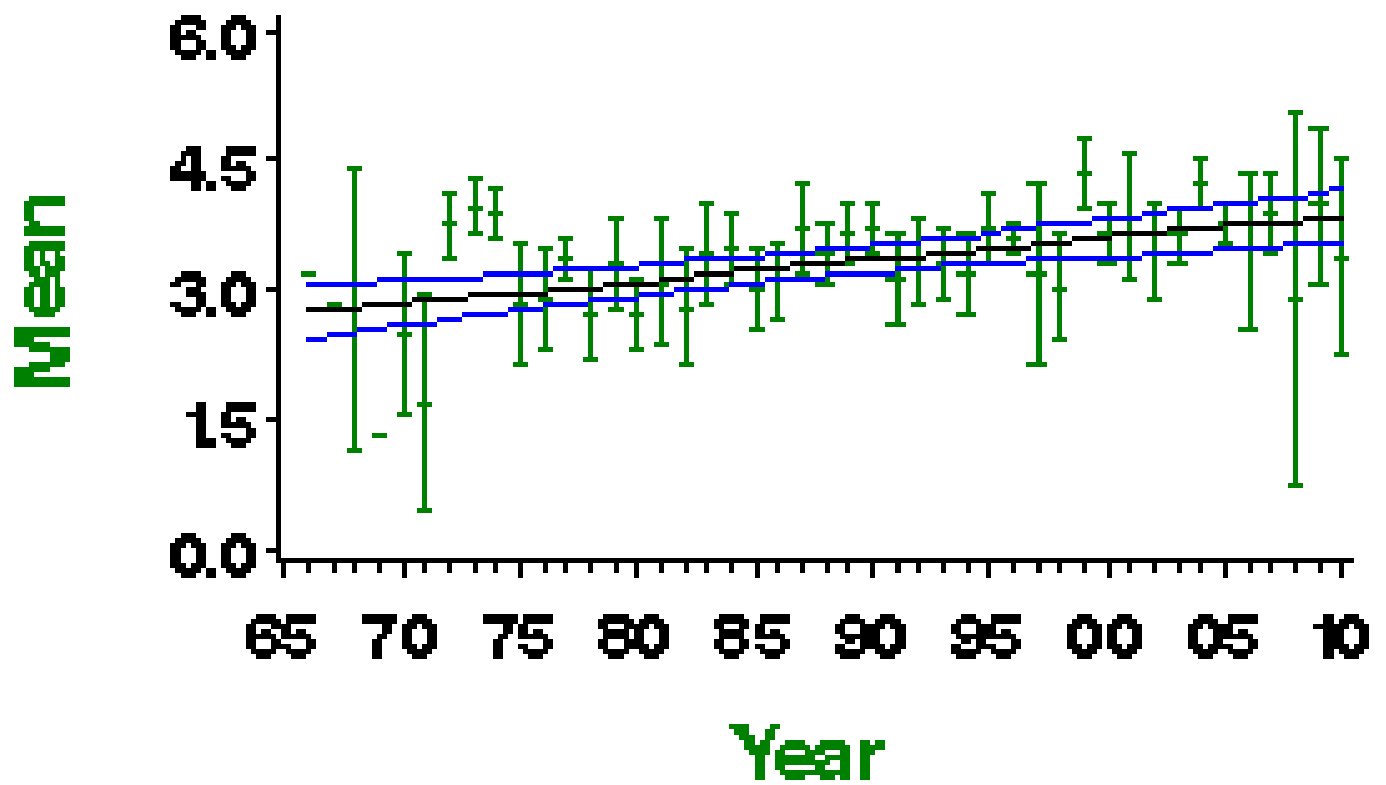
BBS UK graph

BBS England 1994—2010 Sparrowhawk



BBS England graph

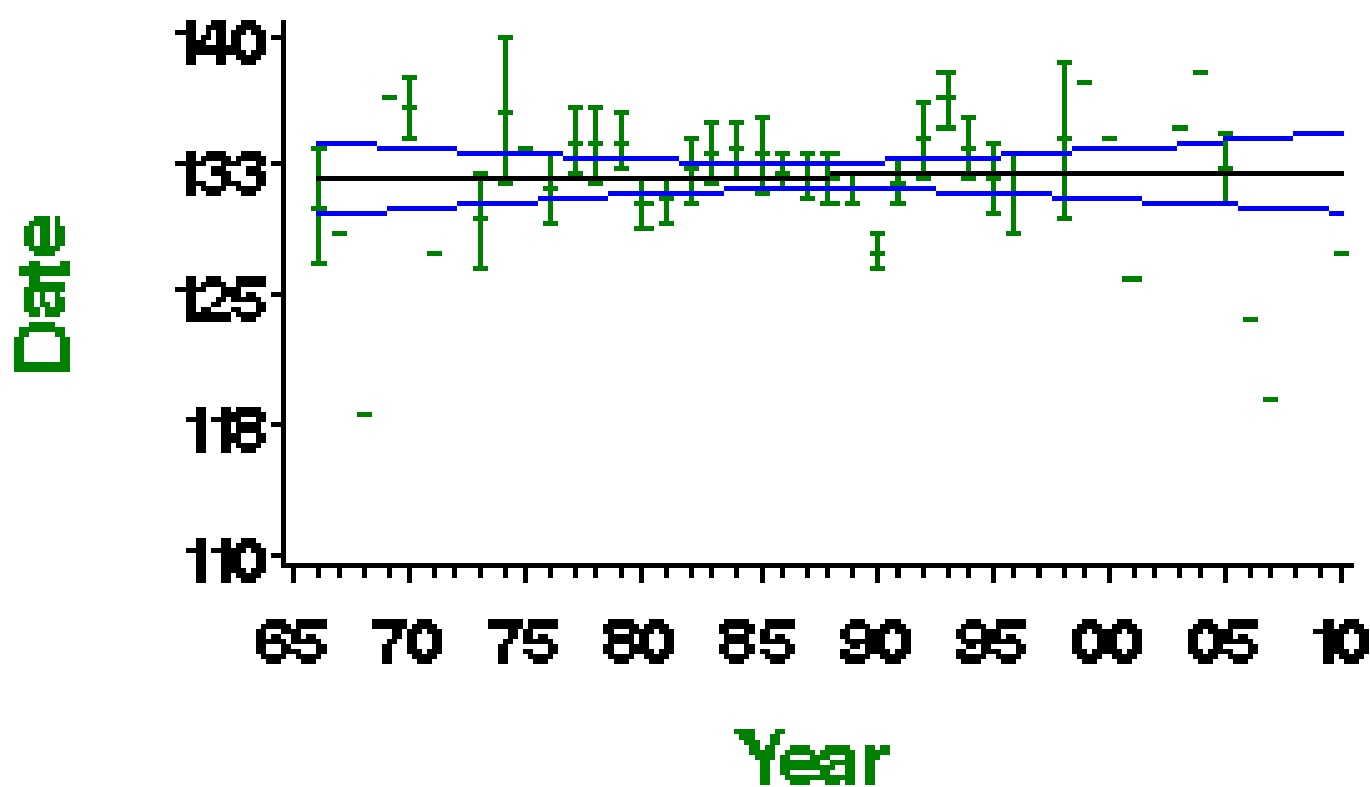
Fledglings per breeding attempt 1966–2010 Sparrowhawk



Mean number of fledglings produced per nest - green bars represent standard error and black line shows long-term trend

Laying date 1966—2010

Sparrowhawk

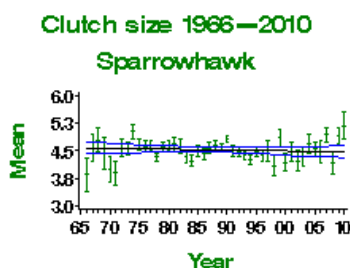


Mean laying date in Julian days (1st April = Day 90) - green bars represent standard error and black line shows long-term trend

More on demographic trends

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Fledglings per breeding attempt	41	1968-2009	23	Linear increase	2.81 fledglings	3.83 fledglings	36.3%		
Clutch size	41	1968-2009	34	None					
Brood size	41	1968-2009	69	Curvilinear	3.14 chicks	3.42 chicks	9.1%		
Nest failure rate at egg stage	41	1968-2009	33	Linear decline	0.48% nests/day	0.06% nests/day	-87.5%		
Nest failure rate at chick stage	41	1968-2009	45	None					
Laying date	41	1968-2009	13	None			0 days		Small sample

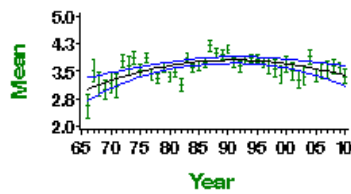
For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).



Mean number of eggs per nest - green bars represent standard error and black line shows long-term trend

Brood size 1966—2010

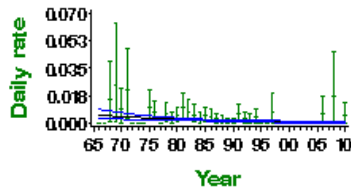
Sparrowhawk



Mean number of chicks per nest - green bars represent standard error and black line shows long-term trend

Egg stage nest failure rate

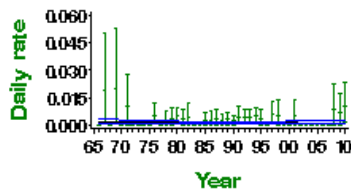
Sparrowhawk



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Chick stage nest failure rate

Sparrowhawk



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Causes of change

There is good evidence that improved breeding success due to a decline in organochlorine pesticide use is the most likely cause of the increase in this species, but that reduced survival, especially of young birds, may be driving the decline in Scottish populations.

Change factor	Primary driver	Secondary driver
Demographic	Increased breeding success	Increased survival
Ecological	Other	

Further information on causes of change

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). Studies of this species in eastern England confirmed this, and the recovery of the Sparrowhawk in this area was primarily dependent on declining organochlorine contamination which resulted in an improvement of breeding success mainly due to an increase in hatching success, itself associated with improved eggshell thickness and reduced egg breakage (Newton & Wyllie 1992). The figures above support this, showing improving numbers of fledglings per breeding attempt, a fall in failure rates at the egg stage and increases in brood size.

Comparison of an increasing population in east-central England with stable and decreasing populations in southern Scotland showed that differences in population trend were associated mainly with differences in the recruitment of new breeders (greatest in the increasing and lowest in the decreasing population) and in age of first breeding (earliest in the increasing and latest in the decreasing population). There were also differences in the annual survival of breeders (greater in the increasing population) while differences in breeding success between areas were slight and non-significant (Wyllie & Newton 1991). A comprehensive long-running study of Sparrowhawks in Scotland during 1972-86 provides further detailed evidence. Overwinter loss operating in the period between the fledging of young and subsequent recruitment to the breeding population was identified as the key factor, explaining 77% of the variance in total annual loss, and largely accounting for the pattern of change in breeding numbers (Newton 1988). Work by Newton & Marquiss (1986) found that annual survival of established breeders and breeding performance was the same in both a declining and increasing population, but that recruitment of incoming breeders was lower in the declining population and state that this was the main proximate cause of decline.

The population has stabilised since the mid 1990s and, possibly through the effects of intraspecific competition, average brood size has begun to fall again (see above).

Species references

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Key facts

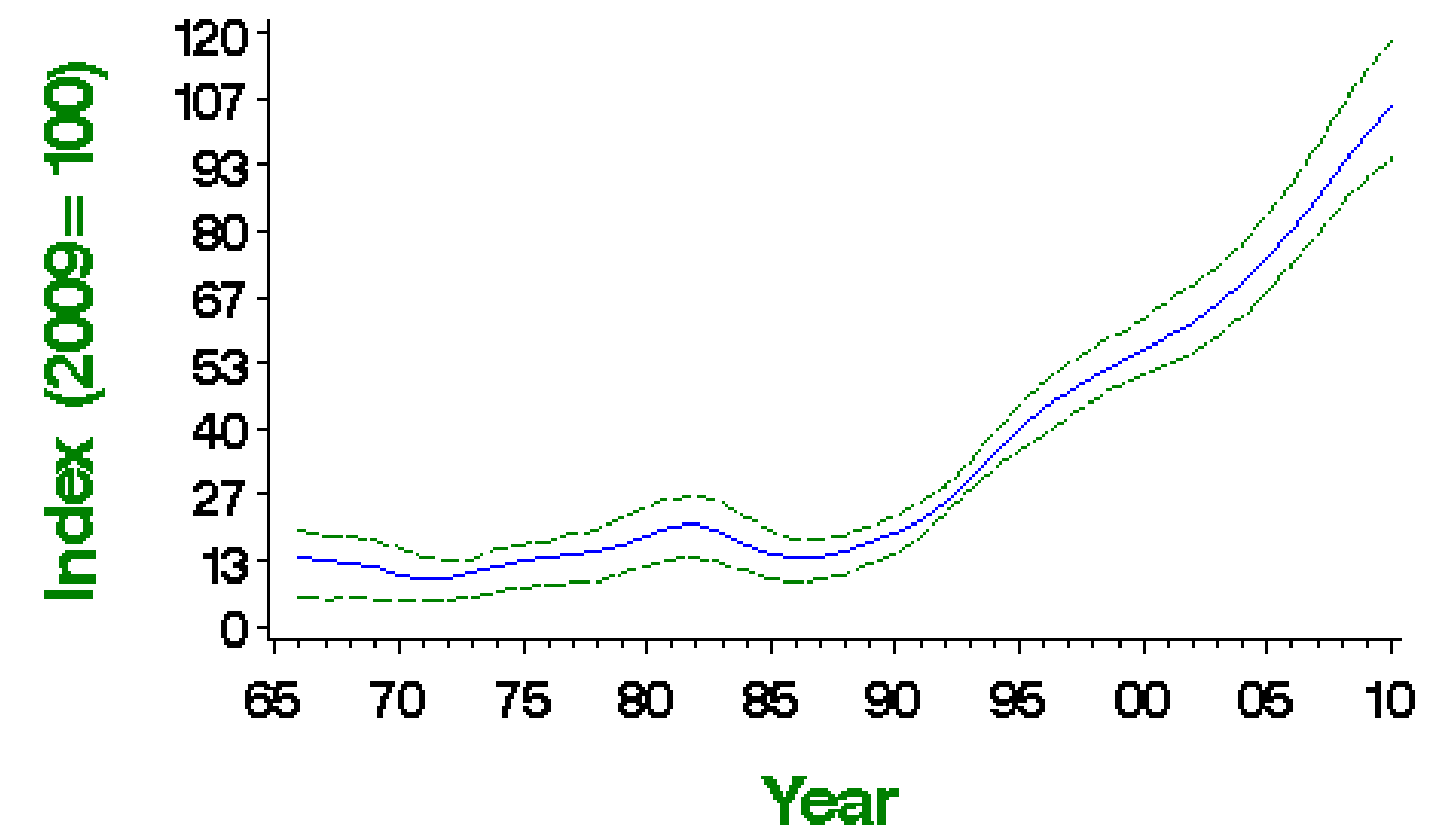
Conservation listings:	Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe) (BiE04) UK: green (BoCC3)
Long-term trend:	England: rapid increase
Population size:	31,100-44,000 territories in 2000 (1988-91 Atlas estimate updated using CBC/BBS trend: BiE04, APEP06); 44,000-61,000 territorial pairs in GB in 2001 (Clements 2002)
Migrant status:	Resident
Nesting habitat:	Above-ground nester
Primary breeding habitat:	Woodland
Secondary breeding habitat:	Farmland
Breeding diet:	Animal
Winter diet:	Animal

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 amplified with the addition of the more widely representative BBS data since 1994. There has been widespread moderate increase across Europe since 1980 (PECBMS 2011a).

CBC/BBS England 1966–2010

Buzzard



Smoothed population index, relative to an arbitrary 100 in the year given, with 85% confidence limits in green

Population changes in detail

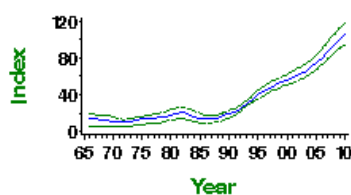
Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS England	42	1967-2009	195	652	380	2116		Small CBC sample
	25	1984-2009	320	503	303	1044		
	10	1999-2009	663	88	73	108		
	5	2004-2009	839	44	37	52		
BBS UK	14	1995-2009	842	72	57	91		
	10	1999-2009	1011	38	30	49		
	5	2004-2009	1238	17	11	24		
BBS England	14	1995-2009	536	146	117	179		
	10	1999-2009	657	89	72	107		
	5	2004-2009	839	43	37	51		
BBS Scotland	14	1995-2009	139	36	16	71		
	10	1999-2009	157	-1	-15	16		
	5	2004-2009	185	-5	-17	7		
BBS Wales	14	1995-2009	140	5	-12	26		
	10	1999-2009	161	5	-9	22		
	5	2004-2009	169	-2	-14	11		

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



CBC/BBS England 1966–2010

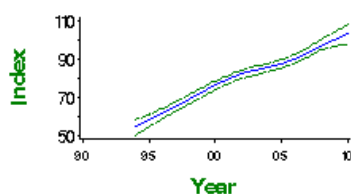
Buzzard



CBC/BBS England graph

BBS UK 1994–2010

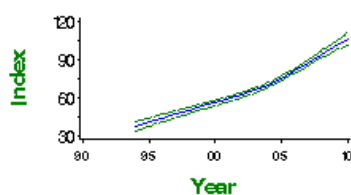
Buzzard



BBS UK graph

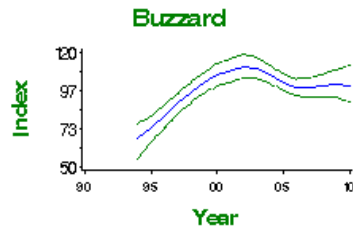
BBS England 1994–2010

Buzzard



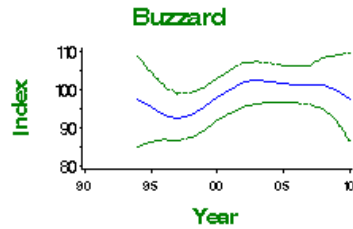
BBS England graph

BBS Scotland 1994—2010



BBS Scotland graph

BBS Wales 1994—2010



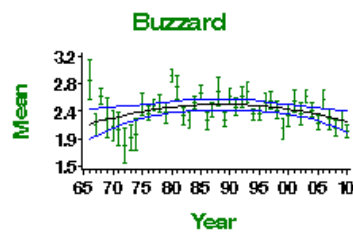
BBS Wales graph

Demographic trends

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Fledglings per breeding attempt	41	1968-2009	22	Curvilinear	1.17 fledglings	1.67 fledglings	42.9%		
Clutch size	41	1968-2009	34	Curvilinear	2.20 eggs	2.21 eggs	0.5%		
Brood size	41	1968-2009	104	Curvilinear	1.87 chicks	1.95 chicks	4.3%		
Nest failure rate at egg stage	41	1968-2009	28	Linear decline	0.83% nests/day	0.06% nests/day	-92.8%		Small sample
Nest failure rate at chick stage	41	1968-2009	52	None					

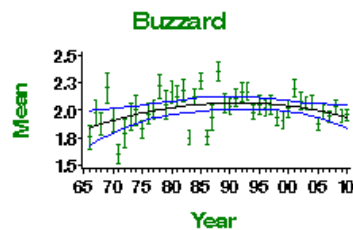
For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).

Clutch size 1966—2010

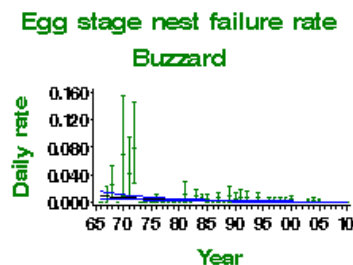


Mean number of eggs per nest - green bars represent standard error and black line shows long-term trend

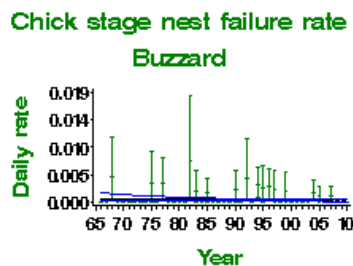
Brood size 1966—2010



Mean number of chicks per nest - green bars represent standard error and black line shows long-term trend



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Causes of change

There is good evidence that the increase in population numbers is associated with rapidly improving nesting success, which has been linked to reduced persecution (and therefore improved survival) and increased food supplies due to the recovery of rabbit populations from the effects of myxomatosis. It is not possible to say which is the more important driver.

Change factor	Primary driver	Secondary driver
Demographic	Improved breeding success	Increased survival
Ecological	Other	

Further information on causes of change

As the figures above show, there has been an increase in the number of fledglings per breeding attempt and a decrease in daily failure rates at the egg stage. As such, the increase in population numbers has been associated with rapidly improving nesting success, 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, Sim et al. 2000, 2001). Numbers of Buzzard were relatively stable until the late 1980s when the population size began increasing steeply. Elliott & Avery (1991) analysed data collected by the RSPB to provide good evidence that, from 1975-1989, persecution was a factor in restricting the Buzzard's range. Halley (1993) found that levels of persecution in Scotland had fallen and postulated that this was a factor in the increase in Buzzard population size. In a study of two local populations in Scotland, Swann & Etheridge (1995) provided some evidence to show that persecution was a factor in restricting population density at the site which benefited from higher productivity, although they did not specifically analyse the effects of persecution. Sim et al. (2000) provide good evidence from Buzzard populations in the west Midlands that persecution levels, especially poisonings, were lower in the 1990s when the population started increasing and state that higher survival rate due to reduced persecution was likely to be one of the main factors responsible for the rapid increase in the Buzzard population in this area. Gibbons et al. (1995) found that Buzzards were less common in the uplands where grouse moors were most frequent, stating that this was due to either persecution, unsuitable habitat management or lack of food, although did not specify which was the most important driver.

There is also good evidence to support the role of changing food availability in population increases. Graham et al. (1995) showed that Buzzard breeding density was positively related to lagomorph abundance and Swann & Etheridge (1995) found that Buzzards laid larger clutches, produced bigger broods and had significantly higher productivity where rabbits were more common. Sim et al. (2000, 2001) also provided good evidence that increased productivity coincided with an increase in rabbit abundance. Other studies have also found that breeding success is related to food availability (Kostrzewa & Kostrzewa 1991, Austin & Houston 1997, Goszczynski 1997, 2001). It is, therefore, plausible that Buzzard distribution is influenced by rabbit abundance, which has increased since rabbits have overcome the effects of myxomatosis.

Habitat change may have played some role in the increases. High Buzzard breeding densities were associated with high proportions of unimproved pasture and mature woodland within estimated territories (Sim et al. 2000) and Sergio et al. (2002, 2005) found that Buzzard productivity benefited from the conversion of coppice woodland to mature forest in Italy. There is also some evidence that breeding success is related to climate, although there is little evidence for this from the UK. In Germany, Kostrzewa & Kostrzewa (1990) provide evidence to show that the number of young fledged was negatively correlated with rainfall in April and May. Although there is no evidence to support this, it is worth noting that these possible habitat/climate effects and food effects are not mutually exclusive.

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Sergio, F., Boto, A., Scandolaro, C. & Bogliani, G. (2002) Density, nest sites, diet, and productivity of Common Buzzards (*Buteo buteo*) in the Italian pre-Alps. *Journal of Raptor Research* 36: 24-32.

Sergio, F., Scandolaro, C., Marchesi, L., Pedrini, P. & Penteriani, V. (2005) Effect of agro-forestry and landscape changes on Common Buzzards (*Buteo buteo*) in the Alps: Implications for conservation. *Animal Conservation* 8: 17-25.

Sim, I.M.W., Campbell, L., Pain, D.J. & Wilson, J.D. (2000) Correlates of the population increase of Common Buzzards *Buteo buteo* in the West Midlands between 1983 and 1996. *Bird Study* 47: 154-164.

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Swann, R.L. & Etheridge, B. (1995) A comparison of breeding success and prey of the Common Buzzard *Buteo buteo* in two areas of northern Scotland. *Bird Study* 42: 37-43.

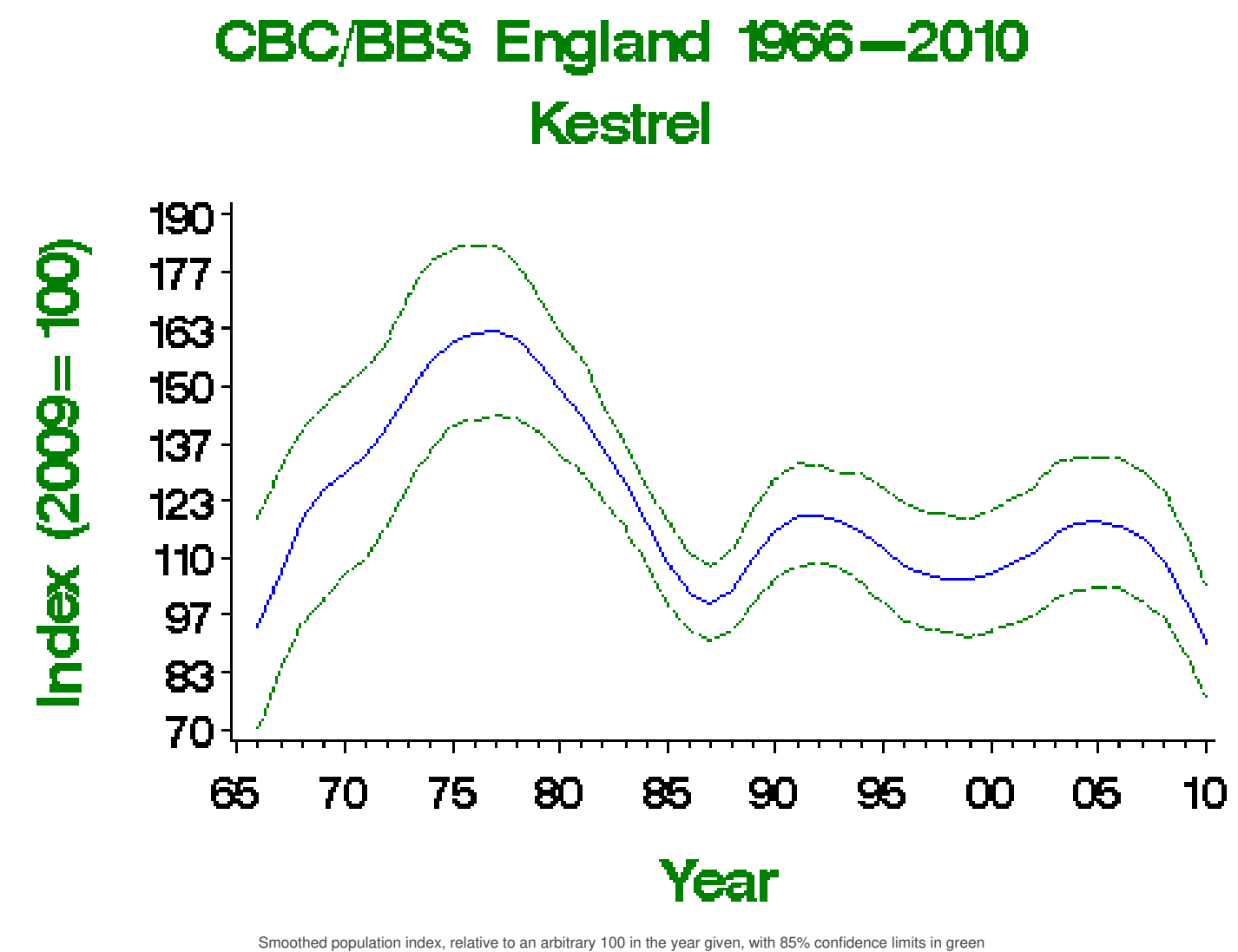
This report should be cited as: Baillie, S.R., Marchant, J.H., Leech, D.I., Renwick, A.R., Eglinton, S.M., Joys, A.C., Noble, D.G., Barimore, C., Conway, G.J., Downie, I.S., Risely, K. & Robinson, R.A. (2012). *BirdTrends 2011*. BTO Research Report No. 609. BTO, Thetford. <https://www.bto.org/birdtrends>

Key facts

Conservation listings:	Europe: SPEC category 3 (declining) (BiE04) UK: amber (25-50% population decline) (BoCC3)
Long-term trend:	England: fluctuating, with no long-term trend
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). There has been widespread moderate decrease across Europe since 1980 (PECBMS 2011a).



Population changes in detail

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS England	42	1967-2009	258	-6	-31	34		
	25	1984-2009	379	-15	-29	2		
	10	1999-2009	635	-5	-10	2		

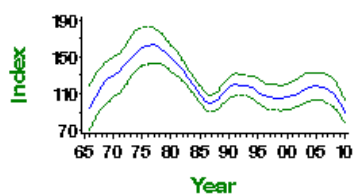
Source BBS UK	5 Period (yrs)	2004-2009 Years 1995-2009	714 Plots (2011)	-15 Change (20)	-19 Lower limit	-10 Upper limit	Alert >25	Comment
	10	1999-2009	692	-16	-21	-6		
	5	2004-2009	779	-22	-27	-15		
BBS England	14	1995-2009	560	-13	-18	-5		
	10	1999-2009	608	-5	-10	3		
	5	2004-2009	688	-15	-19	-10		
BBS Scotland	14	1995-2009	43	-58	-71	-38	>50	
	10	1999-2009	41	-43	-59	-12	>25	
	5	2004-2009	46	-43	-57	-18	>25	

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



CBC/BBS England 1966—2010

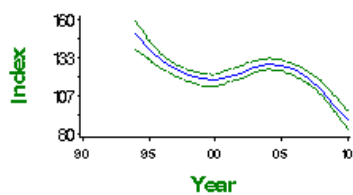
Kestrel



CBC/BBS England graph

BBS UK 1994—2010

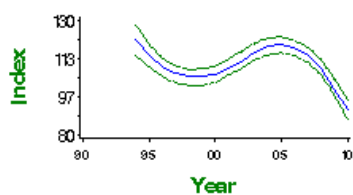
Kestrel



BBS UK graph

BBS England 1994—2010

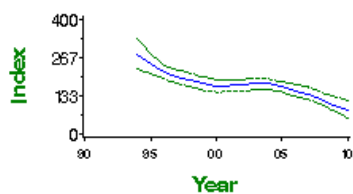
Kestrel



BBS England graph

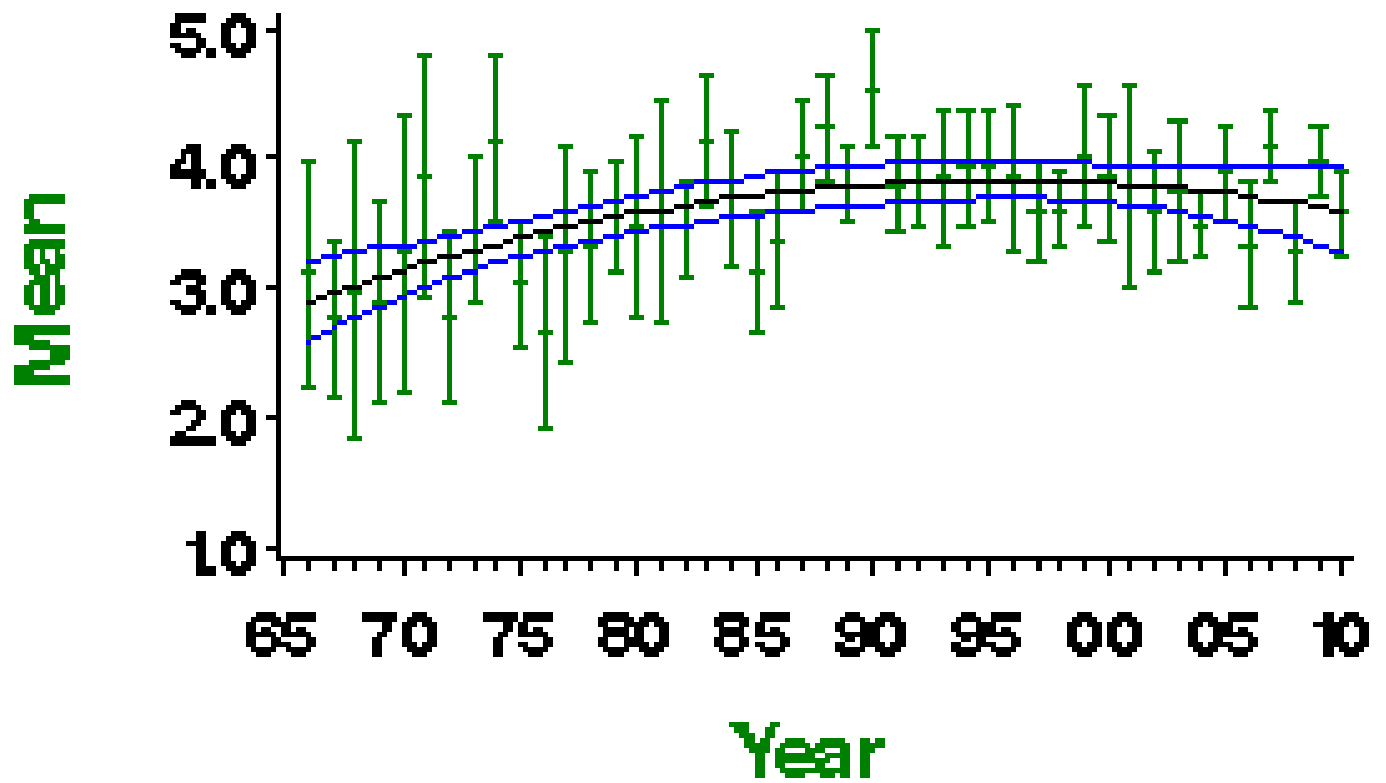
BBS Scotland 1994—2010

Kestrel



BBS Scotland graph

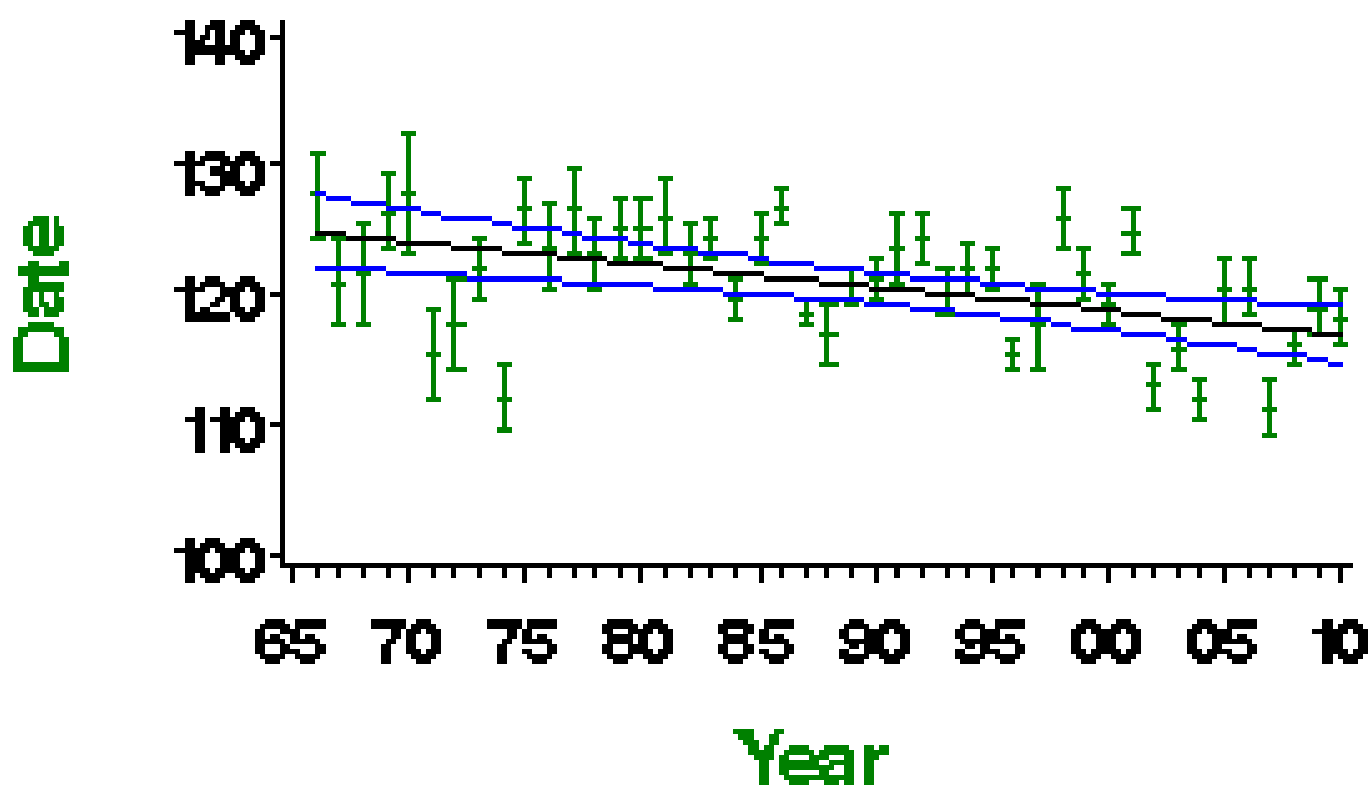
Fledglings per breeding attempt 1966–2010 Kestrel



Mean number of fledglings produced per nest - green bars represent standard error and black line shows long-term trend

Laying date 1966—2010

Kestrel



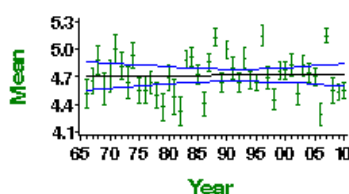
More on demographic trends

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Fledglings per breeding attempt	41	1968-2009	38	Curvilinear	3.02 fledglings	3.63 fledglings	20.2%		
Clutch size	41	1968-2009	58	None					
Brood size	41	1968-2009	139	Curvilinear	3.77 chicks	3.88 chicks	2.9%		
Nest failure rate at egg stage	41	1968-2009	41	Linear decline	0.59% nests/day	0.06% nests/day	-89.8%		
Nest failure rate at chick stage	41	1968-2009	68	None					
Laying date	41	1968-2009	23	Linear decline	May 5	Apr 27	-8 days		Small sample

For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).

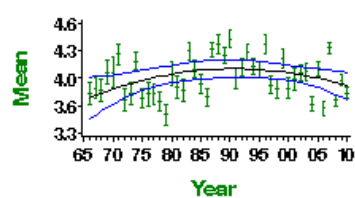
Clutch size 1966—2010

Kestrel



Brood size 1966—2010

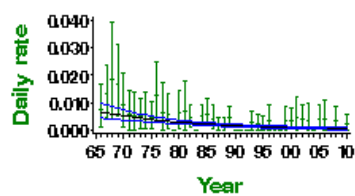
Kestrel



Mean number of chicks per nest - green bars represent standard error and black line shows long-term trend

Egg stage nest failure rate

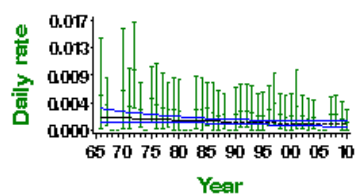
Kestrel



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Chick stage nest failure rate

Kestrel



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Merlin

Falco columbarius

Key facts

Conservation listings:	Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe) (BiE04) UK: amber (historical decline) (BoCC3)
Long-term trend:	UK: probable increase
Population size:	1,291 (1,108-1,500) pairs in Britain in 1993-94 (Rebecca & Bainbridge 1998: BiE04, APEP06); 1,162 (891-1,462) pairs in the UK in 2008 (Ewing et al. 2011)

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, Rebecca 2011). 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 northern England (Ewing et al. 2011).

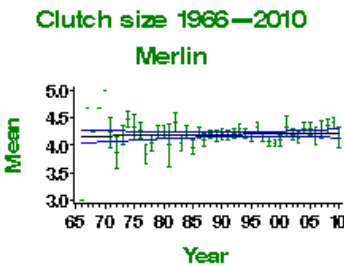
Population changes in detail

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

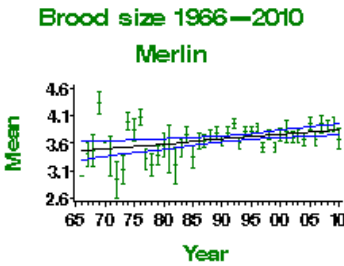
Demographic trends

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Fledglings per breeding attempt	41	1968-2009	21	Curvilinear	3.15 fledglings	3.75 fledglings	19.0%		
Clutch size	41	1968-2009	36	None					
Brood size	41	1968-2009	55	Linear increase	3.48 chicks	3.85 chicks	10.6%		
Nest failure rate at egg stage	41	1968-2009	24	Linear decline	0.70% nests/day	0.19% nests/day	-72.9%		Small sample
Nest failure rate at chick stage	41	1968-2009	28	Linear decline	0.86% nests/day	0.25% nests/day	-70.9%		Small sample

For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).



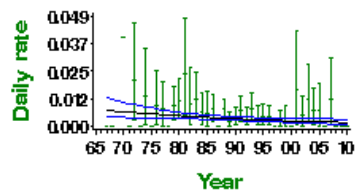
Mean number of eggs per nest - green bars represent standard error and black line shows long-term trend



Mean number of chicks per nest - green bars represent standard error and black line shows long-term trend

Egg stage nest failure rate

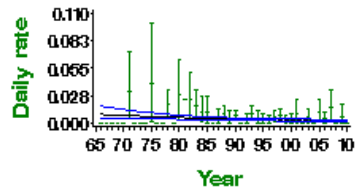
Merlin



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Chick stage nest failure rate

Merlin



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

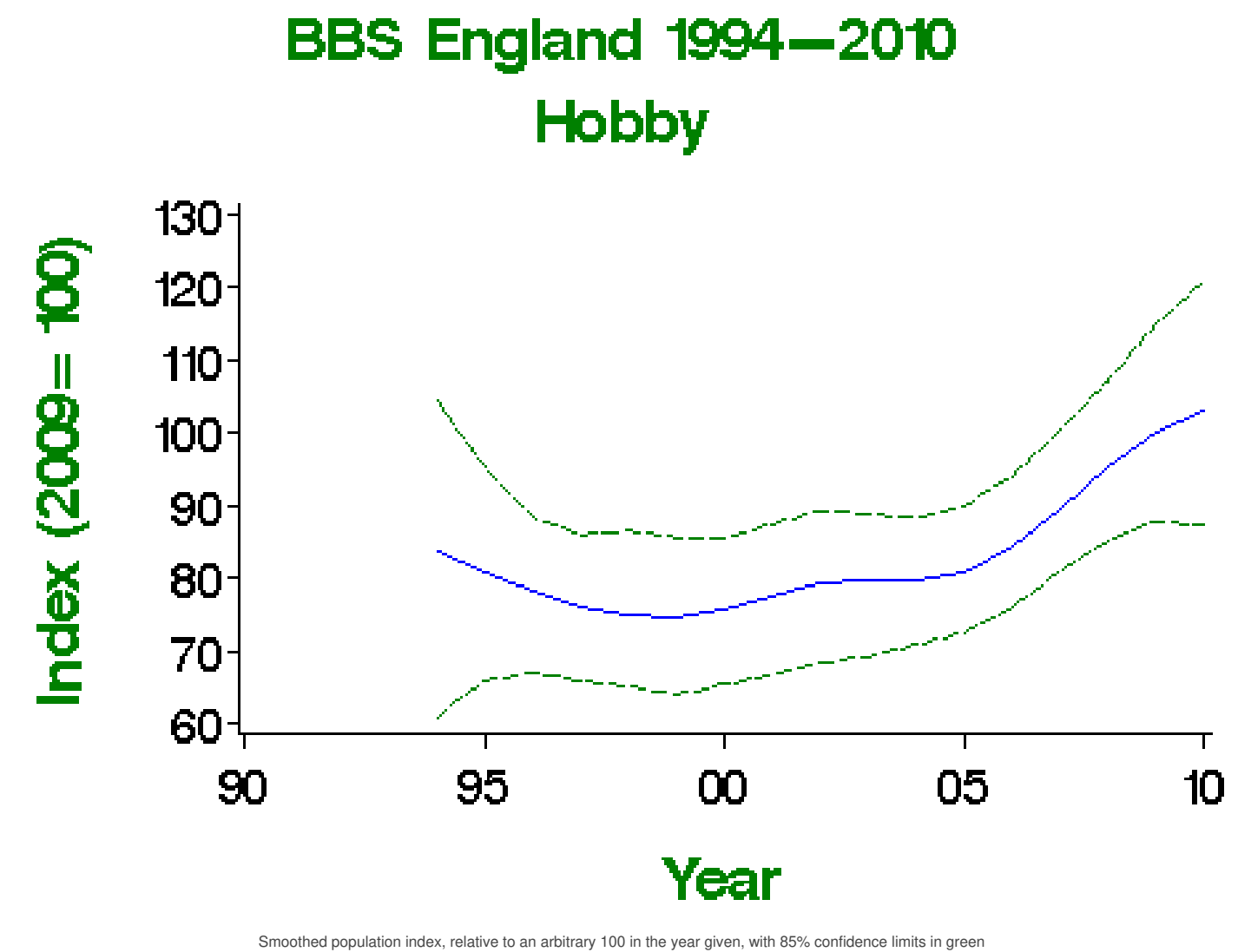
This report should be cited as: Baillie, S.R., Marchant, J.H., Leech, D.I., Renwick, A.R., Eglinton, S.M., Joys, A.C., Noble, D.G., Barimore, C., Conway, G.J., Downie, I.S., Risely, K. & Robinson, R.A. (2012). BirdTrends 2011. BTO Research Report No. 609. BTO, Thetford. <https://www.bto.org/birdtrends>

Key facts

Conservation listings:	Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe) (BiE04) UK: green (BoCC3)
Long-term trend:	UK, England: increase
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 (eg Holling & RBBP 2011b). 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.



Population changes in detail

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
BBS England	14	1995-2009	38	24	-5	73		
	10	1999-2009	42	34	1	81		

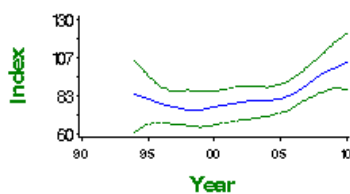
Source	5 Period (yrs)	2004-2009 Years	48 Plots (n)	25 Change (%)	3 Lower limit	59 Upper limit	Alert	Comment
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Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



BBS England 1994—2010

Hobby



BBS England graph

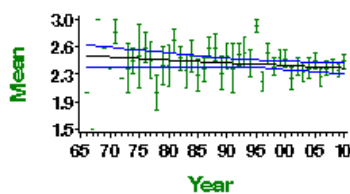
Demographic trends

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Brood size	41	1968-2009	22	None					Small sample
Nest failure rate at chick stage	41	1968-2009	13	None					Small sample

For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).

Brood size 1966—2010

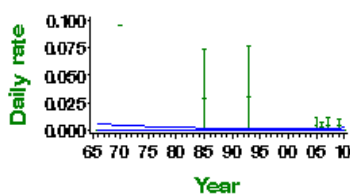
Hobby



Mean number of chicks per nest - green bars represent standard error and black line shows long-term trend

Chick stage nest failure rate

Hobby



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

This report should be cited as: Baillie, S.R., Marchant, J.H., Leech, D.I., Renwick, A.R., Eglington, S.M., Joys, A.C., Noble, D.G., Barimore, C., Conway, G.J., Downie, I.S., Risely, K. & Robinson, R.A. (2012). BirdTrends 2011. BTO Research Report No. 609. BTO, Thetford. <https://www.bto.org/birdtrends>

Peregrine

Falco peregrinus

Key facts

Conservation listings:	Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe) (BiE04) UK: green (species level); amber (race <i>peregrinus</i> , >20% of European breeders, European status) (BoCC3)
Long-term trend:	UK, England: increase Northern Ireland, northwest Scotland, North Wales: decline since 1991
Population size:	1,283 pairs in 1991 (Crick & Ratcliffe 1995 : APEP06); 1,437 pairs in 2002 (Banks et al. 2010)

Status summary

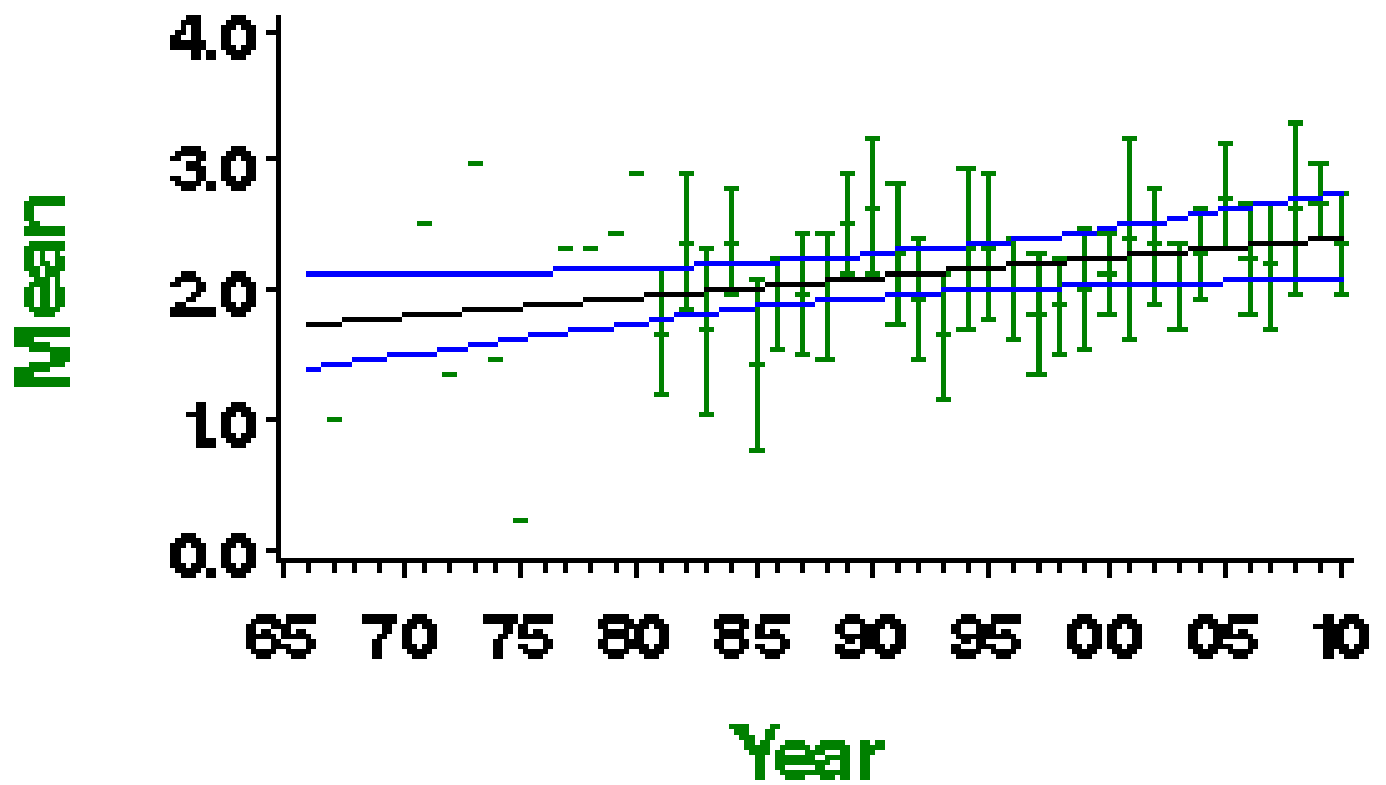
The UK population size, distribution and breeding performance have all largely recovered from the detrimental effects of organochlorine pesticides in the 1950s and 1960s. Populations and breeding performance have declined recently, however, in northwest Scotland and the Northern Isles (Crick & Ratcliffe 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. In northern England, breeding productivity on grouse moors has been 50% lower than at nests in other habitats, indicating that illegal persecution on land managed for grouse shooting is still an important pressure on the population (Amar et al. 2011). 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 Banks et al. 2003, 2010); 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 breeding population changes for this species are not currently monitored by BTO

Demographic trends

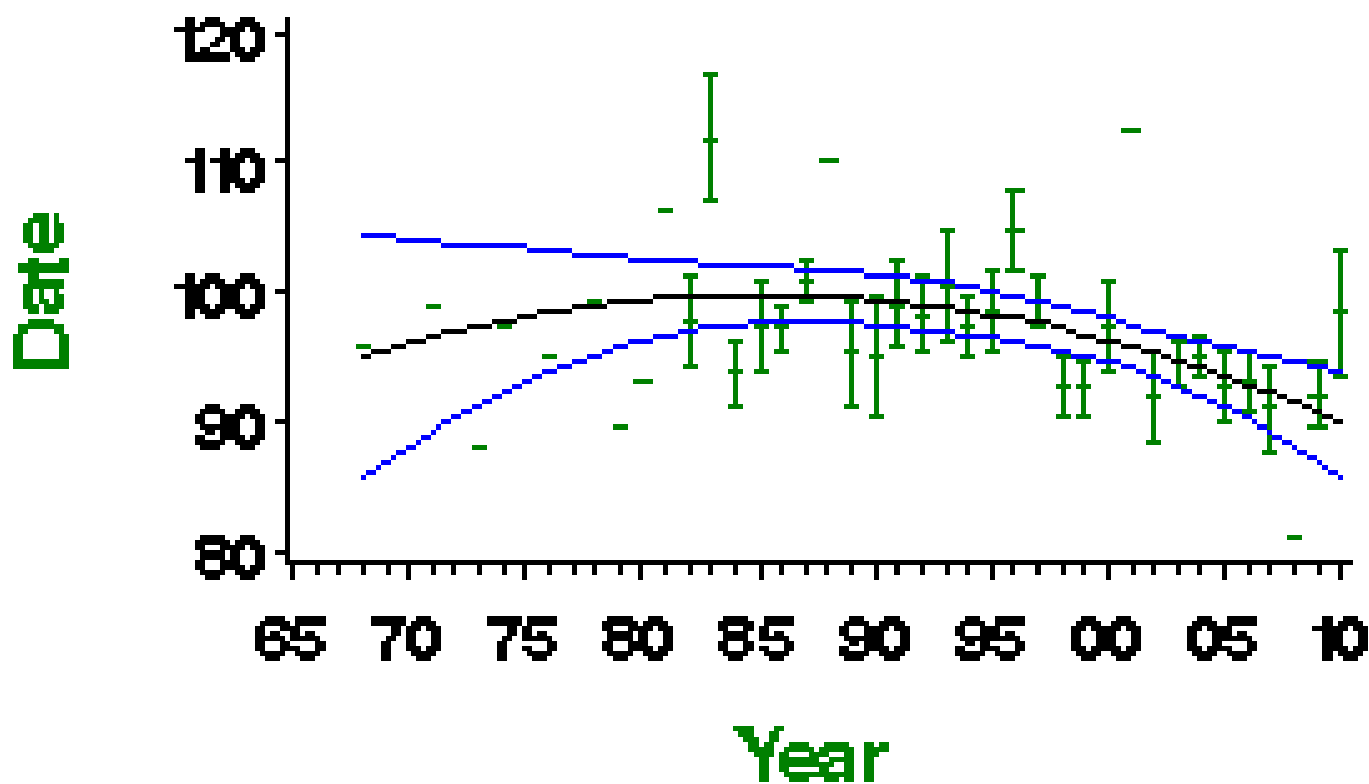
Fledglings per breeding attempt 1966–2010 Peregrine



Mean number of fledglings produced per nest - green bars represent standard error and black line shows long-term trend

Laying date 1966—2010

Peregrine



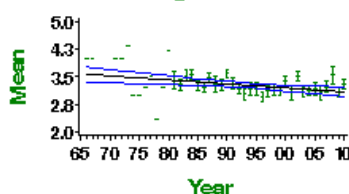
More on demographic trends

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Fledglings per breeding attempt	41	1968-2009	12	Linear increase	1.78 fledglings	2.39 fledglings	34.6%		
Clutch size	41	1968-2009	17	Linear decline	3.55 eggs	3.11 eggs	-12.4%		Small sample
Brood size	41	1968-2009	44	Linear increase	2.35 chicks	2.59 chicks	9.9%		
Nest failure rate at egg stage	41	1968-2009	22	None					Small sample
Nest failure rate at chick stage	41	1968-2009	24	Linear decline	0.35% nests/day	0.09% nests/day	-74.3%		Small sample
Laying date	41	1968-2009	10	Curvilinear	Apr 5	Apr 1	-4 days		Small sample

For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).

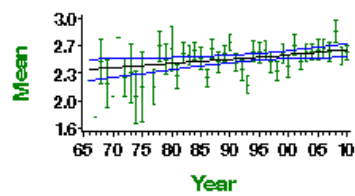
Clutch size 1966—2010

Peregrine



Brood size 1966—2010

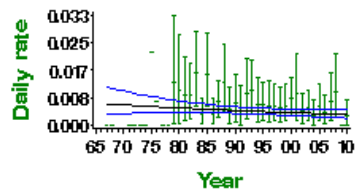
Peregrine



Mean number of chicks per nest - green bars represent standard error and black line shows long-term trend

Egg stage nest failure rate

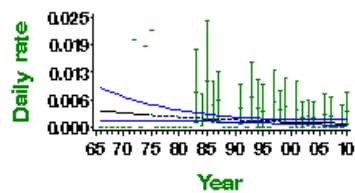
Peregrine



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Chick stage nest failure rate

Peregrine



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

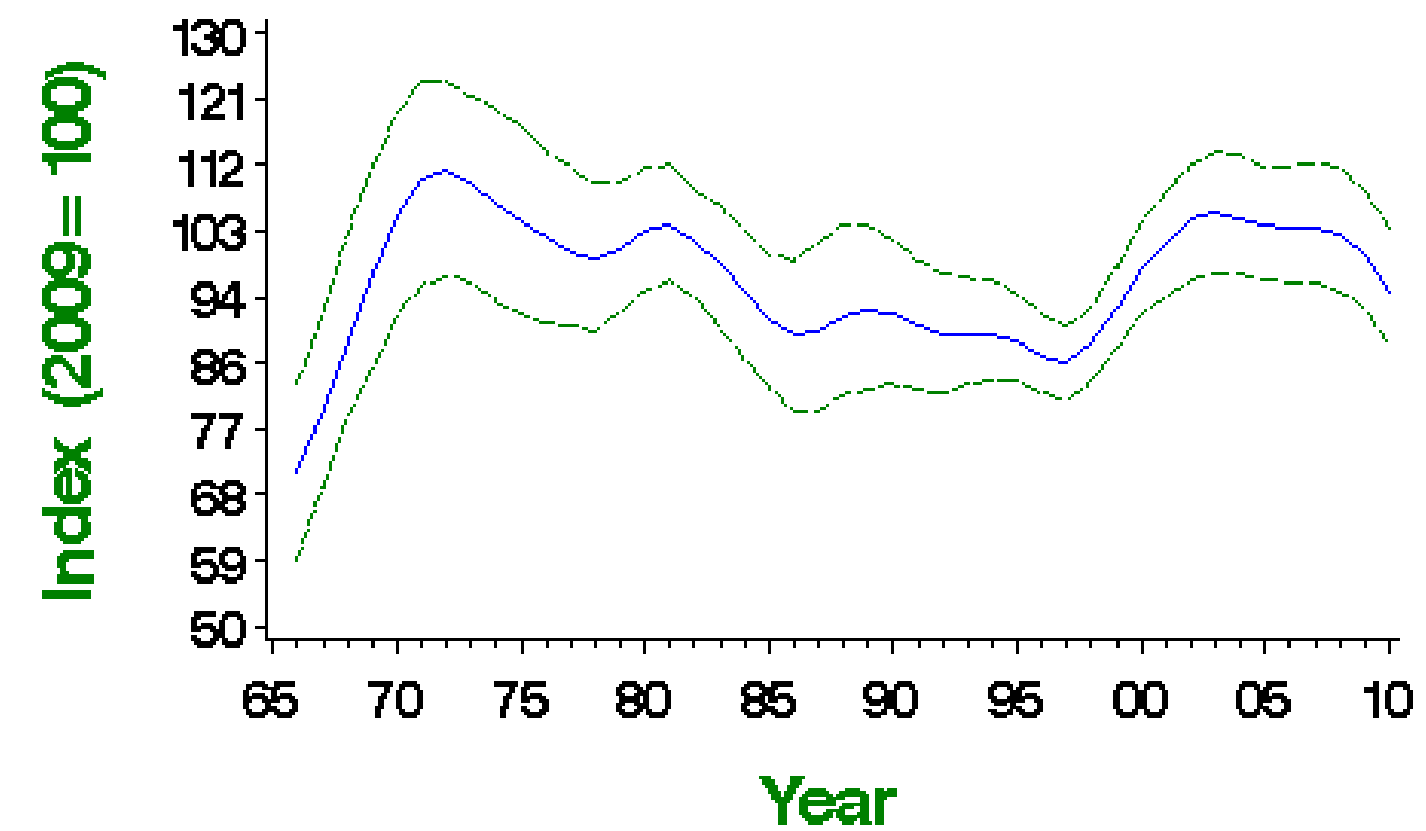
Key facts

Conservation listings:	Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe) (BiE04) UK: green (BoCC3)
Long-term trend:	UK: probable shallow increase
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. There has been widespread moderate increase across Europe since 1980 (PECBMS 2011a).

CBC/BBS UK 1966–2010
Moorhen



Smoothed population index, relative to an arbitrary 100 in the year given, with 85% confidence limits in green

Population changes in detail

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS UK	42	1967-2009	302	26	-2	63		
	25	1984-2009	435	5	-6	24		
	10	1999-2009	722	7	2	15		

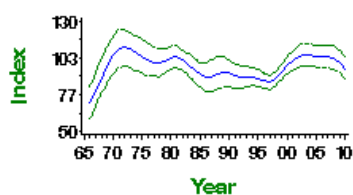
Source	Period (yrs)	2004-2009 Years	785 Plots	-5 Change (%)	-10 Lower limit	1 Upper limit	Alert	Comment
CBC/BBS England		1967-2009	277	(4)	2	65		
	25	1984-2009	401	6	-8	26		
	10	1999-2009	668	8	1	14		
	5	2004-2009	729	-3	-7	3		
WBS/WBBS waterways	34	1975-2009	121	-20	-37	-1		
	25	1984-2009	140	6	-16	34		
	10	1999-2009	208	-9	-16	0		
	5	2004-2009	211	-10	-15	-3		
BBS UK	14	1995-2009	642	14	7	25		
	10	1999-2009	705	6	0	13		
	5	2004-2009	780	-5	-10	0		
BBS England	14	1995-2009	593	13	4	22		
	10	1999-2009	652	8	0	13		
	5	2004-2009	725	-3	-8	2		

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



CBC/BBS UK 1966—2010

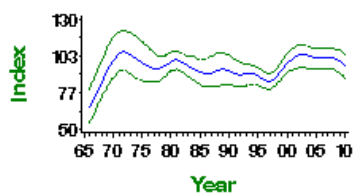
Moorhen



CBC/BBS UK graph

CBC/BBS England 1966—2010

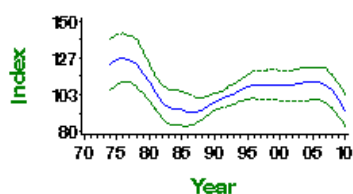
Moorhen



CBC/BBS England graph

WBS/WBBS 1974—2010

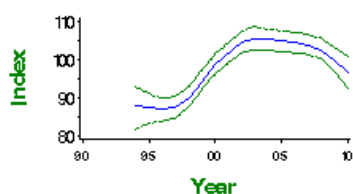
Moorhen

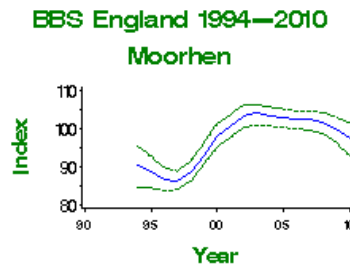


WBS/WBBS waterways graph

BBS UK 1994—2010

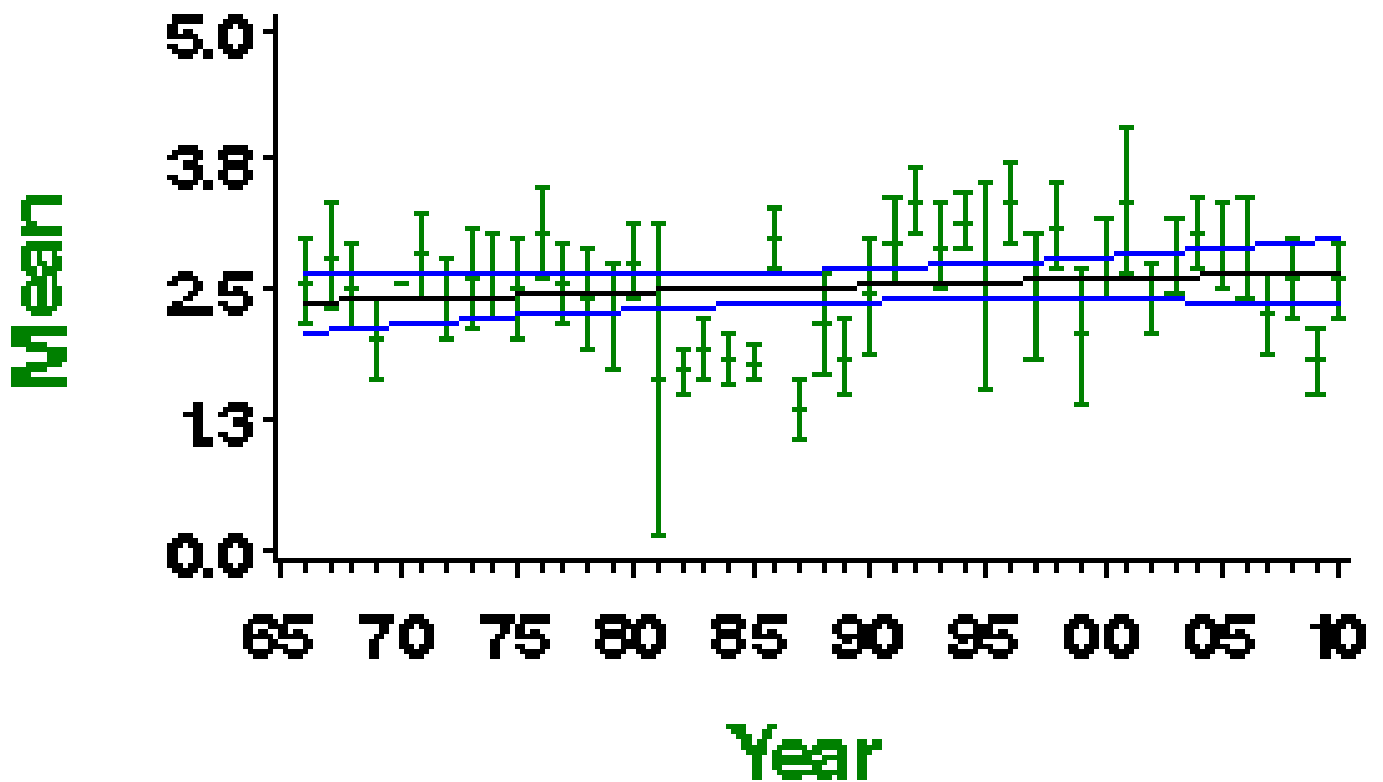
Moorhen





Demographic trends

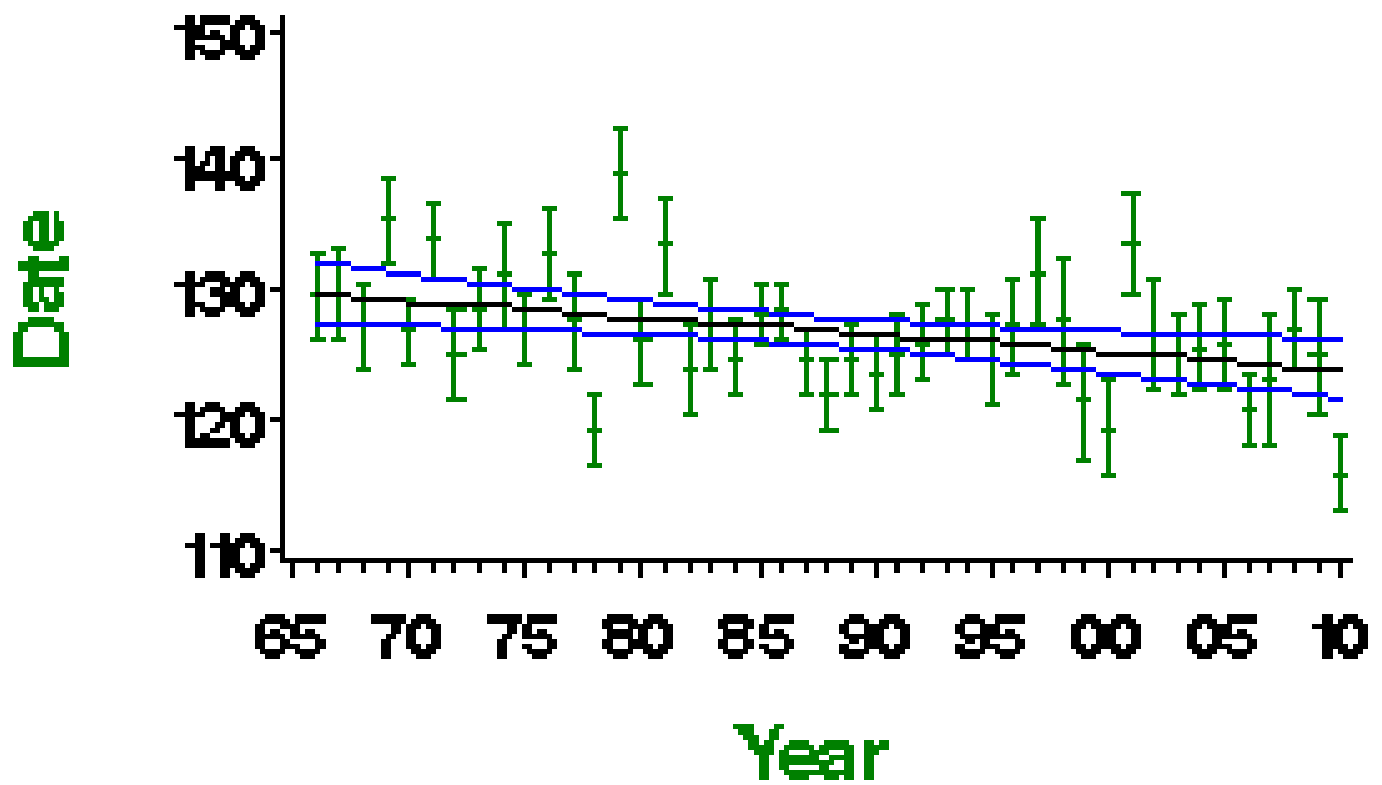
Fledglings per breeding attempt 1966–2010 Moorhen



Mean number of fledglings produced per nest - green bars represent standard error and black line shows long-term trend

Laying date 1966—2010

Moorhen



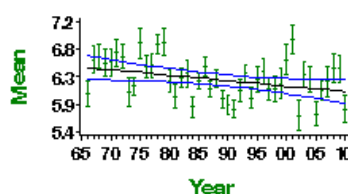
More on demographic trends

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Fledglings per breeding attempt	41	1968-2009	33	None					
Clutch size	41	1968-2009	97	Linear decline	6.43 eggs	6.07 eggs	-5.6%		
Brood size	41	1968-2009	84	Linear increase	2.80 chicks	3.70 chicks	32.2%		
Nest failure rate at egg stage	41	1968-2009	113	Curvilinear	1.32% nests/day	2.52% nests/day	90.9%		
Nest failure rate at chick stage	41	1968-2009	40	None					
Laying date	41	1968-2009	70	Linear decline	May 10	May 4	-6 days		

For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).

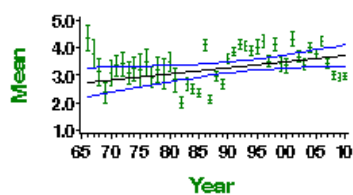
Clutch size 1966—2010

Moorhen



Brood size 1966—2010

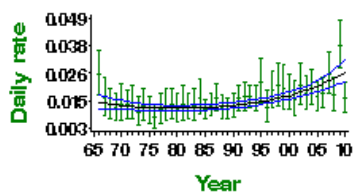
Moorhen



Mean number of chicks per nest - green bars represent standard error and black line shows long-term trend

Egg stage nest failure rate

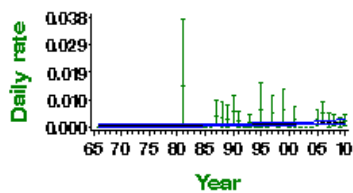
Moorhen



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Chick stage nest failure rate

Moorhen



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Coot

Fulica atra

Key facts

Conservation listings:	Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe) (BiE04) UK: green (BoCC3)
Long-term trend:	UK: rapid increase
Population size:	22,600-28,800 pairs in 2000 (1988-91 Atlas estimate updated using CBC/BBS and WBS trends: BiE04, APEP06)

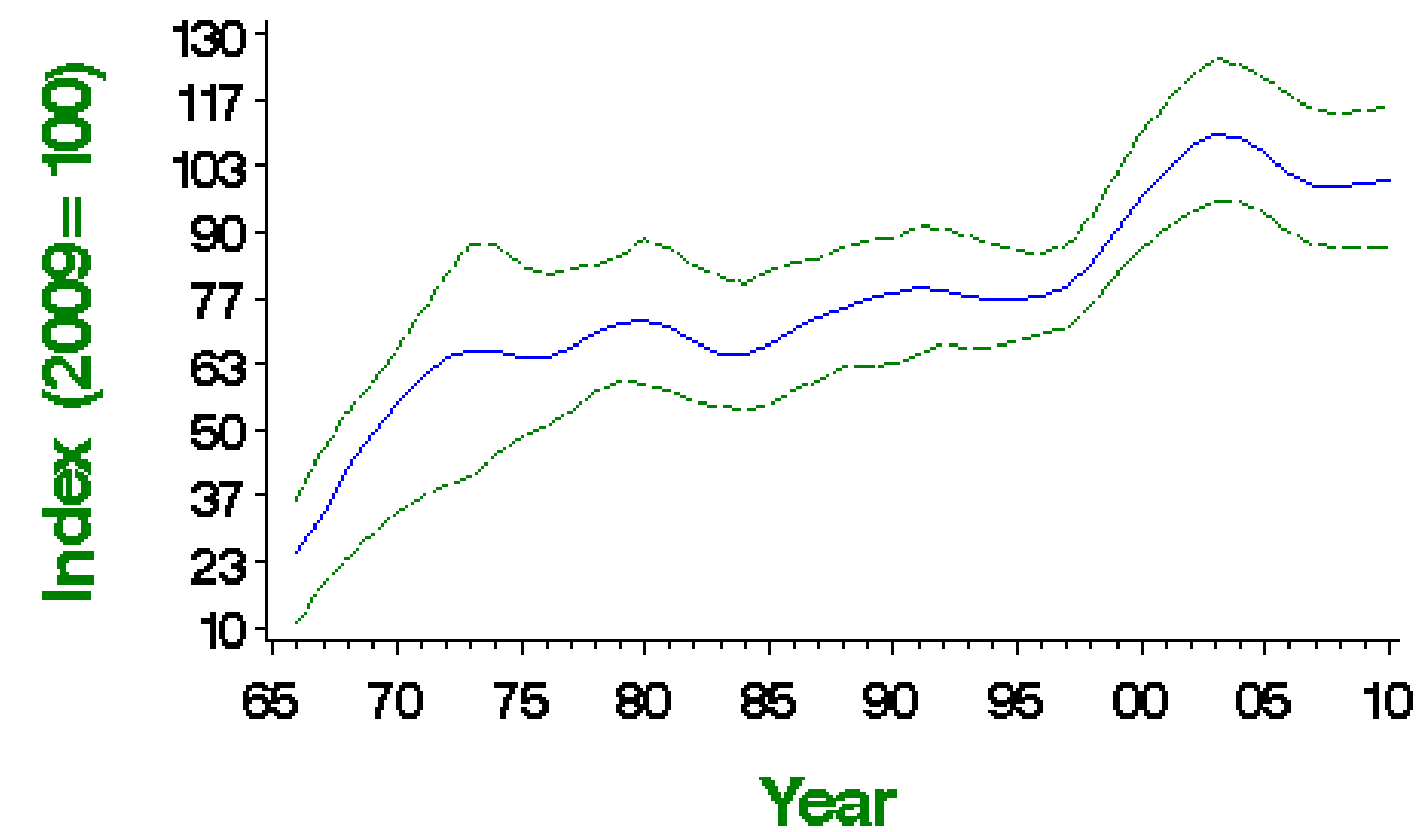
Migrant status:	Resident
Nesting habitat:	Ground nester
Primary breeding habitat:	Wetland
Secondary breeding habitat:	
Breeding diet:	Vegetation
Winter diet:	Vegetation

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. There has been widespread moderate increase across Europe since 1980 (PECBMS 2011a). 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 (Holt et al. 2011).

CBC/BBS UK 1966–2010

Coot



Smoothed population index, relative to an arbitrary 100 in the year given, with 85% confidence limits in green

Population changes in detail

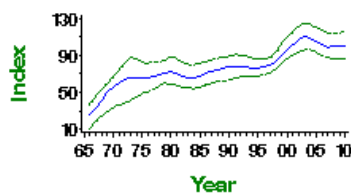
Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS UK	42	1967-2009	114	199	86	555		
	25	1984-2009	171	54	12	115		
	10	1999-2009	297	11	-1	23		
	5	2004-2009	328	-8	-17	3		
CBC/BBS England	42	1967-2009	103	196	88	586		
	25	1984-2009	155	54	15	116		
	10	1999-2009	269	12	0	27		
	5	2004-2009	299	-9	-18	3		
WBS/WBBS waterways	34	1975-2009	60	90	29	253		
	25	1984-2009	72	44	0	133		
	10	1999-2009	104	0	-22	24		
	5	2004-2009	105	2	-14	21		
BBS UK	14	1995-2009	259	37	16	66		
	10	1999-2009	291	9	-3	23		
	5	2004-2009	326	-8	-17	3		
BBS England	14	1995-2009	235	38	17	66		
	10	1999-2009	263	10	-3	27		
	5	2004-2009	297	-9	-19	2		

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



CBC/BBS UK 1966–2010

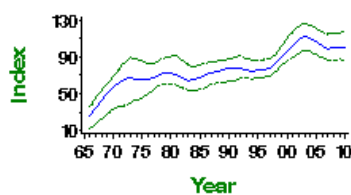
Coot



CBC/BBS UK graph

CBC/BBS England 1966–2010

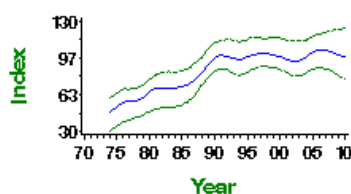
Coot



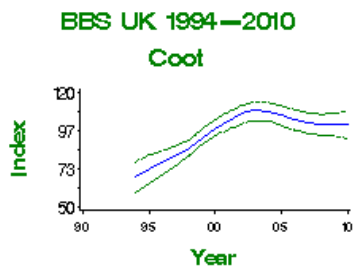
CBC/BBS England graph

WBS/WBBS 1974–2010

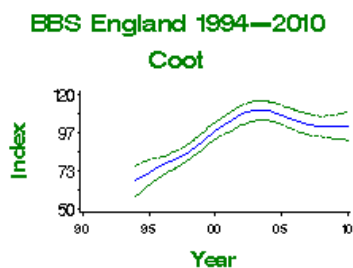
Coot



WBS/WBBS waterways graph



BBS UK graph



BBS England graph

Demographic trends

Productivity and survival trends for this species are not currently produced by BTO

Causes of change

There are no demographic trends available for this species and very little evidence regarding the ecological drivers of change.

Change factor	Primary driver	Secondary driver
Demographic	Unknown	
Ecological	Unknown	

Further information on causes of change

There is very little information available regarding the demographic or ecological drivers of the population change in Coot.

Brinkhoff & Cave (1997) conducted a supplementary feeding experiment and found that seasonal variation in offspring production was in essence the result of seasonal variation in food availability. Thus, increases in food supply may have improved breeding success, but there is no evidence to support this.

Work from Finland (Ronka et al. 2005) has suggested that Coot are sensitive to overwinter weather: thus it is possible that this species may have benefited from milder winters.

Species references

Brinkhof, M.W.G. & Cave, A.J. (1997) Food supply and seasonal variation in breeding success: an experiment in the European Coot. *Proceedings of the Royal Society B Biological Sciences* 264: 291-296.

Holt, C.A., Austin, G.E., Calbrade, N.A., Mellan, H.J., Mitchell, C., Stroud, D.A., Wotton, S.R. & Musgrove, A.J. (2011) Waterbirds in the UK 2009/10: the Wetland Bird Survey. BTO/RSPB/JNCC in association with WWT, Thetford.

Ronka, M.T.H., Saari, C.L.V., Lehtikainen, E.A., Suomela, J. & Hakkila, K. (2005) Environmental changes and population trends of breeding waterfowl in northern Baltic Sea. *Annales Zoologici Fennici* 42: 587-602.

Key facts

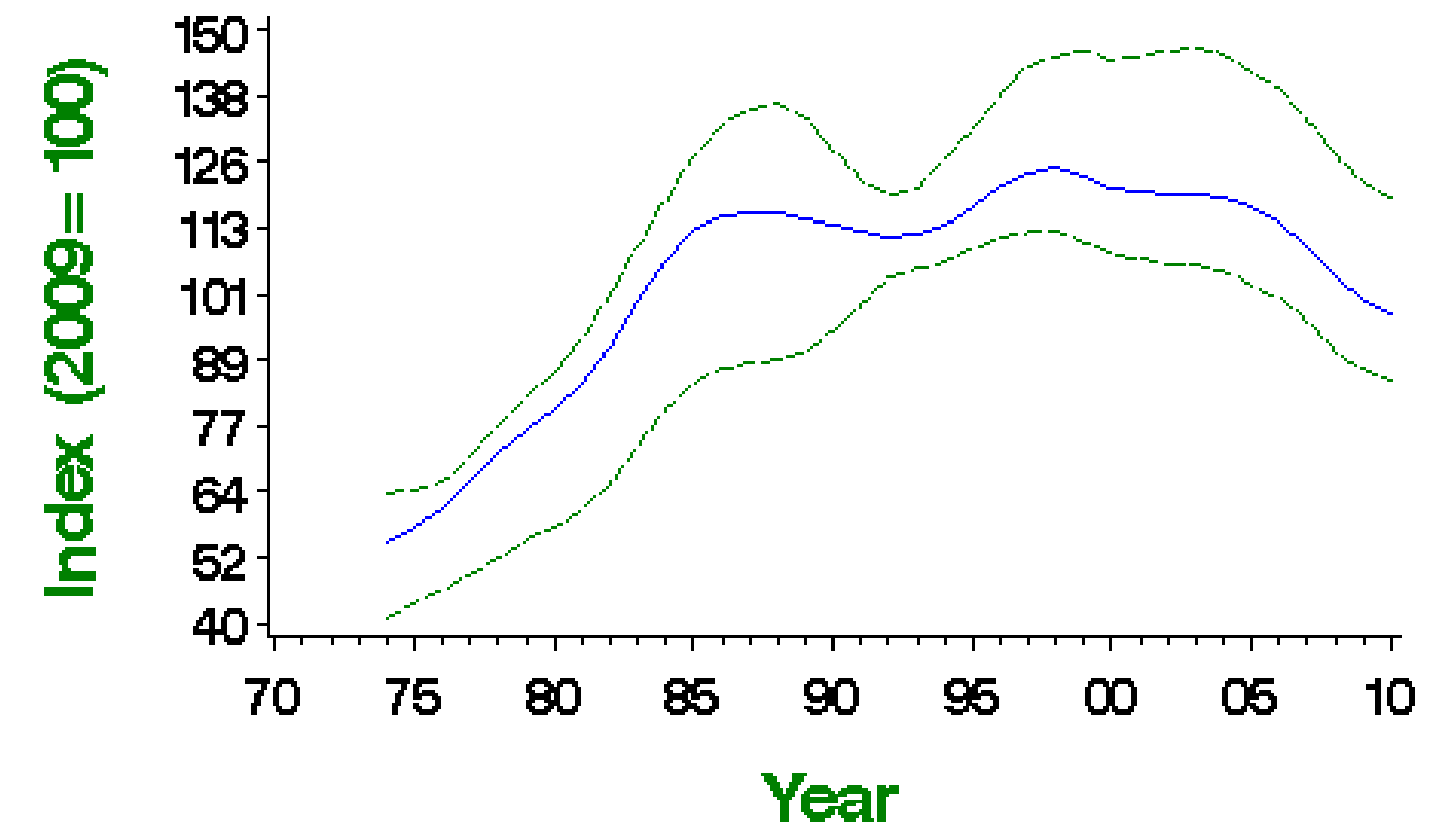
Conservation listings:	Europe: no SPEC category (concentrated in Europe, conservation status favourable) (BiE04) UK: amber (>20% of European breeding population, >20% of East Atlantic Flyway population in winter, localised wintering population) (BoCC3)
Long-term trend:	UK waterways: moderate increase
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 (Holt et al. 2011). 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).

WBS/WBBS 1974–2010

Oystercatcher



Smoothed population index, relative to an arbitrary 100 in the year given, with 85% confidence limits in green

Population changes in detail

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
WBS/WBBS waterways	34	1975-2009	45	73	38	179		
	25	1984-2009	55	-7	-28	52		
	10	1999-2009	94	-19	-28	-4		
	5	2004-2009	101	-16	-24	-8		

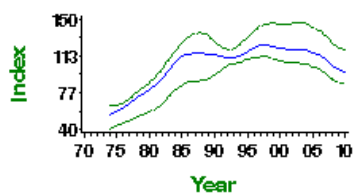
BBS UK Source	Period (yrs)	1995-2009 Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
	10	1999-2009	349	-2	-10	9		
	5	2004-2009	409	2	-6	9		
BBS England	14	1995-2009	168	50	53	91		
	10	1999-2009	193	35	41	72		
	5	2004-2009	234	11	16	34		
BBS Scotland	14	1995-2009	127	-24	-32	-15		
	10	1999-2009	129	-14	-24	-5		
	5	2004-2009	139	-5	-14	4		

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



WBS/WBBS 1974—2010

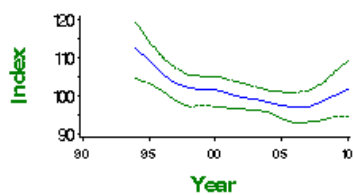
Oystercatcher



WBS/WBBS waterways graph

BBS UK 1994—2010

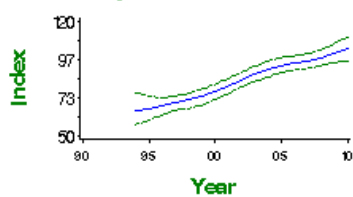
Oystercatcher



BBS UK graph

BBS England 1994—2010

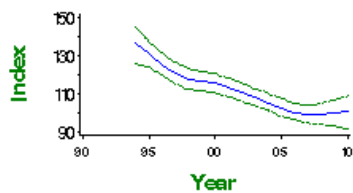
Oystercatcher



BBS England graph

BBS Scotland 1994—2010

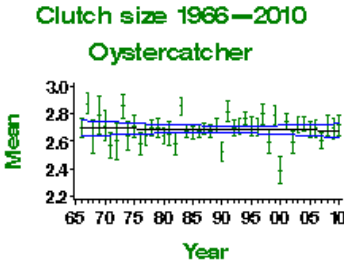
Oystercatcher



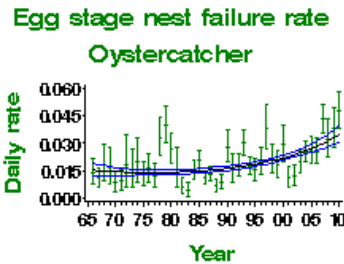
BBS Scotland graph

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Clutch size	41	1968-2009	111	None					
Nest failure rate at egg stage	41	1968-2009	115	Curvilinear	1.50% nests/day	3.31% nests/day	120.7%		
Laying date	41	1968-2009	48	Linear decline	May 17	May 9	-8 days		

For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).



Mean number of eggs per nest - green bars represent standard error and black line shows long-term trend



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Ringed Plover

Charadrius hiaticula

Key facts

Conservation listings:	Europe: no SPEC category (concentrated in Europe, conservation status favourable) (BiE04) UK: amber (species level and race <i>hiaticula</i> , 25-50% decline, >20% East Atlantic Flyway population in winter) (BoCC3)
Long-term trend:	UK: decline
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 <i>et al.</i> 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 (Holt *et al.* 2011).

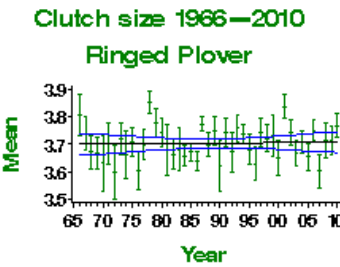
Population changes in detail

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

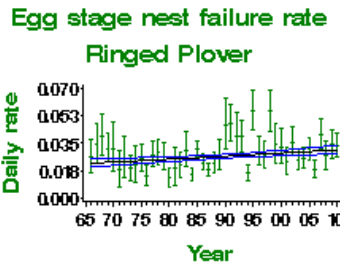
Demographic trends

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Clutch size	41	1968-2009	92	None					
Nest failure rate at egg stage	41	1968-2009	125	Linear increase	2.28% nests/day	3.07% nests/day	34.6%		
Laying date	41	1968-2009	39	None			0 days		

For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).



Mean number of eggs per nest - green bars represent standard error and black line shows long-term trend



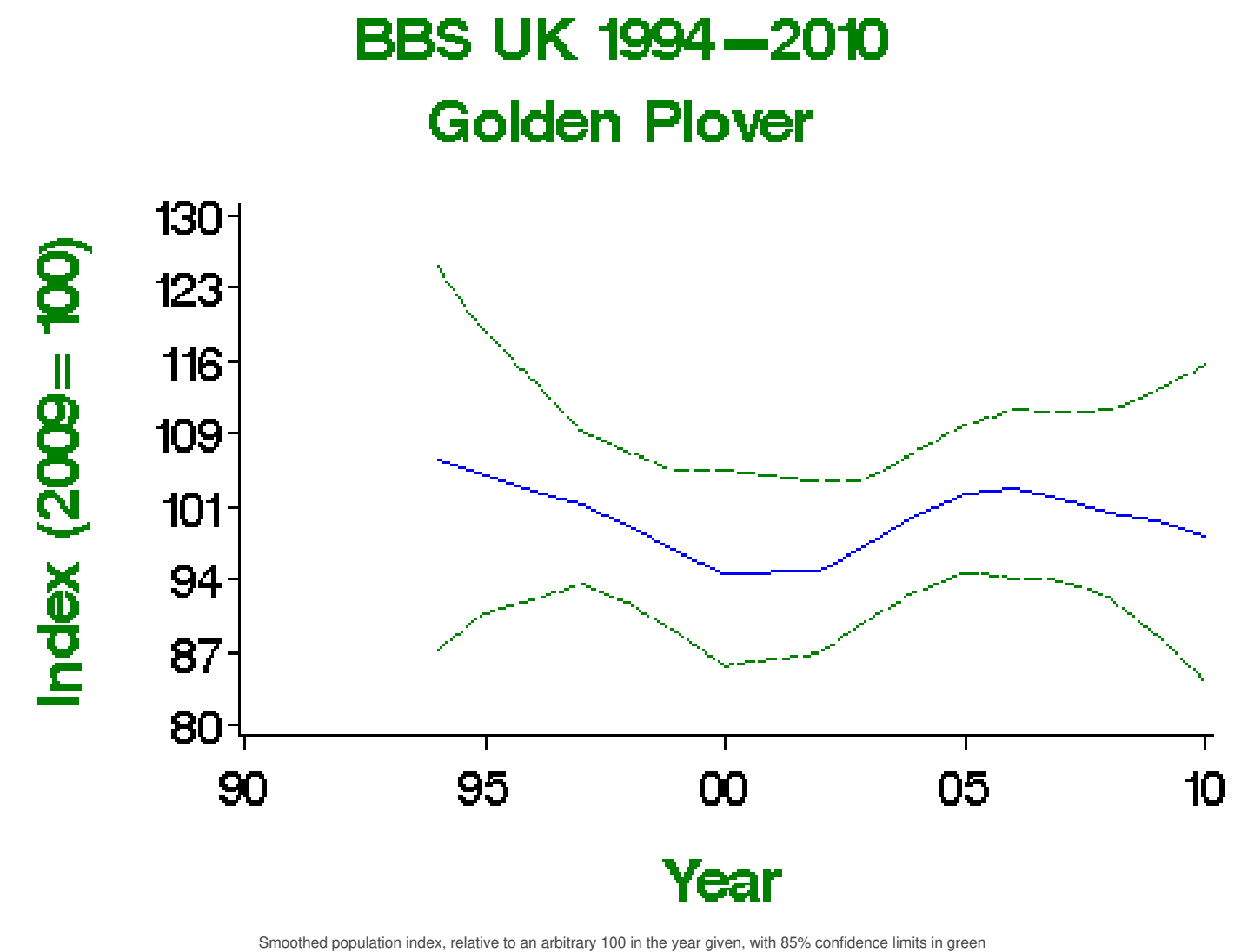
Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Key facts

Conservation listings:	Europe: no SPEC category (concentrated in Europe, conservation status favourable) (BiE04) UK: amber (BoCC3)
Long-term trend:	UK: probable decline
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 stability or minor decrease in the UK and Scotland, but this is believed to follow an earlier decline (Gibbons et al. 1993). A detailed survey has confirmed that a sharp decline has occurred 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). There has been widespread moderate decrease across Europe since 1981 (PECBMS 2011a). Winter numbers counted by WeBS, although mainly at coastal sites and omitting some big concentrations inland, increased strongly in Britain between the mid 1980s and 2006, since when there has been a sharp fall (Holt et al. 2011); 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.

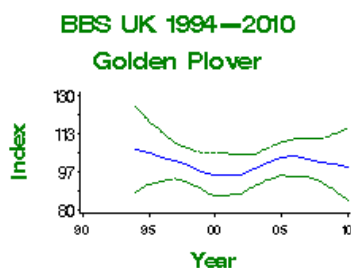


Population changes in detail

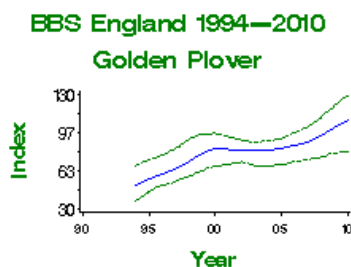
Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
BBS UK	14	1995-2009	62	-4	-24	25		
	10	1999-2009	61	3	-13	26		

Source	Period (yrs)	2004-2009 Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
BBS England	5	2004-2009	33	24	30	43		
BBS Scotland	14	1995-2009	40	-19	-40	0		
	10	1999-2009	35	-5	-28	13		
	5	2004-2009	37	-11	-29	5		

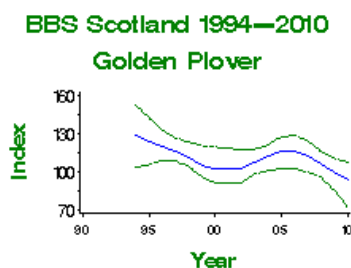
Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



BBS UK graph



BBS England graph

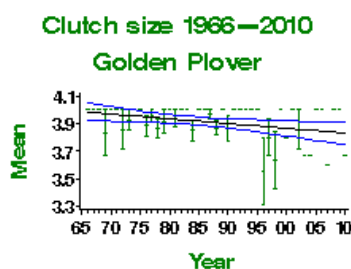


BBS Scotland graph

Demographic trends

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Clutch size	41	1968-2009	13	Linear decline	3.98 eggs	3.84 eggs	-3.6%		Small sample

For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).



Mean number of eggs per nest - green bars represent standard error and black line shows long-term trend

This report should be cited as: Baillie, S.R., Marchant, J.H., Leech, D.I., Renwick, A.R., Eglington, S.M., Joys, A.C., Noble, D.G., Barimore, C., Conway, G.J., Downie, I.S., Risely, K. & Robinson, R.A. (2012). BirdTrends 2011. BTO Research Report No. 609. BTO, Thetford. <https://www.bto.org/birdtrends>

Key facts

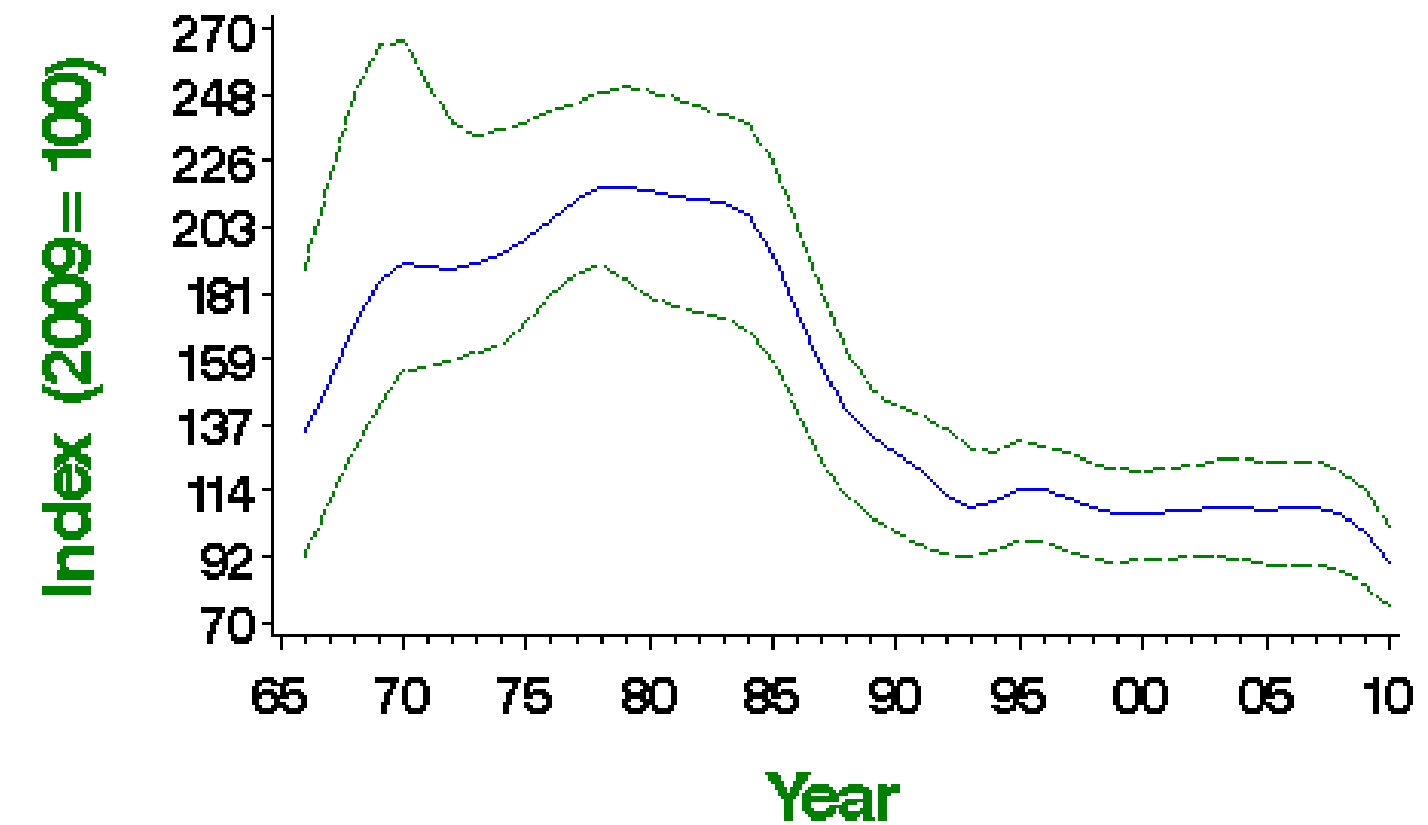
Conservation listings:	Europe: SPEC category 2 (vulnerable) (BiE04) UK: red (BoCC3) UK Biodiversity Action Plan: priority species
Long-term trend:	UK: shallow decline
Population size:	156,000 (137,000-174,000) pairs in 1985-99 (O'Brien 2005: BiE04, APEP06)
Migrant status:	Short-distance migrant
Nesting habitat:	Ground nester
Primary breeding habitat:	Wetland
Secondary breeding habitat:	Farmland
Breeding diet:	Animal
Winter diet:	Animal

Status summary

Although CBC recorded some increase in its early years, Lapwings have declined continuously on lowland farmland since the mid 1980s. 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 a steep decline in Scotland. Winter numbers counted by WeBS, mainly at coastal sites and omitting some big concentrations inland, increased in Britain during the 1980s and early 1990s, but are now decreasing steeply (Holt et al. 2011); 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, 2011a). The 2009 review moved this species from amber to the UK red list, for which it qualifies on the strength of its UK decline.

CBC/BBS UK 1966–2010

Lapwing



Smoothed population index, relative to an arbitrary 100 in the year given, with 85% confidence limits in green

Population changes in detail

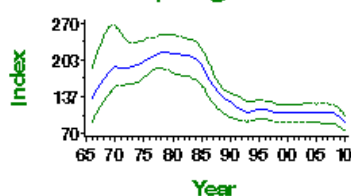
Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS UK	42	1967-2009	279	-34	-61	4		
	25	1984-2009	426	-52	-62	-35	>50	
	10	1999-2009	738	-6	-17	6		
	5	2004-2009	827	-8	-17	1		
CBC/BBS England	42	1967-2009	232	-18	-62	24		
	25	1984-2009	354	-46	-59	-30	>25	
	10	1999-2009	621	1	-7	10		
	5	2004-2009	704	-12	-17	-6		
WBS/WBBS waterways	29	1980-2009	67	-34	-65	19		
	25	1984-2009	73	-57	-71	-28	>50	
	10	1999-2009	113	-33	-45	-18	>25	
	5	2004-2009	116	-26	-33	-16	>25	
BBS UK	14	1995-2009	659	-20	-28	-10		
	10	1999-2009	707	-10	-19	1		
	5	2004-2009	784	-10	-15	-2		
BBS England	14	1995-2009	546	-3	-13	6		
	10	1999-2009	594	-1	-8	9		
	5	2004-2009	666	-12	-17	-6		
BBS Scotland	14	1995-2009	89	-37	-50	-21	>25	
	10	1999-2009	89	-20	-37	3		
	5	2004-2009	93	-5	-21	14		

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



CBC/BBS UK 1966—2010

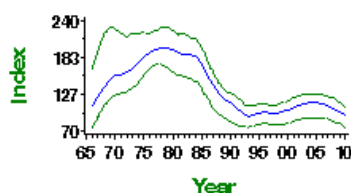
Lapwing



CBC/BBS UK graph

CBC/BBS England 1966—2010

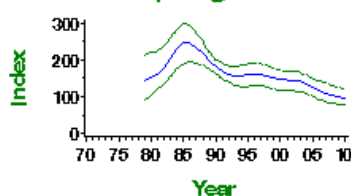
Lapwing

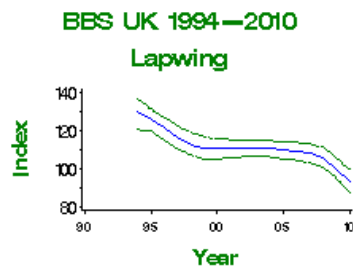


CBC/BBS England graph

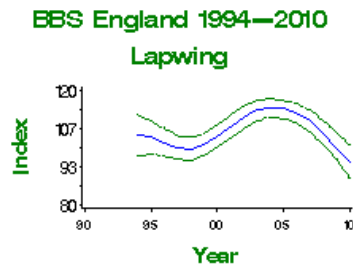
WBS/WBBS 1979—2010

Lapwing

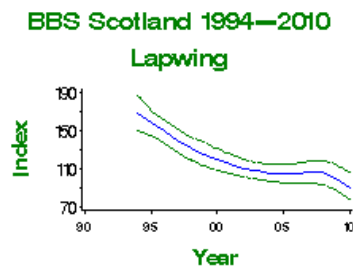




BBS UK graph



BBS England graph

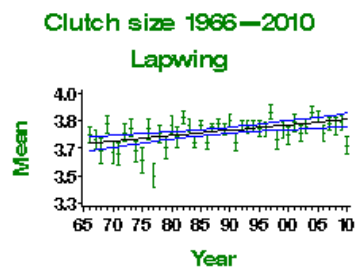


BBS Scotland graph

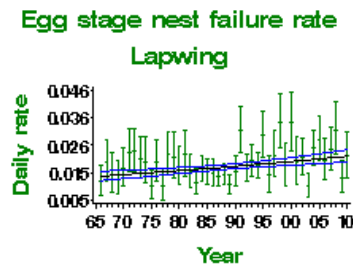
Demographic trends

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Clutch size	41	1968-2009	127	Linear increase	3.69 eggs	3.83 eggs	3.8%		
Nest failure rate at egg stage	41	1968-2009	133	Linear increase	1.43% nests/day	2.13% nests/day	49.0%		
Laying date	41	1968-2009	29	None			0 days		Small sample

For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).



Mean number of eggs per nest - green bars represent standard error and black line shows long-term trend



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Causes of change

There is good evidence that declines have resulted from habitat loss and degradation due to changes in agricultural practice, in particular change from spring to autumn sowing, drainage of grasslands and loss of mixed farmland, which have led to breeding productivity dropping below a sustainable level. Chick mortality is thought to be the main determinant of poor Lapwing productivity, and therefore of population decline.

Change factor	Primary driver	Secondary driver
Demographic	Decreased breeding success	
Ecological	Agricultural intensification	

Further information on causes of change

Although there has been a slight increase in clutch size for this species, daily failure rates at the egg stage have increased dramatically (see above). Adult and first-year survival rates show no trend through time (Peach et al. 1994, Catchpole et al. 1999) and are unlikely to be the main driver of population declines (Sharpe et al. 2008). Chick mortality is thought to be the main determinant of poor Lapwing productivity and therefore of population decline (Sharpe et al. 2008), although evidence to support this is largely circumstantial and further empirical research is needed.

There is a good deal of research supporting the hypothesis that habitat loss and degradation due to the intensification of farming are likely to have been the main driver in the decline of this species, by reducing breeding productivity (e.g. Galbraith 1988, Shrubb 1990, Hotker 1991, Hudson et al. 1994, Siriwardena et al. 2000, Taylor & Grant 2004, Wilson et al. 2005, Milsom 2005, Fuller & Ausden 2008). These changes include extensive drainage, increased use of pesticides and fertilisers, re-seeding, earlier and more frequent mowing, increased grazing pressure and loss of spring cereals. Increases in intensity of grazing have reduced the habitat quality for Lapwing (Shrubb 1990, Fuller & Ausden 2008), whilst fertilisation has led to earlier spring grass growth, earlier cutting dates and higher stocking levels, which have increased egg and chick mortality and reduced relaying opportunities (Durant et al. 2008). Drainage and loss of wet features on grassland have also had a negative impact, reducing food supplies (Taylor & Grant 2004, Eglington et al. 2010).

Loss of mixed farming systems and extensive grazing have reduced the availability of high-quality foraging habitat close to nesting habitat, i.e. unimproved pasture and meadows, to birds breeding in arable areas, resulting in reduced breeding success (Galbraith 1988, Hudson et al. 1994, Henderson et al. 2004).

In the uplands, afforestation has also resulted in habitat loss (Fuller & Ausden 2008). On arable land, spring-sown cereals were once favoured nesting crops but these have been widely replaced by autumn-sown cereals, which are less suitable breeding habitats (Shrubb 1990, Shrubb et al. 1991, Mason & Macdonald 1999, Fuller & Ausden 2008).

Lapwing population declines may be explained partly by increased nest predation rates resulting from habitat changes due to agricultural intensification (Baines 1990, Liker & Szekely 1997, Jackson & Green 2000, Chamberlain & Crick 2003, Evans 2004, Jackson et al. 2004, Milsom 2005, Bolton et al. 2007, Teunissen et al. 2008, MacDonald & Bolton 2008, Bellebaum & Bock 2009). Long-term nest record card analysis has shown that the proportion of nests lost to predators was substantially higher in the 1990s than in previous decades (Sharpe et al. 2008). Recent empirical evidence suggests that levels of predation on wader nests are unsustainably high in many cases, even in some situations where breeding habitat is otherwise favourable (MacDonald & Bolton 2008).

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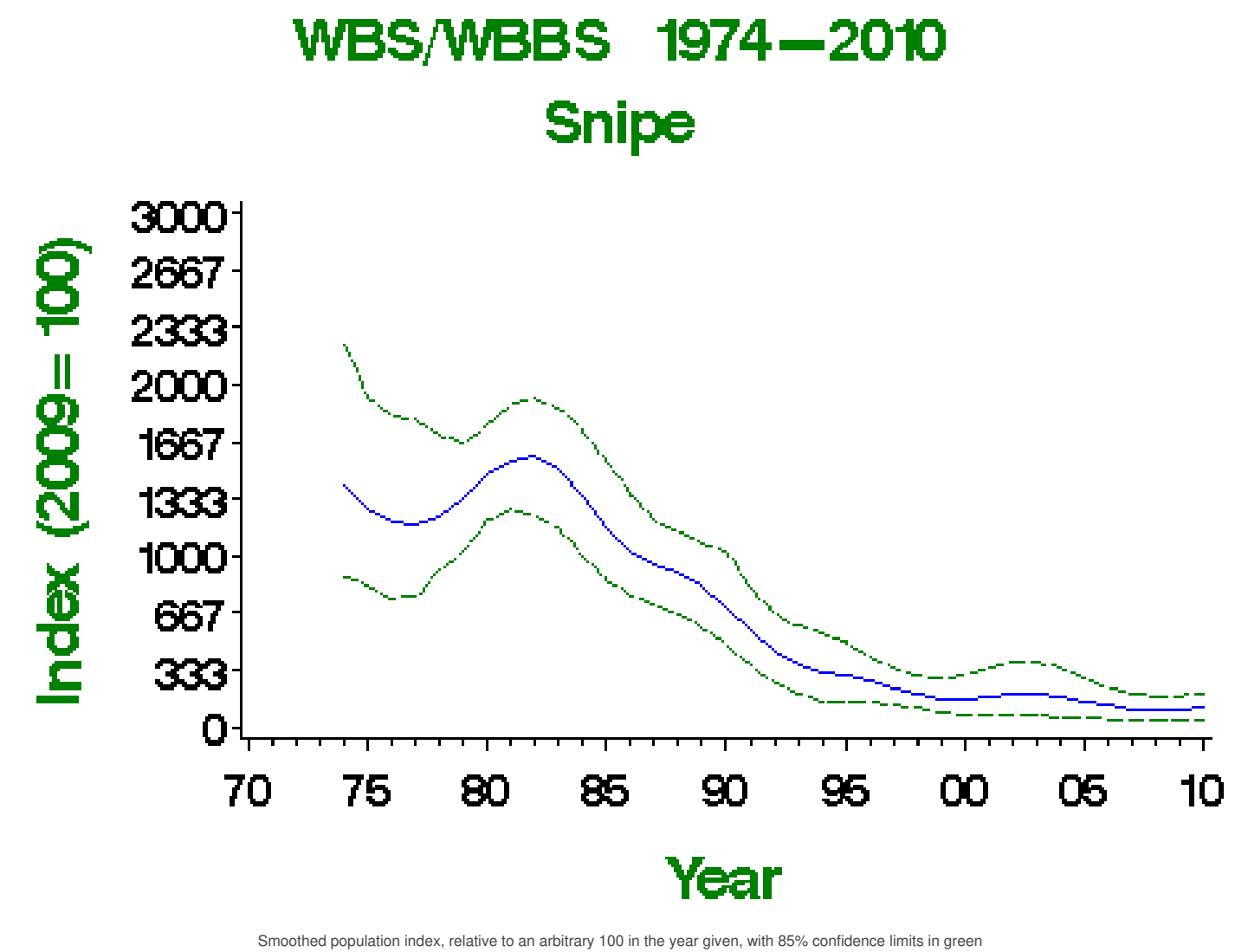
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Key facts

Conservation listings:	Europe: SPEC category 3 (declining) (BiE04) UK: amber (European status) (BoCC3)
Long-term trend:	UK waterways: rapid decline
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 moderate decline across Europe since 1980 (PECBMS 2011a), this previously 'secure' species is now provisionally evaluated as 'declining' (BirdLife International 2004). In Scotland at least, agri-environment schemes can benefit this species (O'Brien & Wilson 2011).



Population changes in detail

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
WBS/WBBS waterways	34	1975-2009	13	-92	-98	-81	>50	Small sample

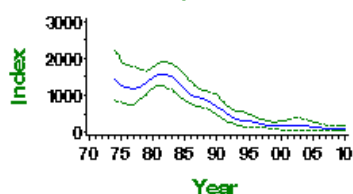
Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Small sample
	25	1984-2009	14	-33	-58	-8		
	10	1999-2009	23	-40	-67	-12	>25	
	5	2004-2009	24	-46	-65	-18	>25	
BBS UK	14	1995-2009	158	50	7	97		
	10	1999-2009	172	27	-11	62		
	5	2004-2009	203	0	-22	23		
BBS England	14	1995-2009	82	2	-31	32		
	10	1999-2009	94	-3	-37	8		
	5	2004-2009	117	-16	-23	5		
BBS Scotland	14	1995-2009	56	57	14	127		
	10	1999-2009	55	27	-8	71		
	5	2004-2009	61	3	-19	32		

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



WBS/WBBS 1974—2010

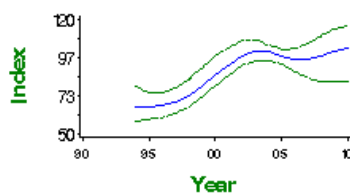
Snipe



WBS/WBBS waterways graph

BBS UK 1994—2010

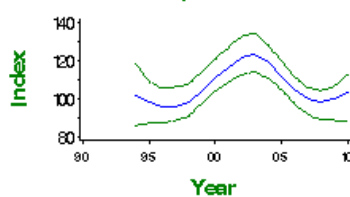
Snipe



BBS UK graph

BBS England 1994—2010

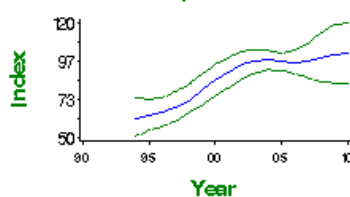
Snipe



BBS England graph

BBS Scotland 1994—2010

Snipe

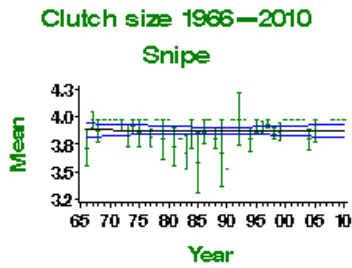


BBS Scotland graph

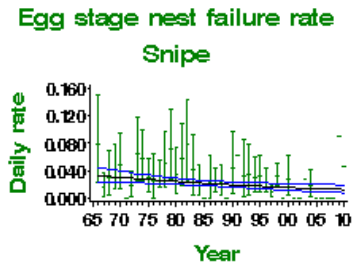
Demographic trends

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Clutch size	41	1968-2009	13	None					Small sample
Nest failure rate at egg stage	41	1968-2009	14	Linear decline	3.20% nests/day	1.32% nests/day	-58.8%		Small sample

For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).



Mean number of eggs per nest - green bars represent standard error and black line shows long-term trend



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

This report should be cited as: Baillie, S.R., Marchant, J.H., Leech, D.I., Renwick, A.R., Eglinton, S.M., Joys, A.C., Noble, D.G., Barimore, C., Conway, G.J., Downie, I.S., Risely, K. & Robinson, R.A. (2012). BirdTrends 2011. BTO Research Report No. 609. BTO, Thetford. <https://www.bto.org/birdtrends>

Woodcock

Scolopax rusticola

Key facts

Conservation listings:	Europe: SPEC category 3 (declining) (BiE04) UK: amber (European status) (BoCC3)
Long-term trend:	UK: probable rapid decline
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 <i>et al.</i> 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, BoCC3), which now rests on the breeding declines recorded across Europe, especially European Russia (BiE04). Annual [humbers 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.



Smoothed population index, relative to an arbitrary 100 in 1999, with 85% confidence limits in green

Population changes in detail

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

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



CBC all habitats graph

Demographic trends

Productivity and survival trends for this species are not currently produced by BTO

This report should be cited as: Baillie, S.R., Marchant, J.H., Leech, D.I., Renwick, A.R., Eglington, S.M., Joys, A.C., Noble, D.G., Barimore, C., Conway, G.J., Downie, I.S., Risely, K. & Robinson, R.A. (2012). BirdTrends 2011. BTO Research Report No. 609. BTO, Thetford. <https://www.bto.org/birdtrends>

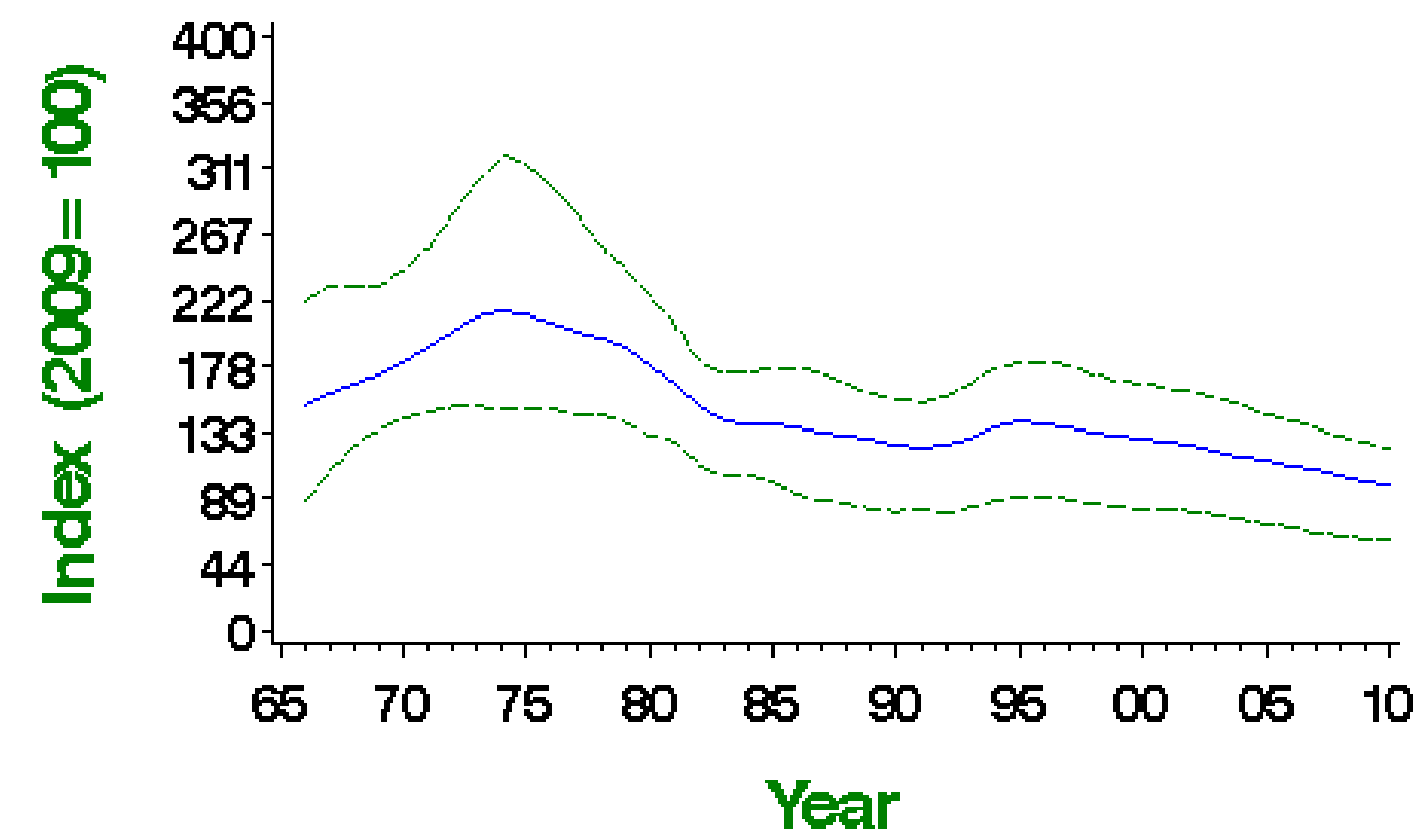
Key facts

Conservation listings:	Europe: SPEC category 2 (declining) (BiE04) UK: amber (>20% of European breeding and winter populations) (BoCC3) UK Biodiversity Action Plan: priority species
Long-term trend:	England: moderate decline
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 (Holt et al. 2011).

CBC/BBS England 1966–2010
Curlew



Smoothed population index, relative to an arbitrary 100 in the year given, with 85% confidence limits in green

Population changes in detail

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS England	42	1967-2009	123	-38	-81	16		Small CBC sample
	25	1984-2009	196	-28	-61	18		Small CBC sample
	10	1999-2009	348	-24	-31	-17		

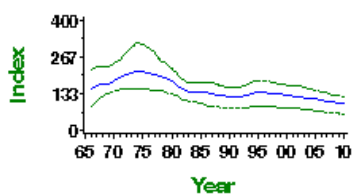
Source	Period (yrs)	Years	Plots	Change (%)	Lower limit	Upper limit	Alert	Comment
WBS/WBBS waterways	25	1984-2009	48	-24	-49	16		
	10	1999-2009	77	-43	-54	-31	>25	
	5	2004-2009	82	-19	-29	-7		
BBS UK	14	1995-2009	504	-41	-46	-35	>25	
	10	1999-2009	532	-32	-38	-26	>25	
	5	2004-2009	582	-15	-22	-7		
BBS England	14	1995-2009	317	-30	10	46		
	10	1999-2009	346	-23	7	31		
	5	2004-2009	398	-15	7	21		
BBS Scotland	14	1995-2009	121	-53	-60	-43	>50	
	10	1999-2009	117	-42	-51	-31	>25	
	5	2004-2009	118	-16	-30	-1		
BBS Wales	14	1995-2009	37	-49	-61	-35	>25	
	10	1999-2009	38	-41	-51	-26	>25	
	5	2004-2009	35	-12	-26	6		

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



CBC/BBS England 1966—2010

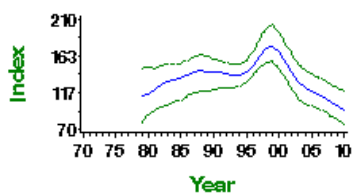
Curlew



CBC/BBS England graph

WBS/WBBS 1979—2010

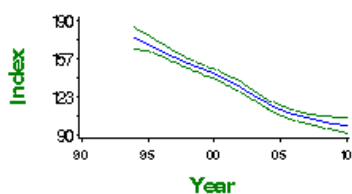
Curlew



WBS/WBBS waterways graph

BBS UK 1994—2010

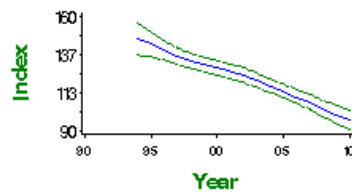
Curlew



BBS UK graph

BBS England 1994—2010

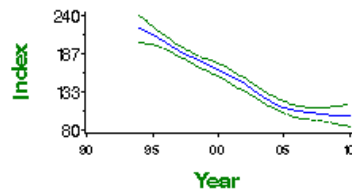
Curlew



BBS England graph

BBS Scotland 1994—2010

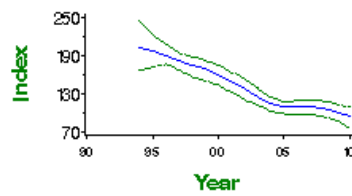
Curlew



BBS Scotland graph

BBS Wales 1994—2010

Curlew



BBS Wales graph

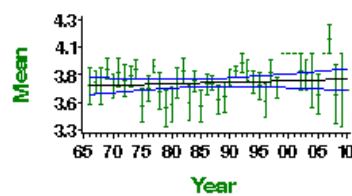
Demographic trends

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Clutch size	41	1968-2009	20	None					Small sample
Nest failure rate at egg stage	41	1968-2009	22	None					Small sample

For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).

Clutch size 1966—2010

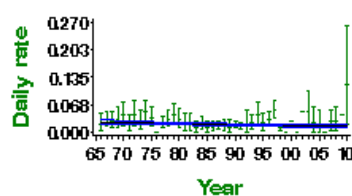
Curlew



Mean number of eggs per nest - green bars represent standard error and black line shows long-term trend

Egg stage nest failure rate

Curlew



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

This report should be cited as: Baillie, S.R., Marchant, J.H., Leech, D.I., Renwick, A.R., Eglinton, S.M., Joys, A.C., Noble, D.G., Barimore, C., Conway, G.J., Downie, I.S., Risely, K. & Robinson, R.A. (2012). BirdTrends 2011. BTO Research Report No. 609. BTO, Thetford. <https://www.bto.org/birdtrends>

Common Sandpiper

Actitis hypoleucos

Key facts

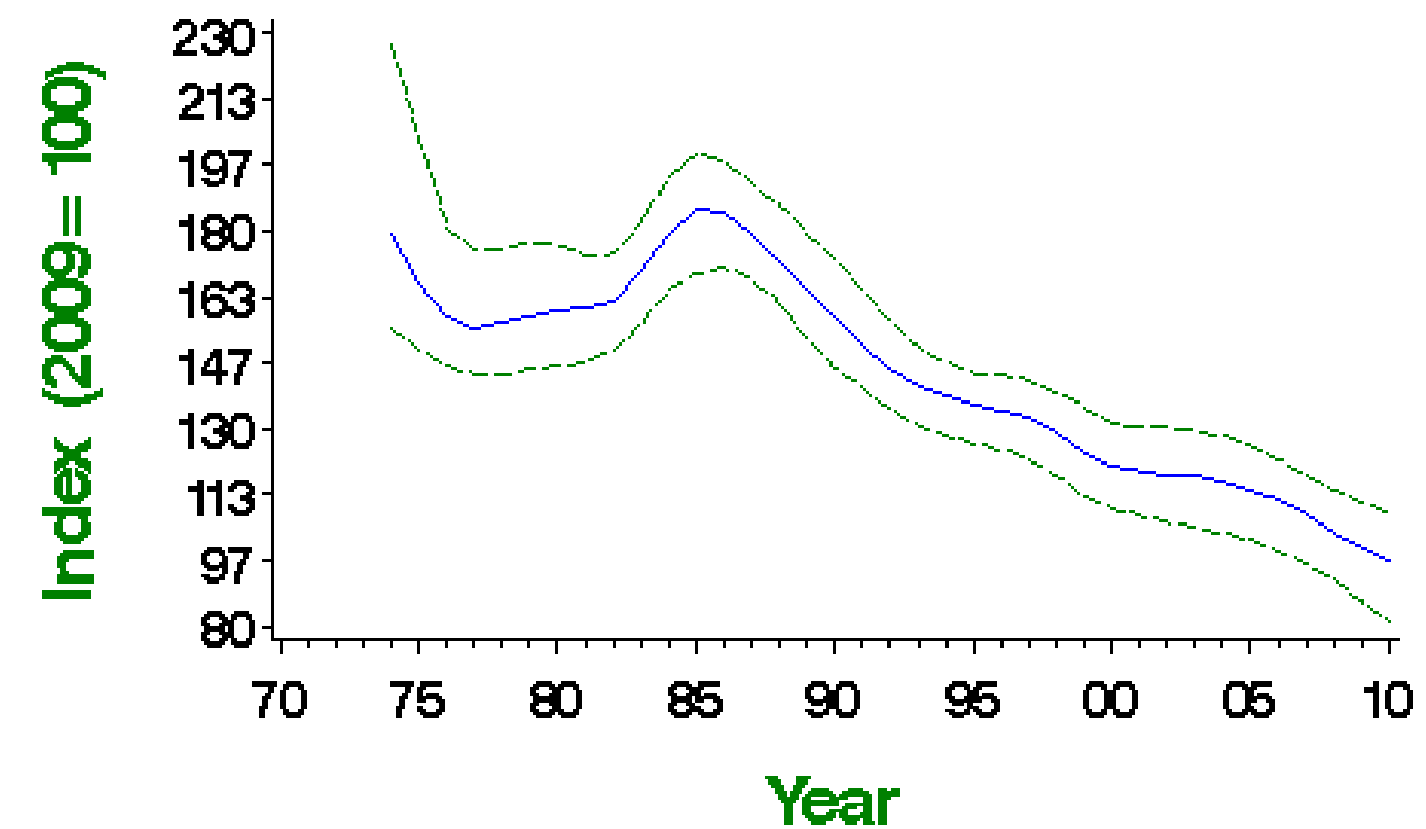
Conservation listings:	Europe: SPEC category 3 (declining) (BiE04) UK: amber (25-50% population decline) (BoCC3)
Long-term trend:	UK waterways: moderate decline
Population size:	12,000 pairs in 2000 (1988-91 Atlas estimate updated using WBS trend: BiE04, APEP06); about 24,000 pairs in Britain (Dougall <i>et al.</i> 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). The reasons for poor recruitment to the breeding population are hard to assess in the absence of firm information on where British birds spend the winter (Dougall *et al.* 2010). 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 now become evident (PECBMS 2011a).The species has recently been moved to the amber list on the strength of its declines in UK and across Europe.

WBS/WBBS 1974–2010

Common Sandpiper



Smoothed population index, relative to an arbitrary 100 in the year given, with 85% confidence limits in green

Population changes in detail

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
WBS/WBBS waterways	34	1975-2009	46	-40	-56	-27	>25	
	25	1984-2009	54	-44	-55	-32	>25	
	10	1999-2009	84	-19	-31	-8		

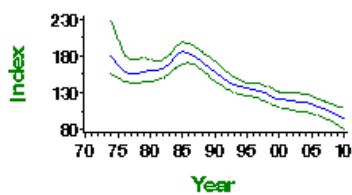
Source BBS UK	5 Period (yrs)	2004-2009 Years 1995-2009	88 Plots (#)	-14 Change (%)	-23 Lower limit	-4 Upper limit	Alert	Comment
	10	1999-2009	65	0	-25	20		
	5	2004-2009	71	11	-16	34		
BBS England	10	1999-2009	30	-22	-3	27		
	5	2004-2009	34	-7	-19	2		
BBS Scotland	14	1995-2009	31	-5	-31	16		

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



WBS/WBBS 1974—2010

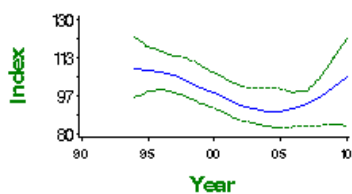
Common Sandpiper



WBS/WBBS waterways graph

BBS UK 1994—2010

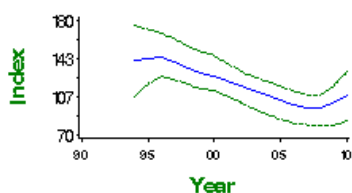
Common Sandpiper



BBS UK graph

BBS England 1994—2010

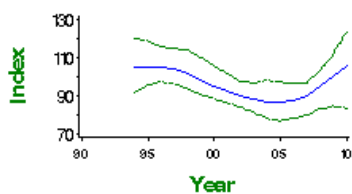
Common Sandpiper



BBS England graph

BBS Scotland 1994—2010

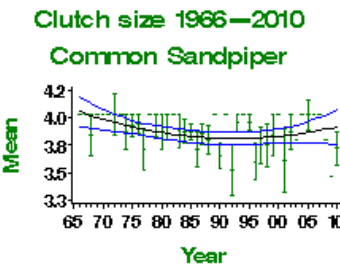
Common Sandpiper



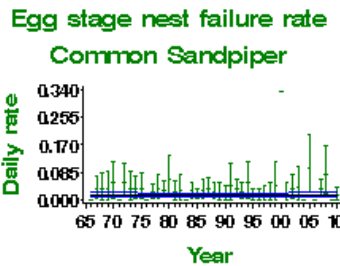
BBS Scotland graph

Demographic trends

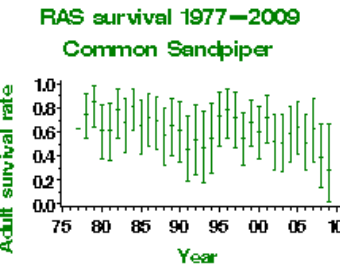
Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Clutch size	41	1968-2009	12	Curvilinear	3.99 eggs	3.89 eggs	-2.5%		Small sample
Nest failure rate at egg stage	41	1968-2009	13	None					Small sample



Mean number of eggs per nest - green bars represent standard error and black line shows long-term trend



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend



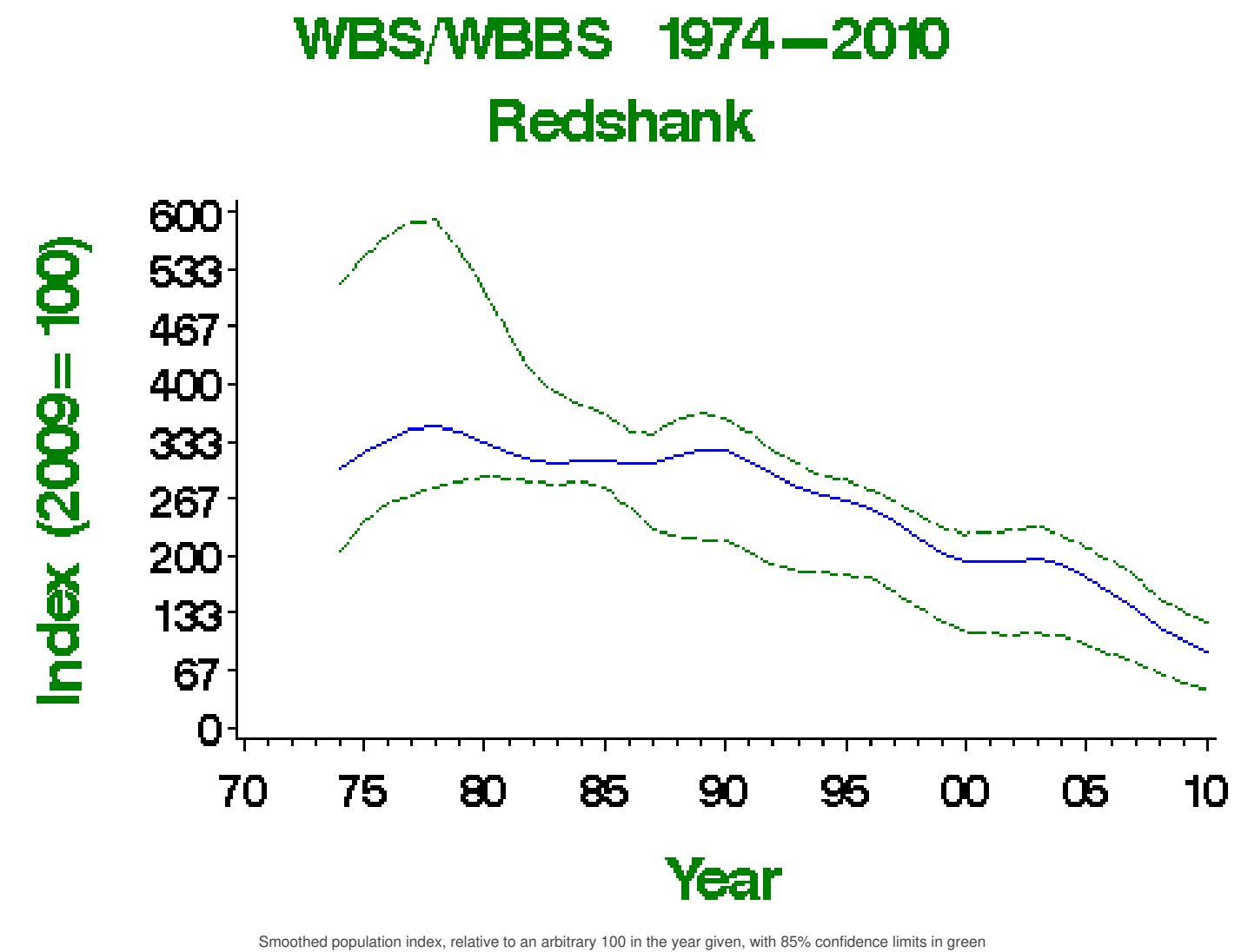
Proportion of adult birds surviving to following year - error bars represent 95% confidence limits

Key facts

Conservation listings:	Europe: SPEC category 2 (declining) (BiE04) UK: amber (>50% population decline but data possibly unrepresentative, >20% of East Atlantic Flyway population in winter) (BoCC3)
Long-term trend:	UK: decline UK waterways: rapid decline
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) have shown some increase since the 1970s but have been in decline since about 2001 (Holt et al. 2011). 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 2011a). In Scotland at least, agri-environment schemes can benefit this species (O'Brien & Wilson 2011).



Population changes in detail

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
WBS/WBBS waterways	34	1975-2009	24	-69	-90	-41	>50	
	25	1984-2009	26	-68	-86	-52	>50	

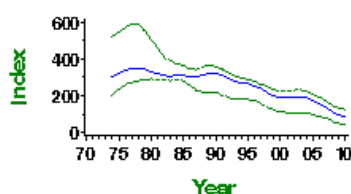
Source	Period (yrs)	1999-2009 Years	Prots (n)	Change (%)	Lower limit	Upper limit	>50 Alert	Comment
	5	2004-2009	33	-47	-62	36	>25	
BBS UK	14	1995-2009	85	-35	-48	-14	>25	
	10	1999-2009	92	-24	-39	-9		
	5	2004-2009	104	-22	-34	-8		
BBS England	14	1995-2009	59	-24	337	3434		
	10	1999-2009	66	-33	134	899		
	5	2004-2009	75	-24	28	138		

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



WBS/WBBS 1974—2010

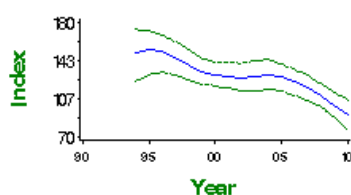
Redshank



WBS/WBBS waterways graph

BBS UK 1994—2010

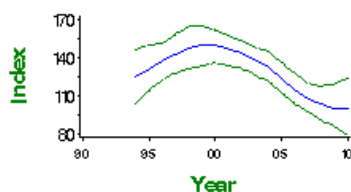
Redshank



BBS UK graph

BBS England 1994—2010

Redshank



BBS England graph

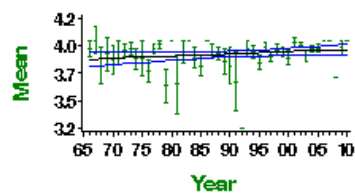
Demographic trends

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Clutch size	41	1968-2009	30	None					Small sample
Nest failure rate at egg stage	41	1968-2009	31	Linear decline	3.98% nests/day	1.40% nests/day	-64.8%		

For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).

Clutch size 1966—2010

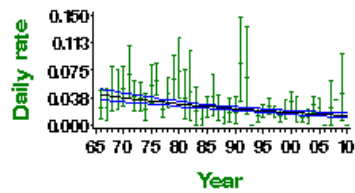
Redshank



Mean number of eggs per nest - green bars represent standard error and black line shows long-term trend

Egg stage nest failure rate

Redshank



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

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Key facts

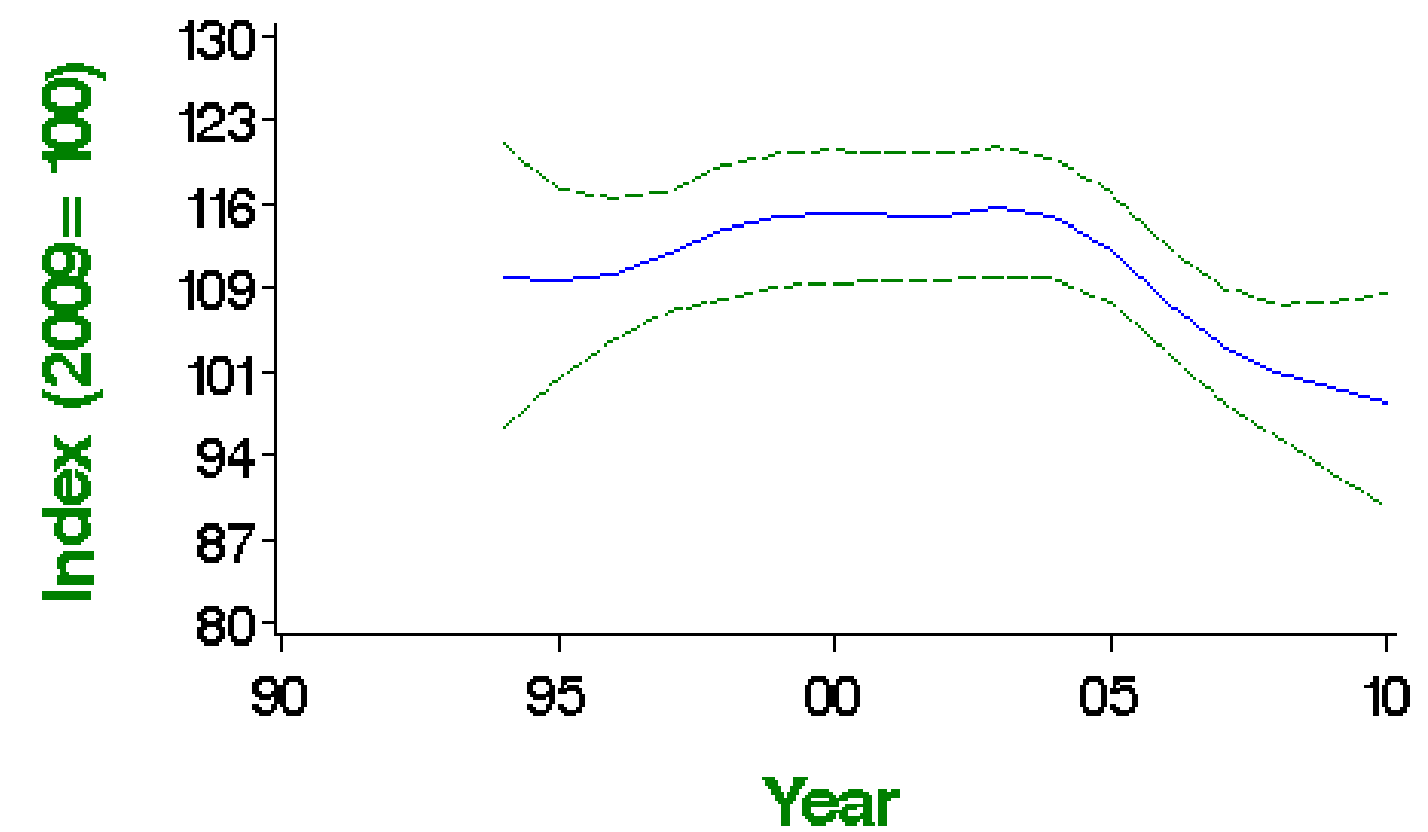
Conservation listings:	Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe) (BiE04) UK: green (Rock Dove C. l. livia) (BoCC3)
Long-term trend:	UK: possible increase
Population size:	>100,000 pairs in 1968-72 (1968-72 Atlas: APEP06); 100,000-250,000 pairs in 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.

BBS UK 1994–2010

Feral Pigeon/Rock Dove



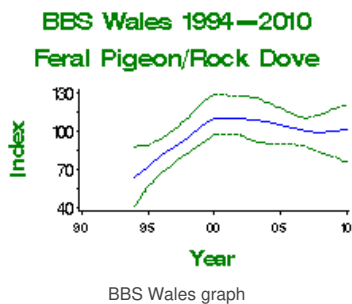
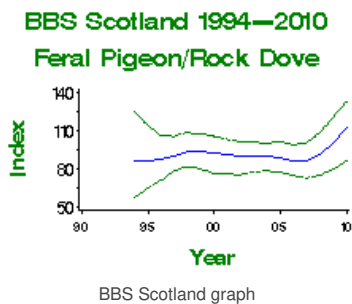
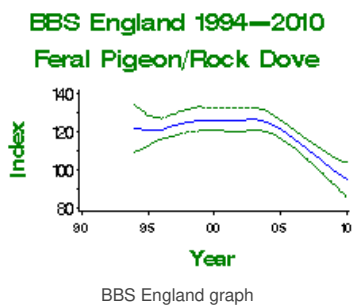
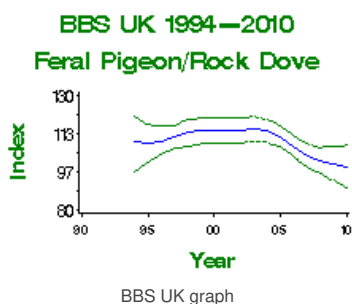
Smoothed population index, relative to an arbitrary 100 in the year given, with 85% confidence limits in green

Population changes in detail

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
BBS UK	14	1995-2009	664	-8	-21	5		
	10	1999-2009	713	-13	-23	-2		

Source	5 Period (Yrs)	2004-2009 Years	786 Plots	-13 Change (%)	-21 Lower limit	-2 Upper limit	Alert	Comment
BBS England		1995-2009	553	(%)	20	10		
	10	1999-2009	591	-20	-30	-12		
	5	2004-2009	648	-20	-28	-12		
BBS Scotland	14	1995-2009	59	16	-28	97		
	10	1999-2009	62	7	-27	50		
	5	2004-2009	70	11	-13	43		
BBS Wales	14	1995-2009	33	38	-5	94		
	10	1999-2009	38	-3	-32	27		
	5	2004-2009	40	-6	-36	26		

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



Demographic trends

Productivity and survival trends for this species are not currently produced by BTO

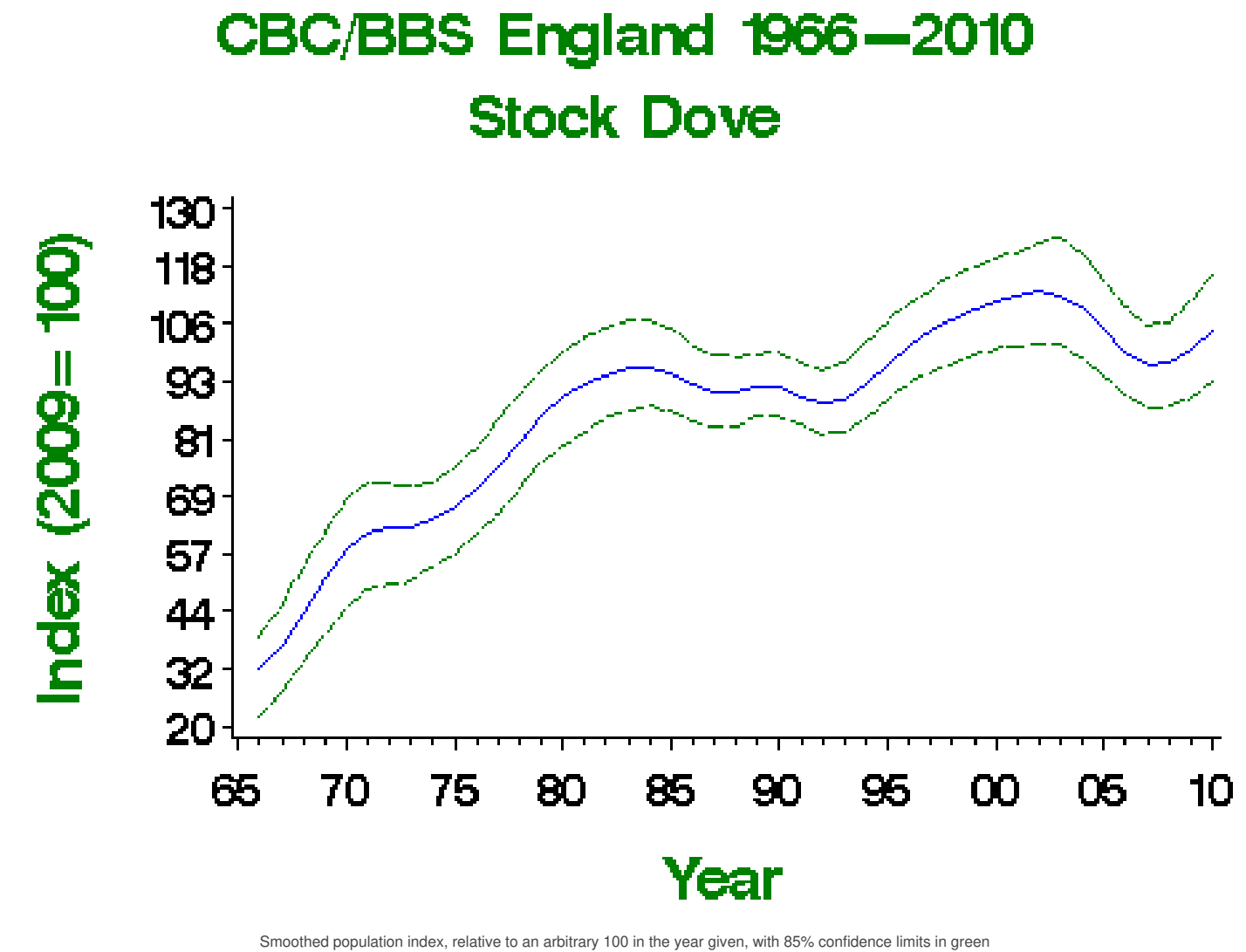
This report should be cited as: Baillie, S.R., Marchant, J.H., Leech, D.I., Renwick, A.R., Eglinton, S.M., Joys, A.C., Noble, D.G., Barimore, C., Conway, G.J., Downie, I.S., Risely, K. & Robinson, R.A. (2012). BirdTrends 2011. BTO Research Report No. 609. BTO, Thetford. <https://www.bto.org/birdtrends>

Key facts

Conservation listings:	Europe: no SPEC category (concentrated in Europe, conservation status favourable) (BiE04) UK: amber (>20% of European breeding population) (BoCC3)
Long-term trend:	England: rapid increase
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.



Population changes in detail

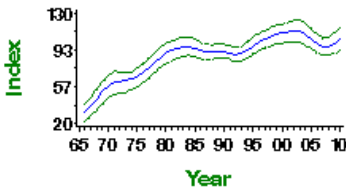
Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS England	42	1967-2009	294	166	99	302		
	25	1984-2009	449	4	-16	24		
	10	1999-2009	759	-8	-17	1		
	5	2004-2009	820	-8	-15	-1		

BBS UK Source	14 Period (yrs)	1995-2009 Years	735 Plots	4 Change (%)	-5 Lower Limit	15 Upper Limit	Alert	Comment
	5	2004-2009	875	-4	-11	2		
BBS England	14	1995-2009	677	1	-11	13		
	10	1999-2009	737	-7	-16	2		
	5	2004-2009	804	-7	-14	-1		

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.

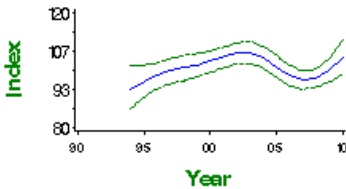


CBC/BBS England 1966–2010
Stock Dove



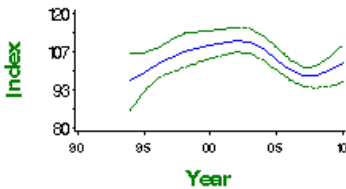
CBC/BBS England graph

BBS UK 1994–2010
Stock Dove



BBS UK graph

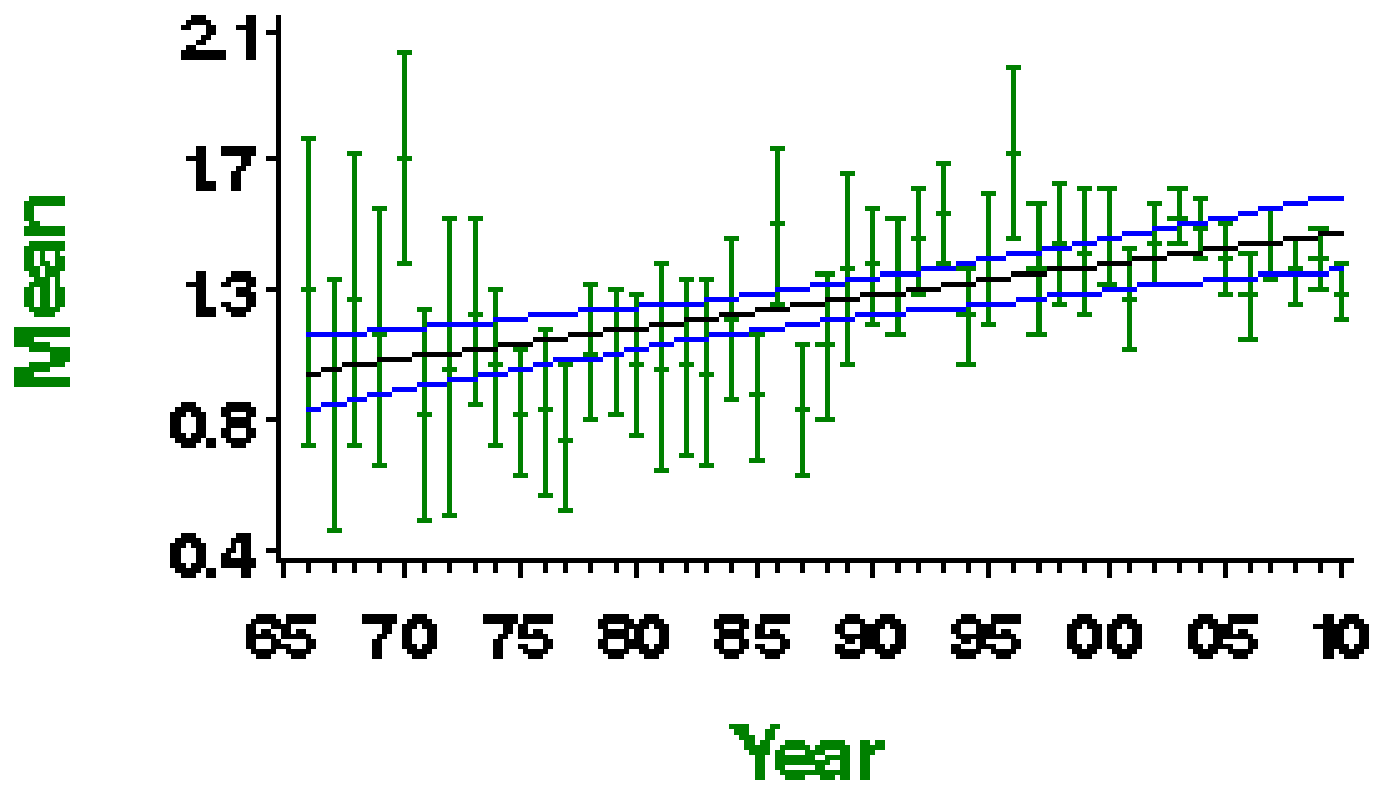
BBS England 1994–2010
Stock Dove



BBS England graph

Demographic trends

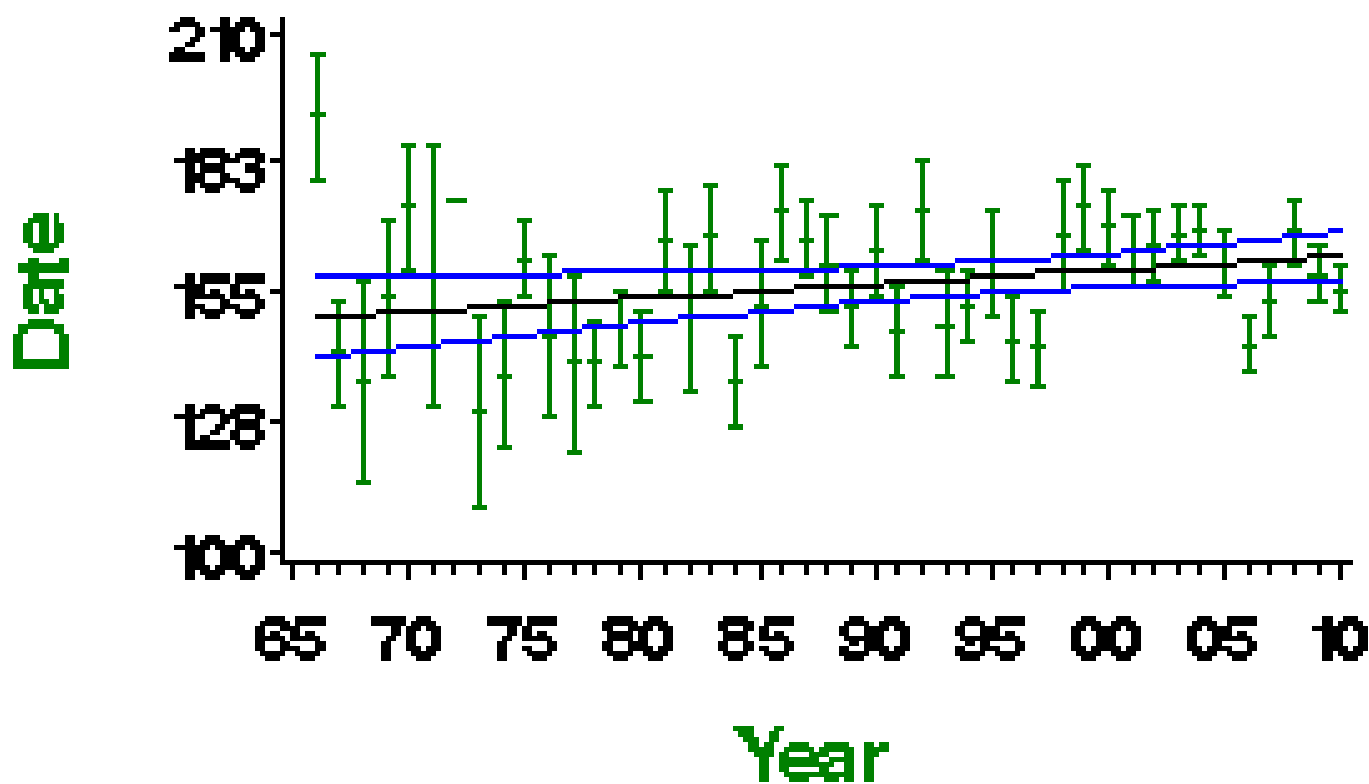
Fledglings per breeding attempt 1966 – 2010 Stock Dove



Mean number of fledglings produced per nest - green bars represent standard error and black line shows long-term trend

Laying date 1966—2010

Stock Dove



Mean laying date in Julian days (1st April = Day 90) - green bars represent standard error and black line shows long-term trend

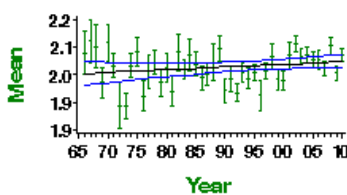
More on demographic trends

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Fledglings per breeding attempt	41	1968-2009	66	Linear increase	1.00 fledglings	1.43 fledglings	42.5%		
Clutch size	41	1968-2009	109	None					
Brood size	41	1968-2009	161	Curvilinear	1.82 chicks	1.83 chicks	0.6%		
Nest failure rate at egg stage	41	1968-2009	103	Linear decline	1.63% nests/day	0.52% nests/day	-68.1%		
Nest failure rate at chick stage	41	1968-2009	68	Linear decline	1.20% nests/day	0.65% nests/day	-45.8%		
Laying date	41	1968-2009	23	Linear increase	May 30	Jun 11	12 days		Small sample

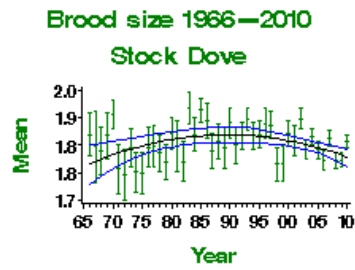
For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).

Clutch size 1966—2010

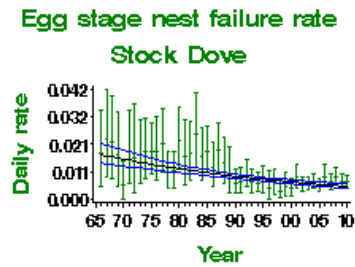
Stock Dove



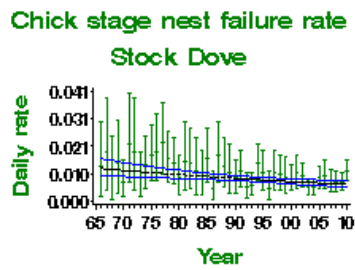
Mean number of eggs per nest - green bars represent standard error and black line shows long-term trend



Mean number of chicks per nest - green bars represent standard error and black line shows long-term trend



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

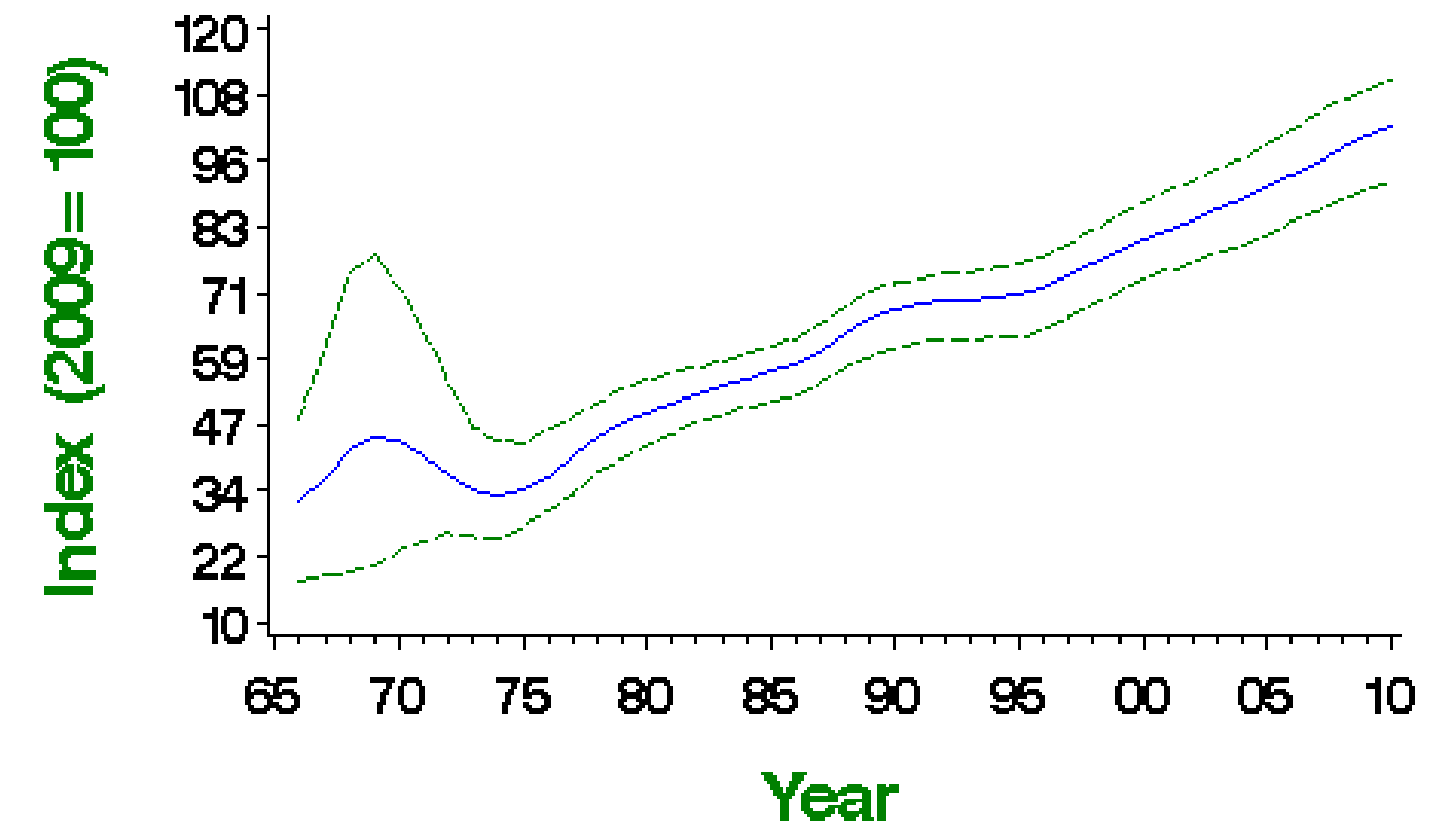
Key facts

Conservation listings:	Europe: no SPEC category (concentrated in Europe, conservation status favourable) (BiE04) UK: green (BoCC3)
Long-term trend:	UK, England: rapid increase
Population size:	2,570,000-3,160,000 territories in 2000 (1988-91 Atlas estimate updated using CBC/BBS trend: BiE04, APEP06)
Migrant status:	Resident
Nesting habitat:	Above-ground nester
Primary breeding habitat:	Farmland
Secondary breeding habitat:	
Breeding diet:	Vegetation
Winter diet:	Vegetation

Status summary

The CBC/BBS trend for this species is of a steady, steep increase since at least the mid 1970s. Since 1994, BBS has recorded significant increase in the UK, and in England, Wales and Northern Ireland separately, but stability in Scotland. Numbers have shown widespread moderate increase across Europe since 1980 (PECBMS 2011a).

CBC/BBS UK 1966–2010
Woodpigeon



Smoothed population index, relative to an arbitrary 100 in the year given, with 85% confidence limits in green

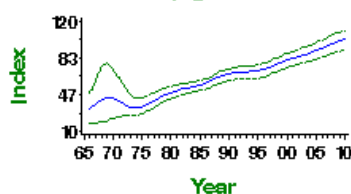
Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS UK	42	1967-2009	907	170	36	592		
	25	1984-2009	1486	81	57	110		
	10	1999-2009	2646	27	22	32		
	5	2004-2009	2960	13	9	17		
CBC/BBS England	42	1967-2009	728	191	62	589		
	25	1984-2009	1192	95	66	125		
	10	1999-2009	2108	30	25	35		
	5	2004-2009	2365	15	11	18		
BBS UK	14	1995-2009	2358	38	31	43		
	10	1999-2009	2574	25	21	30		
	5	2004-2009	2886	12	9	15		
BBS England	14	1995-2009	1889	45	36	51		
	10	1999-2009	2058	30	26	35		
	5	2004-2009	2321	14	10	17		
BBS Scotland	14	1995-2009	190	0	-16	19		
	10	1999-2009	200	1	-14	14		
	5	2004-2009	225	2	-11	13		
BBS Wales	14	1995-2009	185	39	19	68		
	10	1999-2009	208	29	10	59		
	5	2004-2009	222	16	1	42		
BBS N.Ireland	14	1995-2009	81	77	38	120		
	10	1999-2009	93	24	9	40		
	5	2004-2009	101	7	-3	17		

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



CBC/BBS UK 1966–2010

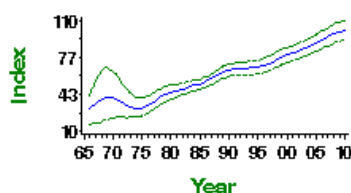
Woodpigeon



CBC/BBS UK graph

CBC/BBS England 1966–2010

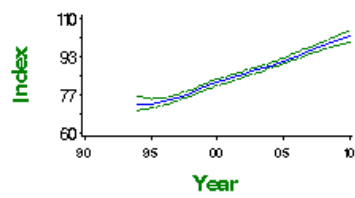
Woodpigeon



CBC/BBS England graph

BBS UK 1994—2010

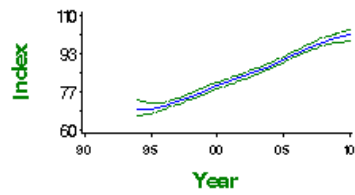
Woodpigeon



BBS UK graph

BBS England 1994—2010

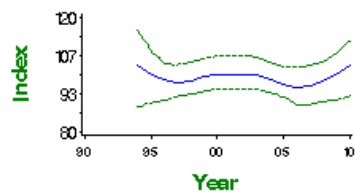
Woodpigeon



BBS England graph

BBS Scotland 1994—2010

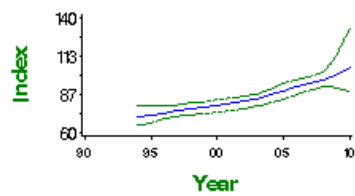
Woodpigeon



BBS Scotland graph

BBS Wales 1994—2010

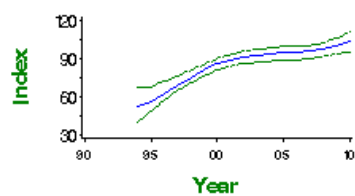
Woodpigeon



BBS Wales graph

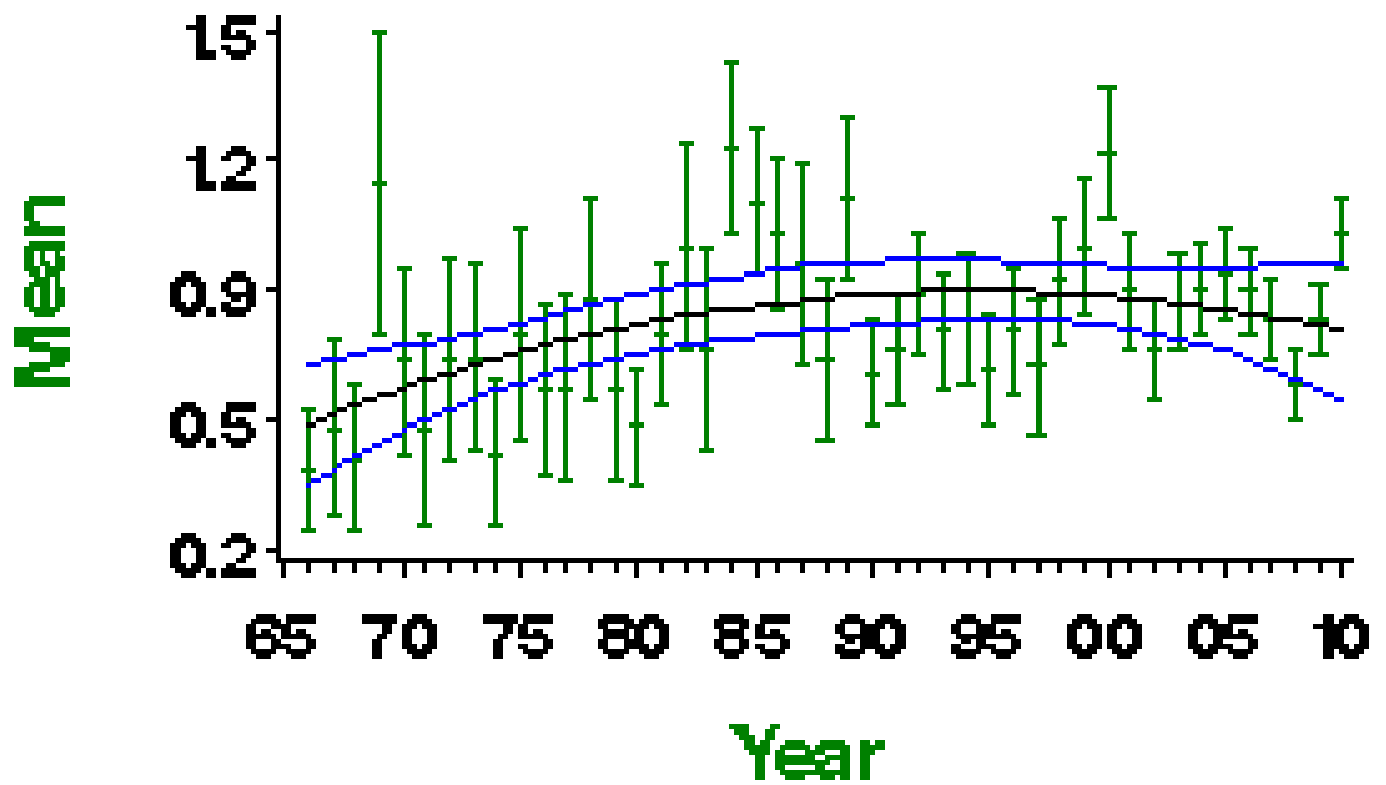
BBS N. Ireland 1994—2010

Woodpigeon



BBS N.Ireland graph

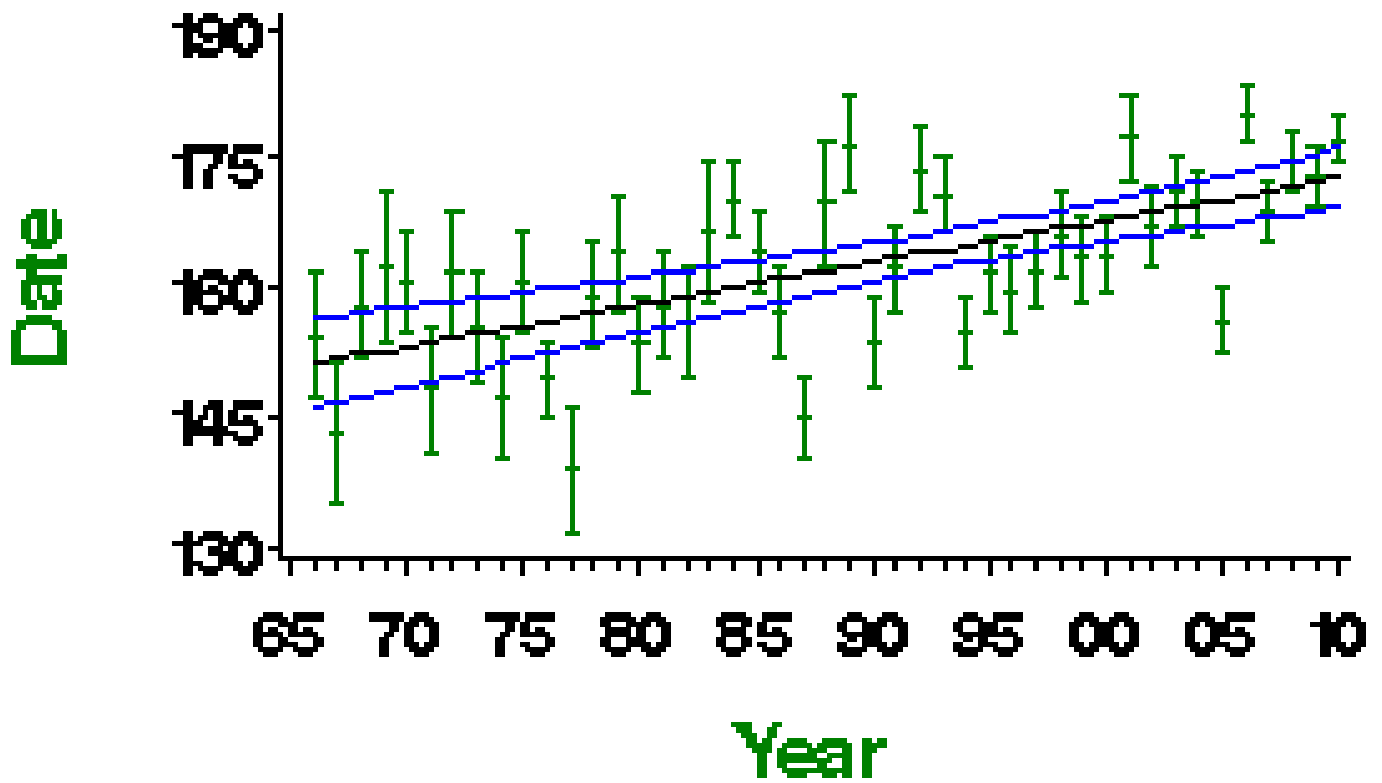
Fledglings per breeding attempt 1966–2010 Woodpigeon



Mean number of fledglings produced per nest - green bars represent standard error and black line shows long-term trend

Laying date 1966—2010

Woodpigeon



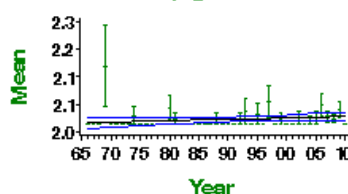
More on demographic trends

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Fledglings per breeding attempt	41	1968-2009	39	Curvilinear	0.56 fledglings	0.76 fledglings	35.4%		
Clutch size	41	1968-2009	69	None					
Brood size	41	1968-2009	105	None					
Nest failure rate at egg stage	41	1968-2009	89	Curvilinear	4.61% nests/day	3.09% nests/day	-33.0%		
Nest failure rate at chick stage	41	1968-2009	69	None					
Laying date	41	1968-2009	78	Linear increase	Jun 1	Jun 21	20 days		

For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).

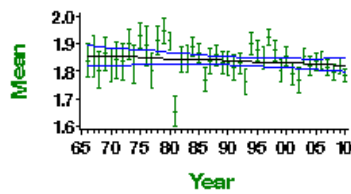
Clutch size 1966—2010

Woodpigeon



Brood size 1966—2010

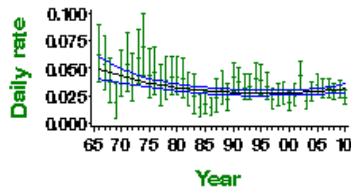
Woodpigeon



Mean number of chicks per nest - green bars represent standard error and black line shows long-term trend

Egg stage nest failure rate

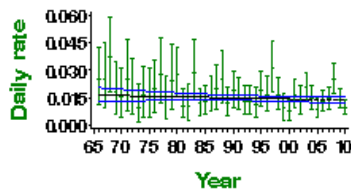
Woodpigeon



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Chick stage nest failure rate

Woodpigeon



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Causes of change

There is some evidence that the increase in this species has been due to the spread of intensive winter cereal and rape cultivation, probably by increasing food availability over winter, reflecting the species' ability to subsist on green vegetation, unlike other granivores.

Change factor	Primary driver	Secondary driver
Demographic	Increased overwinter survival	
Ecological	Agricultural intensification	

Further information on causes of change

There are few studies specifically examining demographic and ecological drivers of the long-term increase in this species but the spread of intensive arable cultivation, especially of oilseed rape and winter-sown cereal, which has been shown to reduce overwinter mortality, may explain the rise in numbers (Gibbons et al. 1993, Inglis et al. 1997). Inglis et al. (1997) conducted fieldwork to provide good evidence that, in their study area in Cambridgeshire, the overwintering population size was determined by the area of oilseed rape. Inglis et al. state that, since the introduction of oilseed rape, the number of fledged young produced has a more important effect upon the Woodpigeon population size than does overwinter mortality from starvation, i.e. winter food availability no longer limits the population.

The number of Woodpigeons feeding in gardens has also increased (Glue 1993, 1995, 1997), suggesting that this species may benefit from the trend of increasing urban feeding sites, although there is no direct evidence to support this.

The species is adaptable and O'Connor & Shrub (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 during July-September. Climate change may have also permitted earlier nesting. 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). Newly available data indicate, however, that the species is now nesting almost three weeks later, on average, than it did in the 1960s.

Species references

Gibbons, D.W., Reid, J.B. & Chapman, R.A. (1993) The New Atlas of Breeding Birds in Britain and Ireland: 1988-1991. T. & A.D. Poyser, London.

Glue, D. (1993) Report on Garden Bird Feeding Survey. BTO News 188: 24.

Glue, D. (1995) Report on Garden Bird Feeding Survey. BTO News 200: 5.

Glue, D. (1997) Report on Garden Bird Feeding Survey 1996/1997. BTO News 212: 6-7.

Inglis, I.R., Isaacson, A.J., Smith, G.C., Haynes, P.J. & Thearle, R.J.P. (1997) The effect on the Woodpigeon (*Columba palumbus*) of the introduction of oilseed rape into Britain. *Agriculture, Ecosystems & Environment* 61: 113-121.

Marchant, J.H., Hudson, R., Carter, S.P. & Whittington, P.A. (1990) Population Trends in British Breeding Birds. BTO, Tring.

O'Connor, R.J. & Shrubbs, M. (1986) *Farming and Birds*. Cambridge University Press, Cambridge.

PECBMS (2011a) Population Trends of Common European Breeding Birds 2011. CSO, Prague. [Full text](#)

This report should be cited as: Baillie, S.R., Marchant, J.H., Leech, D.I., Renwick, A.R., Eglinton, S.M., Joys, A.C., Noble, D.G., Barimore, C., Conway, G.J., Downie, I.S., Risely, K. & Robinson, R.A. (2012). *BirdTrends 2011*. BTO Research Report No. 609. BTO, Thetford. <https://www.bto.org/birdtrends>

Collared Dove

Streptopelia decaocto

Key facts

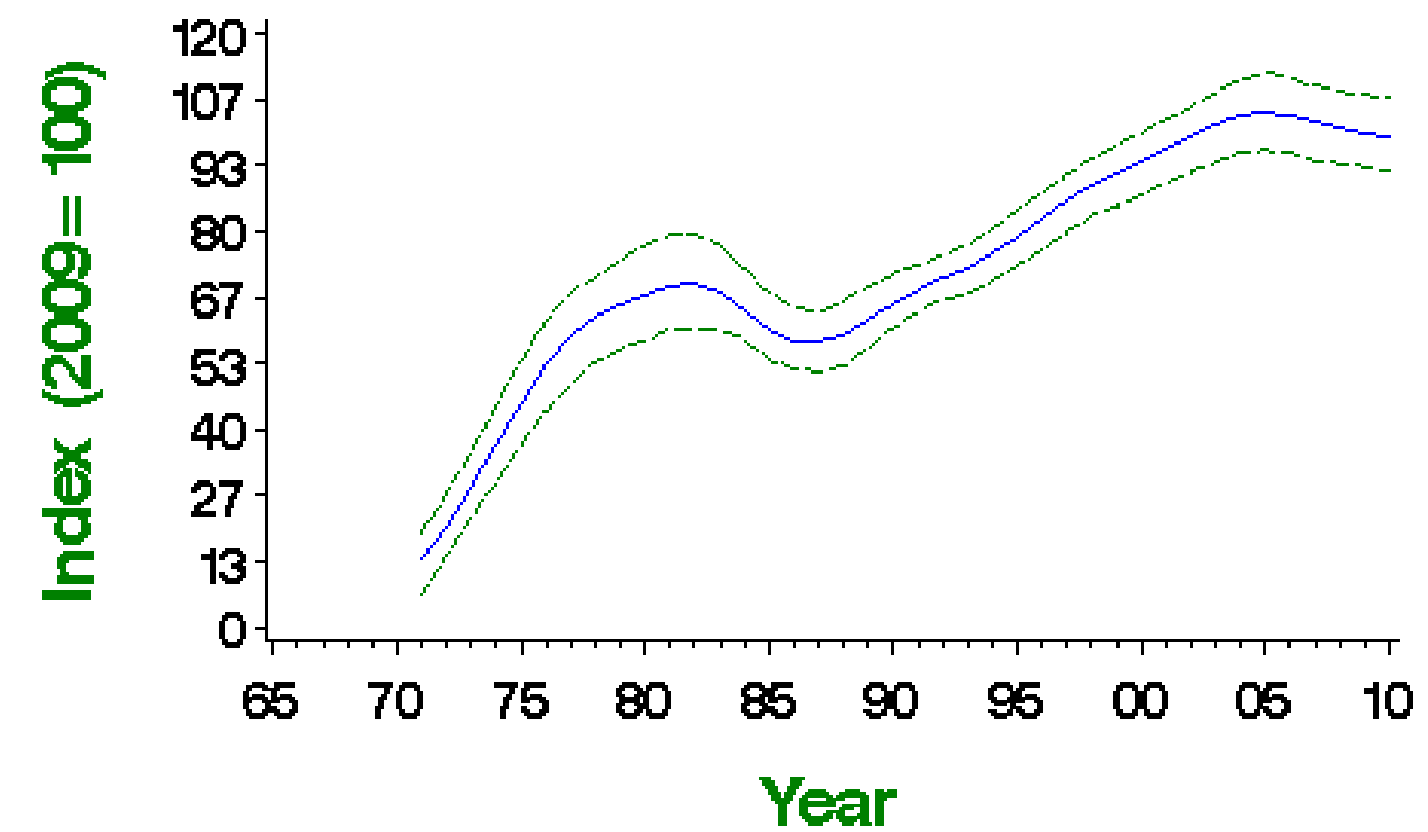
Conservation listings:	Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe) (BiE04) UK: green (BoCC3)
Long-term trend:	UK, England: rapid increase
Population size:	298,000 territories in 2000 (1988-91 Atlas estimate updated using CBC/BBS trend: BiE04, APEP06)
Migrant status:	Resident
Nesting habitat:	Above-ground nester
Primary breeding habitat:	Human habitats
Secondary breeding habitat:	
Breeding diet:	Vegetation
Winter diet:	Vegetation

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 the CBC index had levelled off by about 1980. BBS shows continuing increases, at least in England and Wales, with a recent levelling off nationally. The UK population size now rivals that of Stock Dove. Numbers have shown widespread moderate increase across Europe since 1980 (PECBMS 2011a).

CBC/BBS UK 1971–2010

Collared Dove



Smoothed population index, relative to an arbitrary 100 in the year given, with 85% confidence limits in green

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS UK	37	1972-2009	574	400	240	674		
	25	1984-2009	812	56	23	87		
	10	1999-2009	1452	9	5	14		
	5	2004-2009	1629	-3	-7	0		
CBC/BBS England	37	1972-2009	504	424	228	669		
	25	1984-2009	713	57	25	93		
	10	1999-2009	1269	8	3	14		
	5	2004-2009	1415	-4	-7	0		
BBS UK	14	1995-2009	1300	25	17	33		
	10	1999-2009	1433	9	4	15		
	5	2004-2009	1616	-3	-6	0		
BBS England	14	1995-2009	1144	25	18	32		
	10	1999-2009	1254	8	3	13		
	5	2004-2009	1406	-4	-7	0		
BBS Scotland	14	1995-2009	47	-6	-34	36		
	10	1999-2009	52	13	-15	46		
	5	2004-2009	64	6	-19	32		
BBS Wales	14	1995-2009	70	58	16	103		
	10	1999-2009	81	24	8	47		
	5	2004-2009	90	8	-6	21		

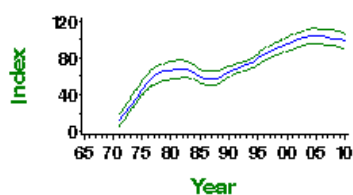
Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



CBC/BBS UK graph

CBC/BBS England 1971–2010

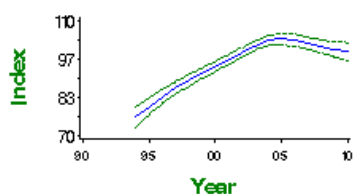
Collared Dove



CBC/BBS England graph

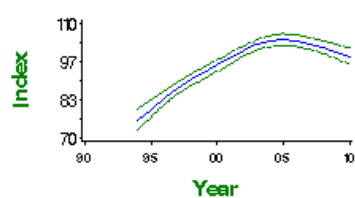
BBS UK 1994–2010

Collared Dove



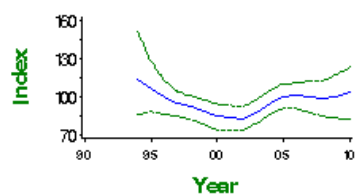
BBS UK graph

BBS England 1994—2010 Collared Dove



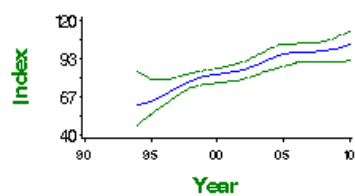
BBS England graph

BBS Scotland 1994—2010 Collared Dove



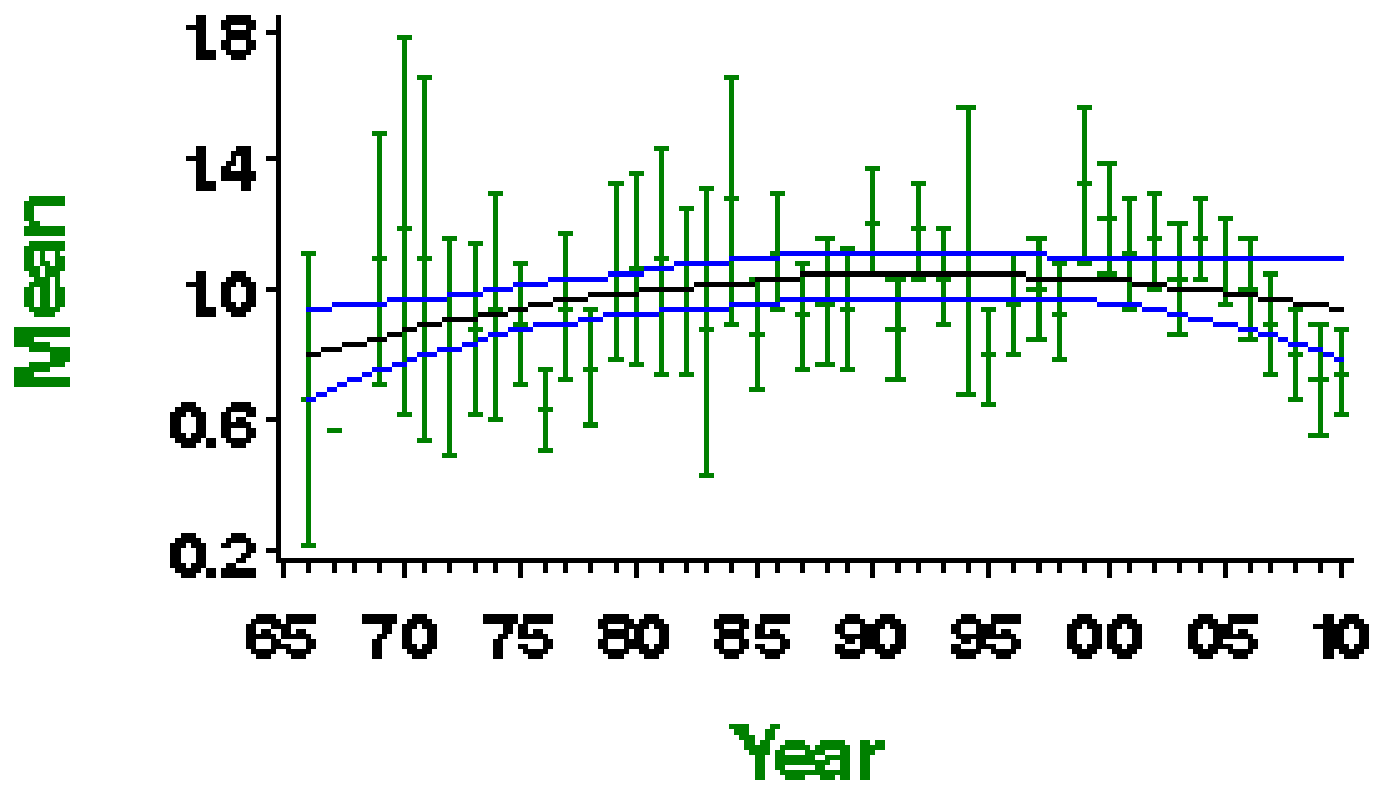
BBS Scotland graph

BBS Wales 1994—2010 Collared Dove



BBS Wales graph

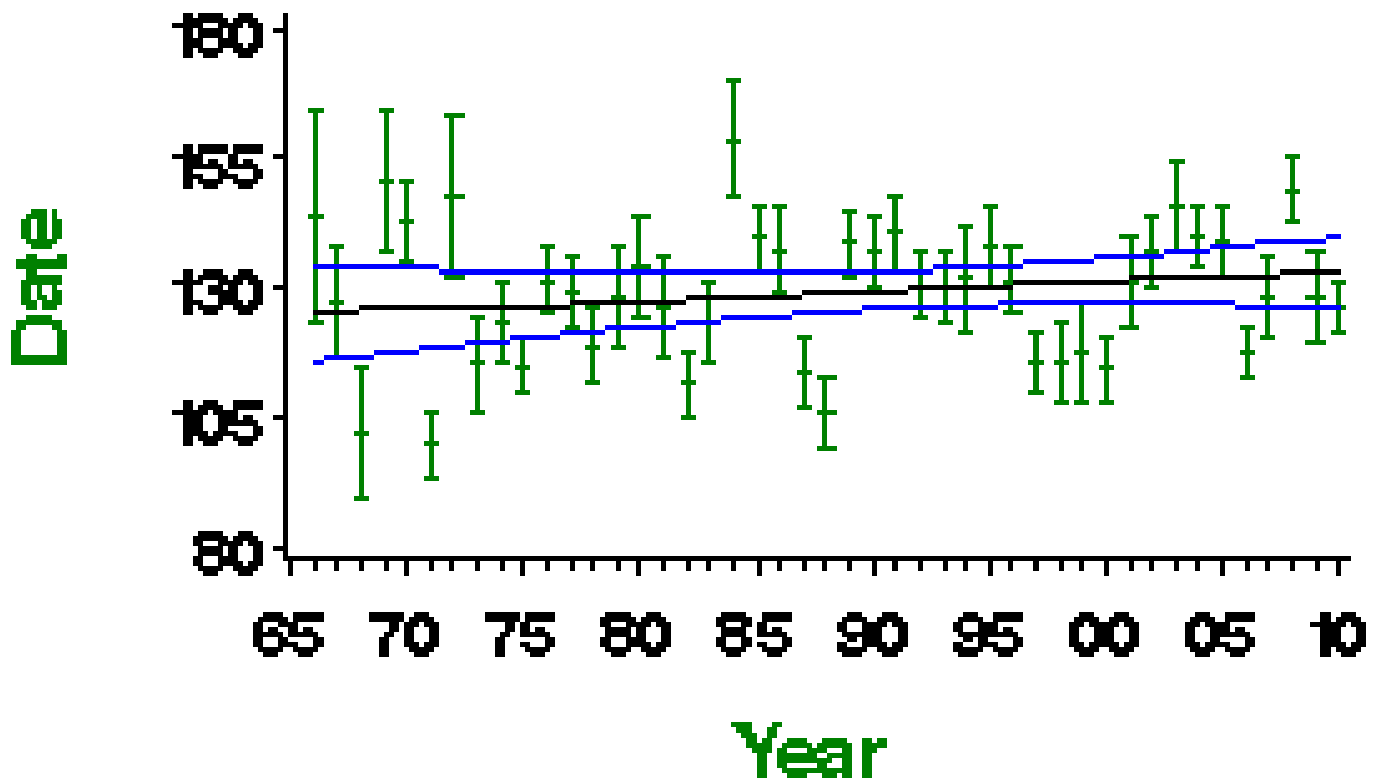
Fledglings per breeding attempt 1966–2010 Collared Dove



Mean number of fledglings produced per nest - green bars represent standard error and black line shows long-term trend

Laying date 1966—2010

Collared Dove



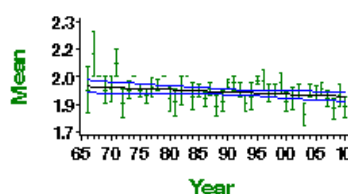
More on demographic trends

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Fledglings per breeding attempt	41	1968-2009	27	Curvilinear	0.84 fledglings	0.95 fledglings	13.6%		
Clutch size	41	1968-2009	43	None					
Brood size	41	1968-2009	72	Linear increase	1.78 chicks	1.84 chicks	3.7%		
Nest failure rate at egg stage	41	1968-2009	60	Curvilinear	3.15% nests/day	2.59% nests/day	-17.8%		
Nest failure rate at chick stage	41	1968-2009	54	Linear decline	1.70% nests/day	1.12% nests/day	-34.1%		
Laying date	41	1968-2009	44	None			0 days		

For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).

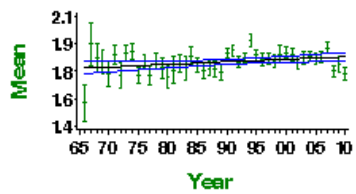
Clutch size 1966—2010

Collared Dove



Brood size 1966—2010

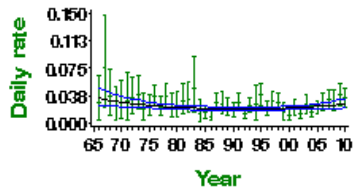
Collared Dove



Mean number of chicks per nest - green bars represent standard error and black line shows long-term trend

Egg stage nest failure rate

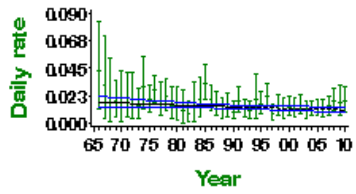
Collared Dove



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Chick stage nest failure rate

Collared Dove



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Causes of change

There is little evidence available relating to the drivers of the increase in this species but it appears to have been able to fill an empty niche and exploit the intermittent seed resources available in gardens and may also benefit from milder winters. Given the continuing rise, there is no baseline of 'stability' against which to compare demographic rates that might be causing a change but there have been increases in brood size and lower daily failure rates at the chick stage.

Change factor	Primary driver	Secondary driver
Demographic	Increased breeding success	
Ecological	Other	Climate change

Further information on causes of change

There are very few studies from the UK looking at the causes of population change in Collared Dove. There has been a linear increase in brood size and a linear decline in daily failure rate at the chick stage (see graphs above). The species appears to have filled an empty niche, perhaps because it is able to adapt to new environments, and it has shown a rapid increases in gardens ([www.bto.org/volunteer-surveys/gbfs/results/Collared Dove](http://www.bto.org/volunteer-surveys/gbfs/results/Collared%20Dove)), exploiting the intermittent seed resources available. It may also benefit from milder winters, which the species can exploit with its long breeding seasons. However, evidence for this is anecdotal.

Robertson (1990) measured high productivity and a long breeding season in rural Collared Doves in Oxfordshire and suggested that these were made possible by feeding on superabundant, predictable and persistent supplies of commercial crop seed in and around farmyards. However, there is little evidence based on specific analyses to support this.

There is evidence that the recent slowing of population increase may be due to increasing numbers of grey squirrels, as Newson et al. (2010) provided good evidence from nest record data which showed a positive relationship between nest failure at the egg stage and squirrel abundance. They may also be reaching the saturation of their niche. Population trends have been different trend in Scotland but the reasons for this are unclear.

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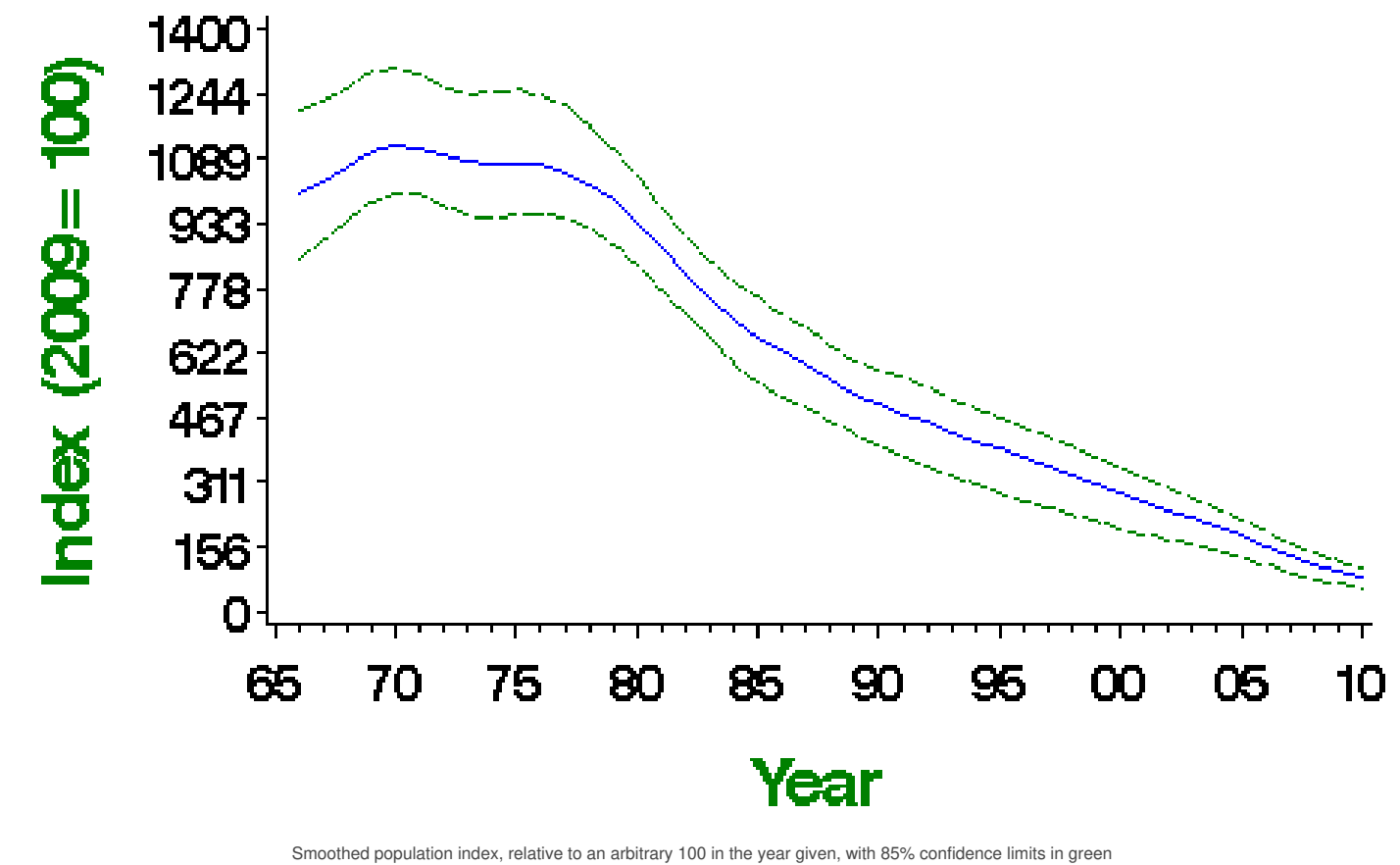
Key facts

Conservation listings:	Europe: SPEC category 3 (declining) (BiE04) UK: red (>50% population decline) (BoCC3) UK Biodiversity Action Plan: click here, priority species
Long-term trend:	UK, England: rapid decline
Population size:	44,000 territories in 2000 (1988-91 Atlas estimate updated using CBC/BBS trend: BiE04, APEP06)
Migrant status:	Long-distance migrant
Nesting habitat:	Above-ground nester
Primary breeding habitat:	Farmland
Secondary breeding habitat:	
Breeding diet:	Vegetation
Winter diet:	Vegetation

Status summary

The CBC/BBS trend shows severe declines in Turtle Dove abundance, beginning in the late 1970s and continuing to the present. Turtle Dove is one of the most strongly declining bird species across Europe (PECBMS 2011a).

CBC/BBS UK 1966–2010
Turtle Dove

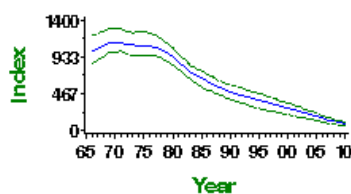


Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS UK	42	1967-2009	107	-90	-95	-86	>50	
	25	1984-2009	129	-86	-91	-81	>50	
	10	1999-2009	163	-68	-73	-62	>50	
	5	2004-2009	141	-52	-59	-46	>50	
CBC/BBS England	42	1967-2009	106	-90	-94	-86	>50	
	25	1984-2009	128	-86	-91	-81	>50	
	10	1999-2009	161	-68	-74	-62	>50	
	5	2004-2009	140	-51	-58	-44	>50	
BBS UK	14	1995-2009	170	-74	-79	-69	>50	
	10	1999-2009	158	-67	-72	-62	>50	
	5	2004-2009	140	-51	-59	-44	>50	
BBS England	14	1995-2009	167	-74	-79	-69	>50	
	10	1999-2009	156	-67	-72	-62	>50	
	5	2004-2009	139	-51	-57	-44	>50	

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.

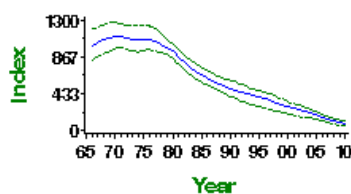


CBC/BBS UK 1966—2010
Turtle Dove



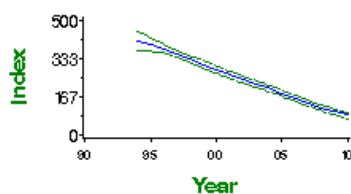
CBC/BBS UK graph

CBC/BBS England 1966—2010
Turtle Dove



CBC/BBS England graph

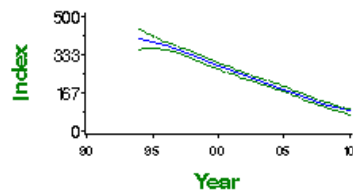
BBS UK 1994—2010
Turtle Dove



BBS UK graph

BBS England 1994—2010

Turtle Dove



BBS England graph

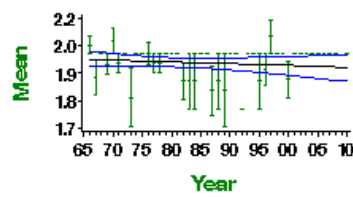
Demographic trends

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Clutch size	41	1968-2009	11	None					Small sample
Brood size	41	1968-2009	15	Curvilinear	1.82 chicks	1.72 chicks	-5.7%		Small sample
Nest failure rate at egg stage	41	1968-2009	15	None					Small sample
Nest failure rate at chick stage	41	1968-2009	11	None					Small sample
Laying date	41	1968-2009	12	None			0 days		Small sample

For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).

Clutch size 1966—2010

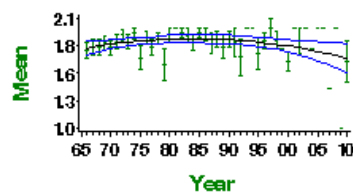
Turtle Dove



Mean number of eggs per nest - green bars represent standard error and black line shows long-term trend

Brood size 1966—2010

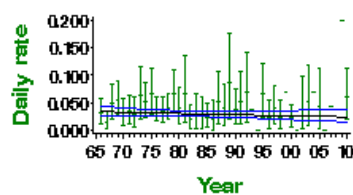
Turtle Dove



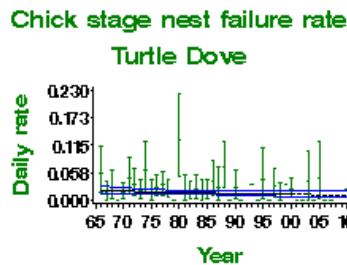
Mean number of chicks per nest - green bars represent standard error and black line shows long-term trend

Egg stage nest failure rate

Turtle Dove



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Causes of change

There is good evidence to support the hypothesis that the primary demographic driver of Turtle Dove declines is a shortened breeding period, which has reduced the number of nesting attempts. This is thought to be driven by reduced food availability due to increased herbicide use, although any analyses to test this directly are lacking. Note, however, that data do not permit analyses of variation in annual survival rates, but mortality both on the wintering grounds (due to habitat deterioration) and on migration (particularly through hunting) could be important.

Change factor	Primary driver	Secondary driver
Demographic	Reduced breeding success	
Ecological	Agricultural intensification	

Further information on causes of change

A four-year intensive field study in East Anglia provided good evidence that the role of breeding productivity in the decline of Turtle Doves is likely to be through a reduction in the average number of nesting attempts per pair (Browne & Aebischer 2005). Browne & Aebischer (2003, 2004, 2005) concluded that Turtle Doves today have a substantially earlier close to the breeding season and consequently produce fewer clutches and young per pair than they did in the 1960s. Reduced food availability due to increased herbicide use and efficacy may make birds more likely to cease breeding earlier than during the 1960s and reduce their number of nesting attempts (Browne & Aebischer 2001, 2002), although this was not specifically tested. Browne & Aebischer (2003) state that it may be a change in phenology of Turtle Doves and their food species which has resulted in reduced availability of food supplies, although they do not support this with any specific analyses of these two factors. Loss of quality and quantity of breeding habitat are also thought to contribute to declines. Browne et al. (2004) used long-term CBC data to provide good evidence that breeding density fell in proportion to loss of nesting, rather than feeding, habitat and that changes in Turtle Dove density were positively related to changes in the amount of hedgerow and woodland edge.

There is good evidence to suggest that the population decline experienced by Turtle Doves breeding in Britain is not due to lower success of individual nesting attempts. Analysis of nest record cards and ringing data for farmland Turtle Doves shows a non-significant increase in productivity per nesting attempt while annual survival has fallen (Siriwardena et al. 2000a, 2000b, Browne et al. 2005) so this may have also contributed to the decline. The demographic trends shown here support the view that nesting success per attempt is not the main driver of population change, with only a slight decrease in brood size being reported (see above).

Turtle Dove is a quarry species in many European countries and hunting during migration has been cited as another possible cause of the UK decline, although there is little evidence to support this (Browne & Aebischer 2004). Ring-recovery sample sizes are small and there is only weak evidence suggesting a decrease in annual survival (Siriwardena et al. 2000b). Nevertheless, survival could also have been negatively affected by a reduction in the quality of wintering habitat: this is thought to have contributed to the decline (Marchant et al. 1990) and one 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). Further work on the ecology of Turtle Doves on their wintering grounds is needed to investigate the relevance of this result for UK birds.

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This report should be cited as: Baillie, S.R., Marchant, J.H., Leech, D.I., Renwick, A.R., Eglington, S.M., Joys, A.C., Noble, D.G., Barimore, C., Conway, G.J., Downie, I.S., Risely, K. & Robinson, R.A. (2012). BirdTrends 2011. BTO Research Report No. 609. BTO, Thetford. <https://www.bto.org/birdtrends>

Psittacula krameri

Conservation listings:	Europe: not evaluated (introduced) (BiE04) UK: not listed (introduced)
Long-term trend:	England: rapid increase
Population size:	4,300 individual adults in winter 2000/01 (Butler 2002: APEP06); currently >30,000 individuals post breeding (Holling & RBBP 2011a)

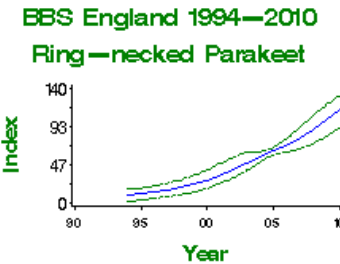
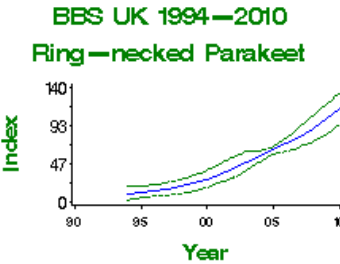
Following escapes and releases over many decades, this African and Asian parrot began breeding annually in the UK in 1969. Substantial but highly localised self-sustaining populations of this species have since built up, with the two largest being in the southern part of Greater London and in the Isle 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 hardly at all in Thanet (Butler 2003). National BBS data indicate a ninefold increase since 1995. There have been recent post-breeding estimates of more than 30,000 birds at large in the UK (Holling & RBBP 2011a). 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 Strubbe & Matthysen 2007, 2009. Strubbe et al. 2010). No such effects have yet been detectable in Britain, however (Newsome et al. 2011).



Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
BBS UK	14	1995-2009	51	842	325	2647		
	10	1999-2009	68	335	153	839		
	5	2004-2009	95	79	32	143		

BBS England Source	14 Period (yrs)	1995-2009 Years 1999-2009	51 Plots 69	842 Change 6%	337 Lower limit 134	3434 Upper limit 899	Alert	Comment
	5	2004-2009	95	79	28	138		

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



Demographic trends

Productivity and survival trends for this species are not currently produced by BTO

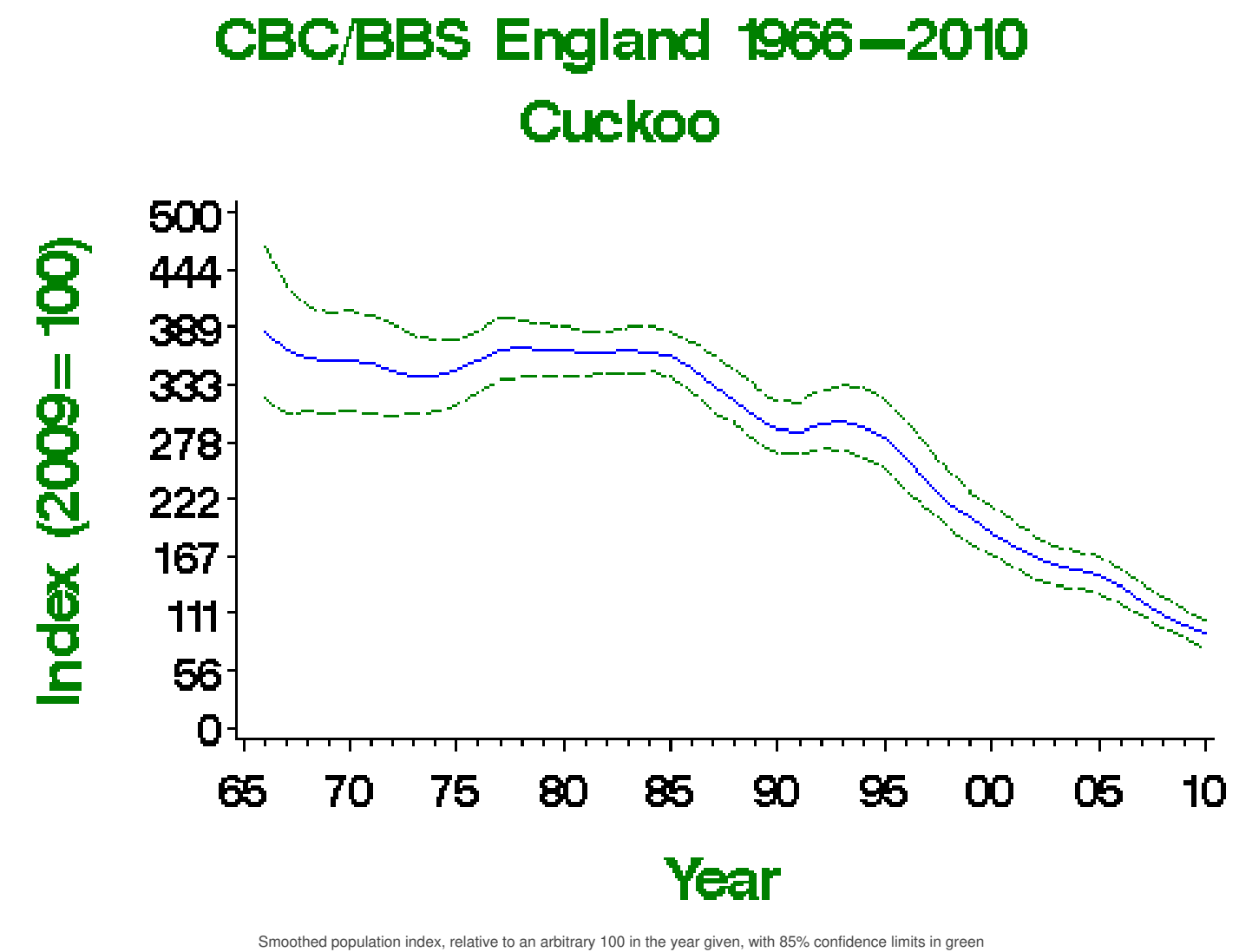
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Key facts

Conservation listings:	Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe) (BiE04) UK: red (BoCC3) UK Biodiversity Action Plan: priority species
Long-term trend:	England: rapid decline
Population size:	9,600-20,000 pairs in 2000 (1988-91 Atlas estimate updated using CBC/BBS trend: BiE04, APEP06)
Migrant status:	Long-distance migrant
Nesting habitat:	Host-specific
Primary breeding habitat:	Woodland
Secondary breeding habitat:	
Breeding diet:	Animal
Winter diet:	Animal

Status summary

The CBC/BBS trend shows Cuckoo abundance to have been in decline since the early 1980s. The species was moved in 2002 from the green to the amber list, and in the latest review met red-list criteria. The sensitivity of CBC to change in this species may have been relatively low, mainly because Cuckoo territories were typically larger than census plots (Marchant et al. 1990). BBS shows a continuing strong decline in England and Wales, but not in Scotland, where numbers appear to be stable. Cuckoos increased significantly during 1994-2006 in lowland semi-natural grass, heath and bog but decreased in almost all other habitat types (Newson et al. 2009). There has been widespread moderate decrease across Europe since 1980 (PECBMS 2011a).



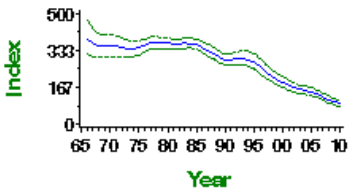
Population changes in detail

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS England	42	1967-2009	281	-73	-80	-62	>50	
	25	1984-2009	405	-73	-77	-67	>50	
	10	1999-2009	569	-51	-54	-47	>50	
	5	2004-2009	570	-35	-39	-31	>25	
BBS UK	14	1995-2009	731	-48	-52	-43	>25	
	10	1999-2009	714	-35	-40	-30	>25	
	5	2004-2009	739	-24	-29	-19		
BBS England	14	1995-2009	572	-63	-66	-60	>50	
	10	1999-2009	548	-49	-52	-45	>25	
	5	2004-2009	553	-33	-36	-28	>25	
BBS Scotland	14	1995-2009	74	-2	-19	16		
	10	1999-2009	75	-9	-22	7		
	5	2004-2009	87	-12	-24	0		
BBS Wales	14	1995-2009	56	-34	-50	-16	>25	
	10	1999-2009	59	-27	-39	-11	>25	
	5	2004-2009	58	-10	-25	9		

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See here for more information.

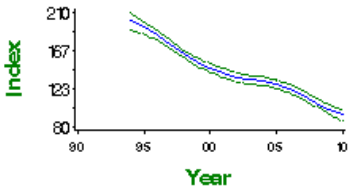


CBC/BBS England 1966–2010
Cuckoo



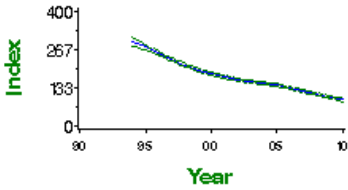
CBC/BBS England graph

BBS UK 1994–2010
Cuckoo



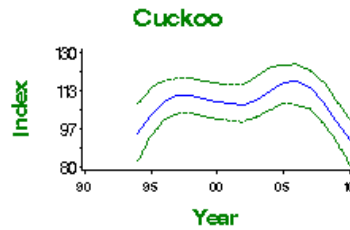
BBS UK graph

BBS England 1994–2010
Cuckoo

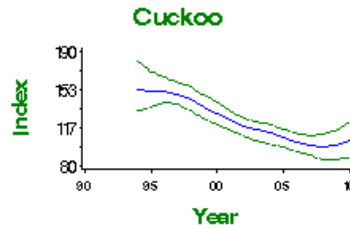


BBS England graph

BBS Scotland 1994–2010



BBS Wales 1994–2010



Demographic trends

Productivity and survival trends for this species are not currently produced by BTO

Causes of change

It is unclear as to what is the main driver of population decline in Cuckoos. Given the lack of demographic trends for this species it is not possible to identify a specific mechanism behind the declines.

Change factor	Primary driver	Secondary driver
Demographic	Unknown	
Ecological	Unknown	

Further information on causes of change

Cuckoo abundance may be related to their breeding success, which might in turn be determined by the abundance of breeding success of host species. Evidence from BBS data show strong variation in Cuckoo population trends between habitats, which may reflect regional differences in the main hosts and differing trends in Cuckoo breeding success among those host species (Newson et al. 2009). Douglas et al. (2010) found a strong positive correlation between change in Cuckoo numbers and numbers of Meadow Pipit in the previous year, also based on BBS data, but this only accounted for 1% of the decline in Cuckoo populations so this is unlikely to be a primary driver. A study from the 1980s using Nest Record Scheme data also found changes in usage of some key host species (Brooke & Davies 1987) but the authors also thought that this was unlikely to be the main cause of population decline. There has perhaps been a disproportionate emphasis on the role of brood parasitism aspects in Cuckoo decline.

Another hypothesis for the decline of Cuckoos relates to phenological mismatch in the timing of host and Cuckoo breeding. There is evidence relating to climate-induced changes in phenology, although the extent to which this may be driving population declines is unclear. Douglas et al. (2010) used BBS data and found that in recent decades, earlier breeding Dunnock nests have become less available to Cuckoos, whilst those of Reed Warblers more so. However, they suggested that changes in host phenology are likely to have had only a minimal impact on Cuckoo population trend (Douglas et al. 2010). In Europe, other recent studies have suggested that climate change might disrupt the association between the life cycles of the Cuckoo and its short-distance migrant hosts and they state that this mismatch may contribute to the decline in Cuckoo (Saino et al. 2009, Moller et al. 2011). Thus, evidence at European scale at least is equivocal.

Given that the Cuckoo is a migrant, and the fact that many long-distance migrants have been found to be declining (Sanderson et al. 2006; Hewson & Noble 2009), factors operating on wintering grounds have been suggested as a possible primary driver of Cuckoo declines (Glue 2006, Payevsky 2006, Newson et al. 2009). However, little work has focused on this area to date. Decreased food supplies on the breeding grounds has also been suggested as a possible cause (Glue 2006), following the rapid declines of many British moth species (Conrad et al. 2006), important prey items in Cuckoo diet, but detailed research on this is lacking.

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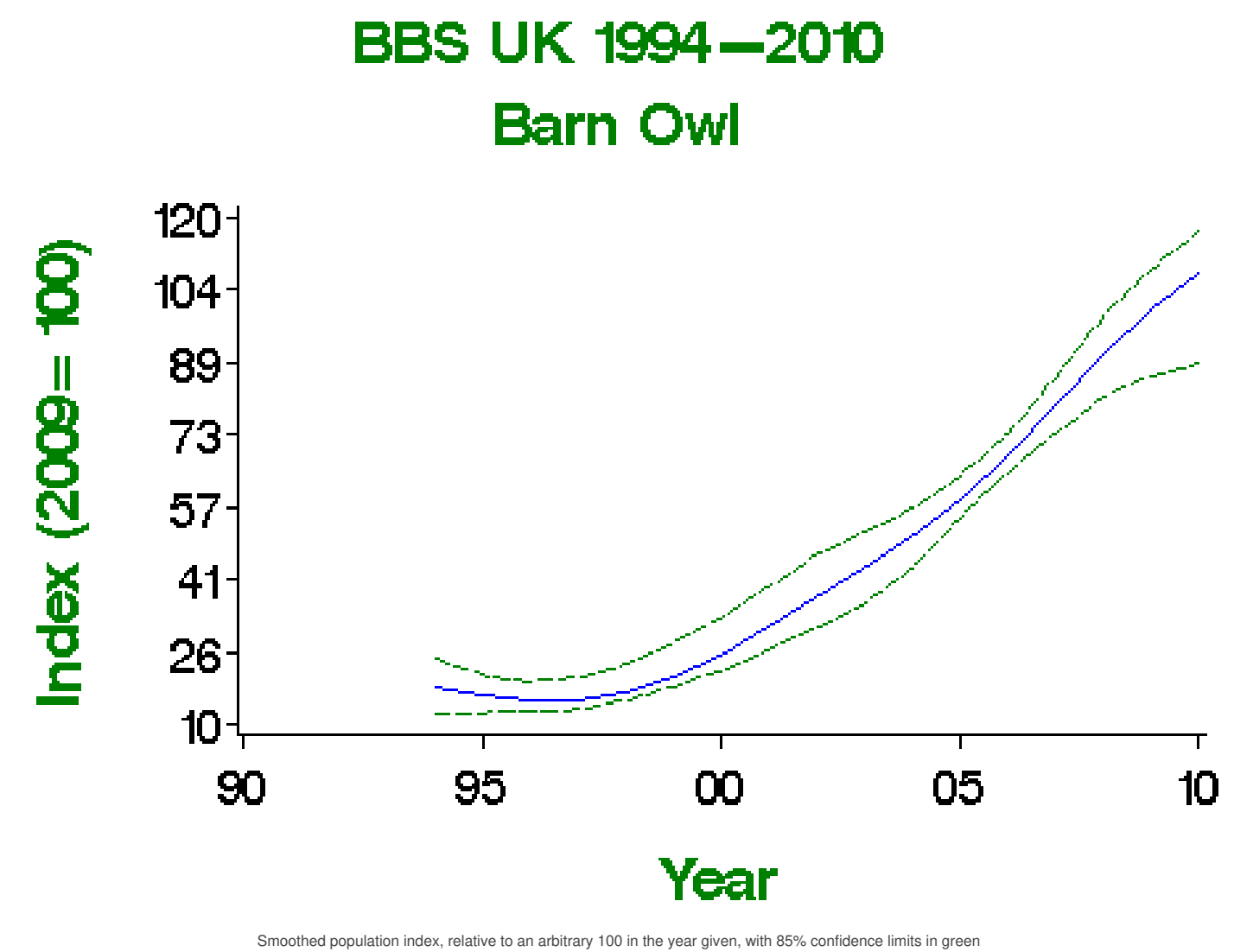
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Key facts

Conservation listings:	Europe: SPEC category 3 (declining) (BiE04) UK: amber (25-50% distribution decline) (BoCC3)
Long-term trend:	UK: probable decline
Population size:	4,000 (3,000-5,000) pairs in 1995-97 (Toms <i>et al.</i> 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, clickDadam *et al.* 2011). 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. Numbers of Barn Owls recorded via BBS have increased since 1995. As BBS is a diurnal survey, the detectability of primarily nocturnal species is low and could be influenced quite markedly by changes in behaviour: thus the trends should be interpreted with extra care. The number of nest records for Barn Owl has also increased rapidly over the same period, strengthening the evidence that a national population increase has indeed occurred since Project Barn Owl in 1995-97. There is likely to be some regional variation in population trends, however. RBBP provide a county breakdown of 2005 nesting totals Holling & RBBP 2008).

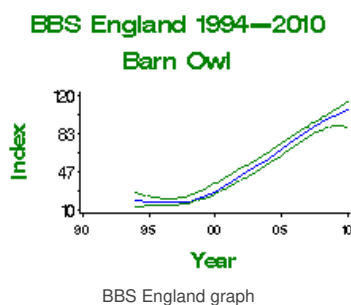
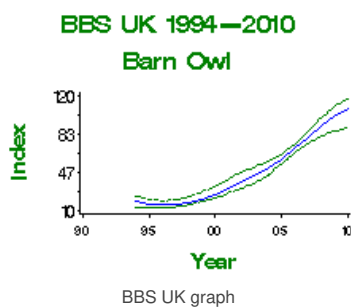


Population changes in detail

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
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BBS UK Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
	10	1995-2009	54	393	210	524		
	5	2004-2009	74	97	49	155		
BBS England	14	1995-2009	40	459	295	688		
	10	1999-2009	52	364	227	423		
	5	2004-2009	71	69	34	99		

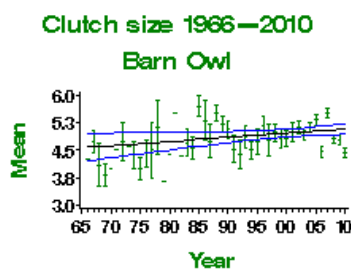
Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



Demographic trends

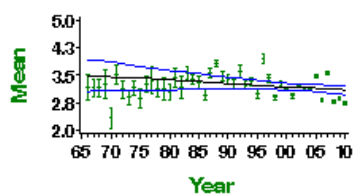
Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Clutch size	41	1968-2009	38	Linear increase	4.62 eggs	5.08 eggs	10.0%		
Brood size	41	1968-2009	298	None					
Nest failure rate at egg stage	41	1968-2009	27	Linear decline	0.81% nests/day	0.05% nests/day	-93.8%		Small sample
Nest failure rate at chick stage	41	1968-2009	120	Linear decline	0.22% nests/day	0.02% nests/day	-90.9%		
Laying date	41	1968-2009	16	None			0 days		Small sample

For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).



Brood size 1966—2010

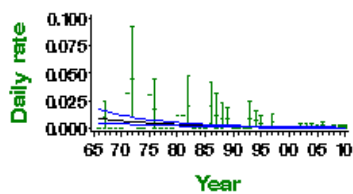
Barn Owl



Mean number of chicks per nest - green bars represent standard error and black line shows long-term trend

Egg stage nest failure rate

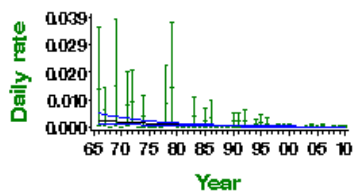
Barn Owl



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Chick stage nest failure rate

Barn Owl



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

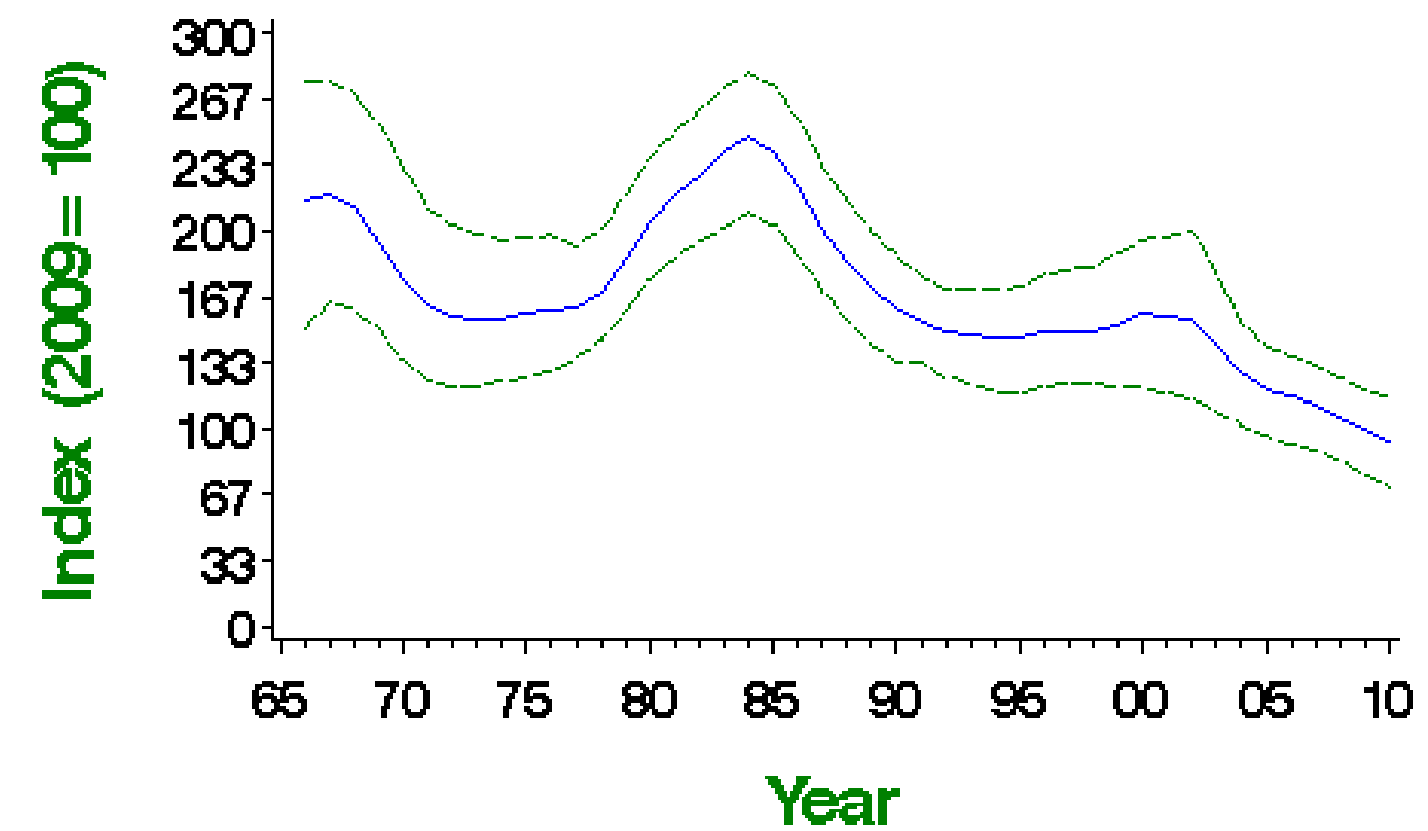
Key facts

Conservation listings:	Europe: SPEC category 3 (declining) (BiE04) UK: not listed (introduced)
Long-term trend:	UK: rapid decline England: moderate decline
Population size:	5,800-11,600 pairs in 2000 (1988-91 Atlas estimate updated using CBC/BBS trend: BiE04, APEP06)
Migrant status:	Resident
Nesting habitat:	Cavity nester
Primary breeding habitat:	Farmland
Secondary breeding habitat:	
Breeding diet:	Animal
Winter diet:	Animal

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 figure of c. 7,000 pairs from the BTO/Hawk & Owl Trust's Toms et al. 2000) is the first replicable population estimate for Little Owls in the UK.

CBC/BBS UK 1966–2010
Little Owl



Smoothed population index, relative to an arbitrary 100 in the year given, with 85% confidence limits in green

Population changes in detail

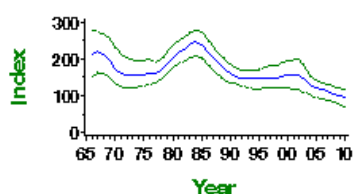
Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS UK	42	1967-2009	58	-54	-71	-25	>50	
	25	1984-2009	79	-60	-72	-45	>50	
	10	1999-2009	112	-35	-46	-24	>25	
	5	2004-2009	111	-22	-33	-10		
CBC/BBS England	42	1967-2009	56	-48	-71	-3	>25	
	25	1984-2009	76	-54	-68	-36	>50	
	10	1999-2009	109	-33	-44	-20	>25	
	5	2004-2009	109	-22	-34	-11		
BBS UK	14	1995-2009	101	-29	-42	-17	>25	
	10	1999-2009	106	-34	-45	-25	>25	
	5	2004-2009	109	-23	-35	-13		
BBS England	14	1995-2009	98	-28	-41	-14	>25	
	10	1999-2009	103	-33	-45	-20	>25	
	5	2004-2009	106	-23	-35	-11		

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



CBC/BBS UK 1966—2010

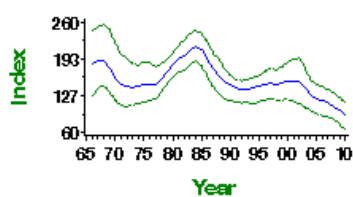
Little Owl



CBC/BBS UK graph

CBC/BBS England 1966—2010

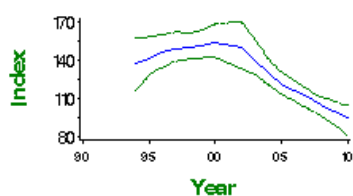
Little Owl



CBC/BBS England graph

BBS UK 1994—2010

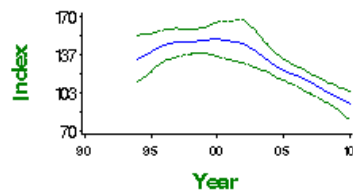
Little Owl



BBS UK graph

BBS England 1994—2010

Little Owl



BBS England graph

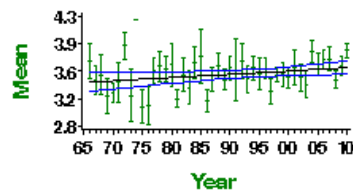
Demographic trends

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Fledglings per breeding attempt	41	1968-2009	15	None					
Clutch size	41	1968-2009	21	Linear increase	3.41 eggs	3.60 eggs	5.4%		Small sample
Brood size	41	1968-2009	44	None					
Nest failure rate at egg stage	41	1968-2009	18	None					Small sample
Nest failure rate at chick stage	41	1968-2009	21	None					Small sample

For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).

Clutch size 1966—2010

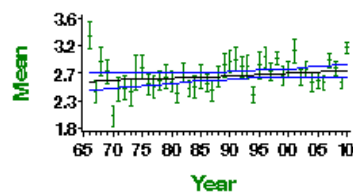
Little Owl



Mean number of eggs per nest - green bars represent standard error and black line shows long-term trend

Brood size 1966—2010

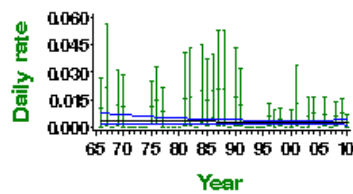
Little Owl



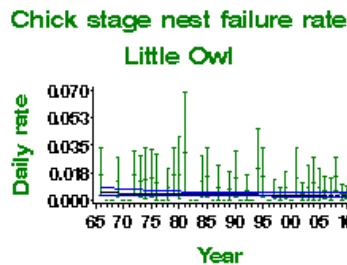
Mean number of chicks per nest - green bars represent standard error and black line shows long-term trend

Egg stage nest failure rate

Little Owl



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Causes of change

There is little evidence available from the UK but studies from Europe suggest that the main demographic driver of declines in Little Owl is changes in juvenile survival. Circumstantial evidence suggests that this may be due to loss of habitat and changes in farming practices.

Change factor	Primary driver	Secondary driver
Demographic	Decreased juvenile survival	
Ecological	Agricultural intensification	

Further information on causes of change

No trends are evident in the number of fledglings per breeding attempt, but this is based on a very small sample as few nest records are available. Clutch size has shown a linear increase, but no trends were apparent in brood size or nest failure rates (see above). There is very little evidence available from the UK regarding causes of the population decline. However, evidence from Europe suggests that population changes are driven mainly by changes in survival. Le Gouar et al. (2011) analysed 35 years of ringing data from the Netherlands and found that juvenile survival rates decreased with time and that years when the population declined were associated with low juvenile survival. More than 60% of the variation in juvenile survival was explained by the increase in road traffic intensity or in average spring temperature. However, they state that these correlations reflect a gradual decrease in juvenile survival coinciding with long-term global change, rather than direct causal effects. The regular occurrence of years with poor adult survival (dry, cold years) was also important. In north-eastern France, Letty et al. (2001) also found that population dynamics were highly sensitive to adult and first-year survival and, in Switzerland and Southern Germany, Schaub et al. (2006) reported that variation of adult survival contributed most to variation of population growth rate while variation in fecundity contributed least. Thus, evidence from Europe at least suggests that changes in populations of Little Owl are largely due to changes outside of the breeding season (although note that survival can also be affected by breeding-season conditions).

However, in Denmark, Thorup et al. (2010) found, in a declining population, that first-year annual survival rates were much lower than values previously reported, but also that the mean number of fledglings per pair had declined. Measures of reproductive success were higher closer to important foraging habitats and were positively correlated with the amount of seasonally changing land cover (mostly farmland) around nests, as well as temperatures before and during the breeding season. Experimental food supplementation to breeding pairs increased the proportion of eggs that produced fledged chicks, suggesting that the main reason for the ongoing population decline is reduced productivity induced by energetic constraints after egg-laying.

In terms of ecological drivers, in Poland, there is anecdotal evidence that changes in the agricultural landscape associated with disappearance of traditional farming and management of grassland habitats were the main factors in the long-term population decline (Salek & Schropfer 2008). Evidence from Spain has also suggested that habitat loss has played a role in population declines, due to increasing urbanisation (Martinez & Zuberogoitia 2004) and in Denmark the extent of contraction of Little Owl distribution varied across the country and local disappearance was associated with reduced areas of agricultural land (Thorup et al. 2010). In Poland, Zmihorski et al. (2006) concluded that the reduction in nesting sites and decreased food availability were the potential factors of the Little Owl decline, although this evidence was circumstantial. There is little evidence relating to the UK population and the drivers in Europe may not necessarily be the same here.

Species references

Battaglia, A., Ghidini, S., Campanini, G. & Spaggiari, R. (2005) Heavy metal contamination in Little Owl (*Athene noctua*) and Common Buzzard (*Buteo buteo*) from northern Italy. *Ecotoxicology and Environmental Safety* 60: 61-66.

Le Gouar, P.J., Schekkerman, H., van der Jeugd, H.P., Boele, A., van Harxen, R., Fuchs, P., Stroeken, P. & van Noordwijk, A.J. (2011) Long-term trends in survival of a declining population: the case of the Little Owl (*Athene noctua*) in the Netherlands. *Oecologia* 166: 369-379.

Letty, J., Génot, J.-C. & Sarrazin, F. (2001) Analysis of population viability of Little Owl (*Athene noctua*) in the Northern Vosges natural park (North-Eastern France) *Alauda* 69: 359-372.

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Zmihorski, M., Altenburg-Bacia, D., Romanowski, J., Kowalski, M. & Osojca, G. (2006) Long-term decline of the little owl (*Athene noctua* Scop., 1769) in central Poland. Polish Journal of Ecology 54: 321-324.

This report should be cited as: Baillie, S.R., Marchant, J.H., Leech, D.I., Renwick, A.R., Eglington, S.M., Joys, A.C., Noble, D.G., Barimore, C., Conway, G.J., Downie, I.S., Risely, K. & Robinson, R.A. (2012). BirdTrends 2011. BTO Research Report No. 609. BTO, Thetford. <https://www.bto.org/birdtrends>

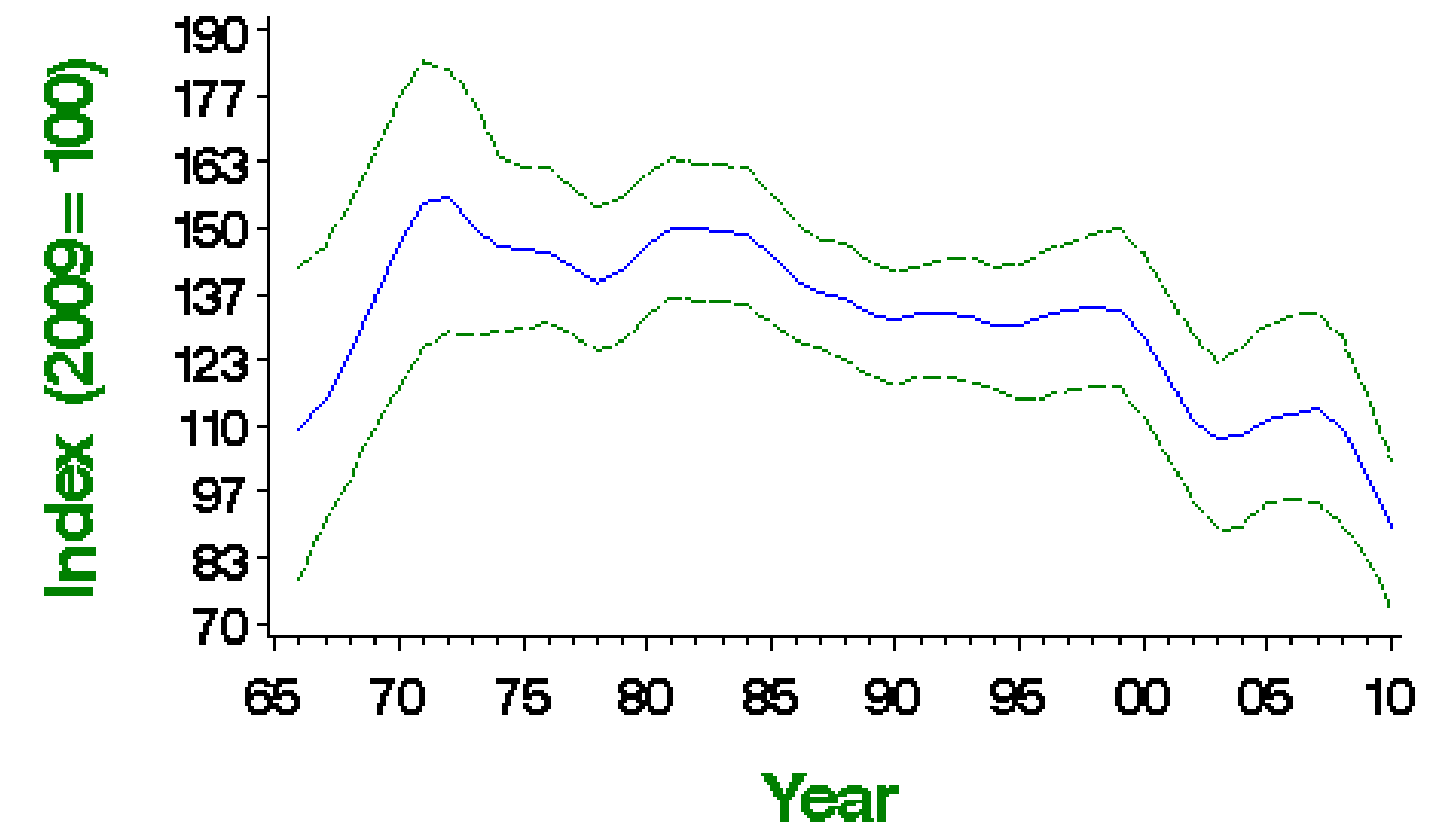
Key facts

Conservation listings:	Europe: no SPEC category (concentrated in Europe, conservation status favourable) (BiE04) UK: green (BoCC3)
Long-term trend:	UK, England: shallow decline
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 (Percival 1990).

CBC/BBS UK 1966–2010
Tawny Owl



Smoothed population index, relative to an arbitrary 100 in the year given, with 85% confidence limits in green

Population changes in detail

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS UK	42	1967-2009	78	-13	-43	24		
	25	1984-2009	92	-33	-47	-17	>25	
	10	1999-2009	103	-25	-38	-12		
	5	2004-2009	101	-8	-23	11		

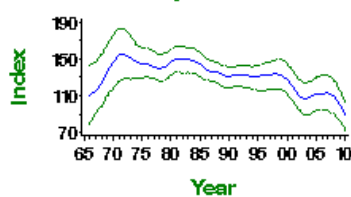
CBC/BBS England Source	Period (yrs)	1967-2009 Years	Obs (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
	25	1984-2009	79	-29	-46	-11	>25	
	10	1999-2009	89	-23	-38	-7		
	5	2004-2009	87	-16	-34	-1		
BBS UK	14	1995-2009	88	-18	-33	2		Nocturnal species
	10	1999-2009	93	-21	-34	-5		Nocturnal species
	5	2004-2009	98	-6	-22	13		Nocturnal species
BBS England	14	1995-2009	75	-16	-32	6		Nocturnal species
	10	1999-2009	80	-21	-36	-4		Nocturnal species
	5	2004-2009	85	-14	-30	4		Nocturnal species

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



CBC/BBS UK 1966–2010

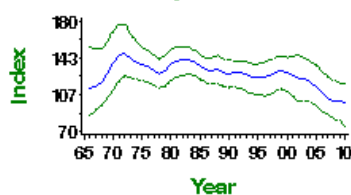
Tawny Owl



CBC/BBS UK graph

CBC/BBS England 1966–2010

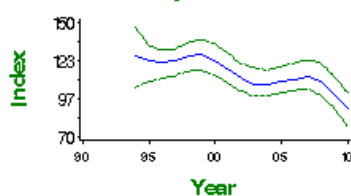
Tawny Owl



CBC/BBS England graph

BBS UK 1994–2010

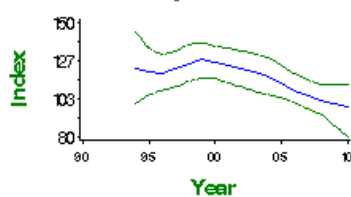
Tawny Owl



BBS UK graph

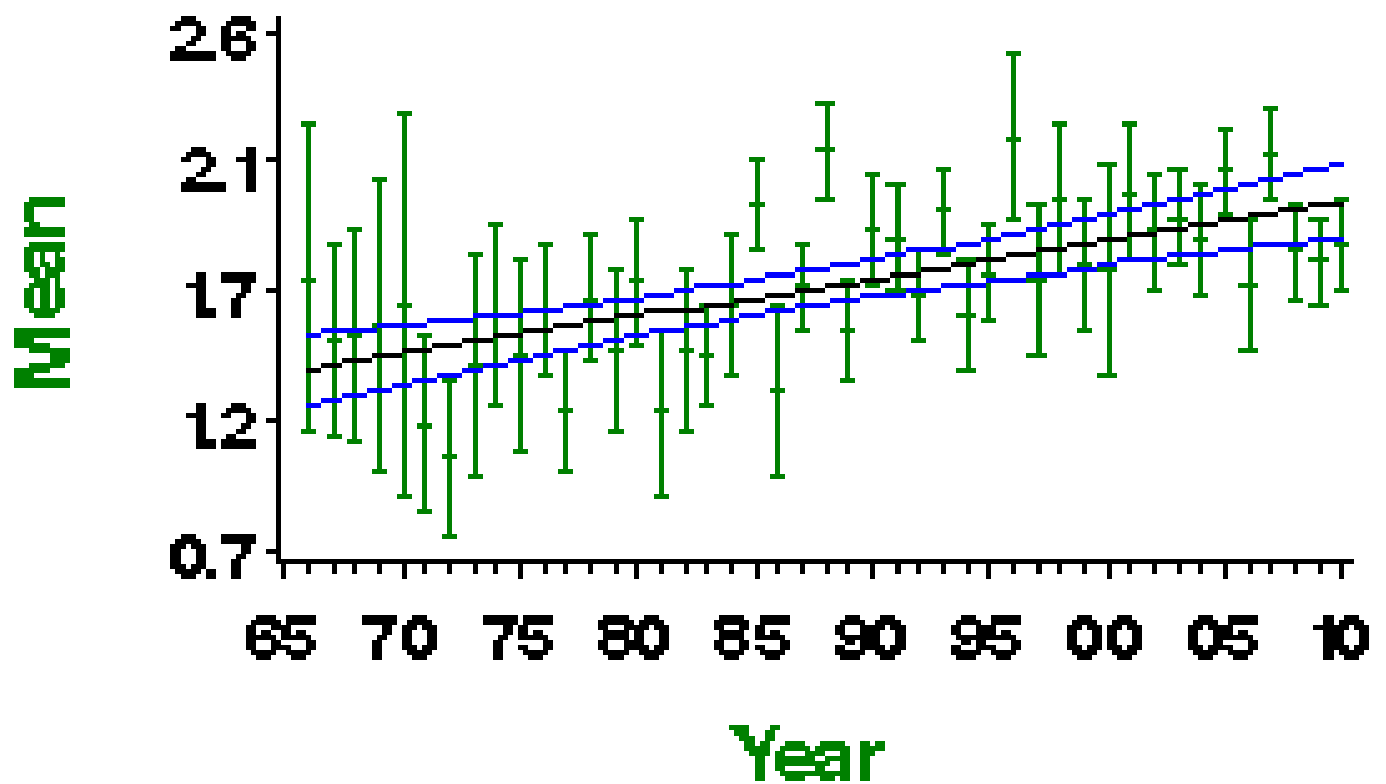
BBS England 1994–2010

Tawny Owl



BBS England graph

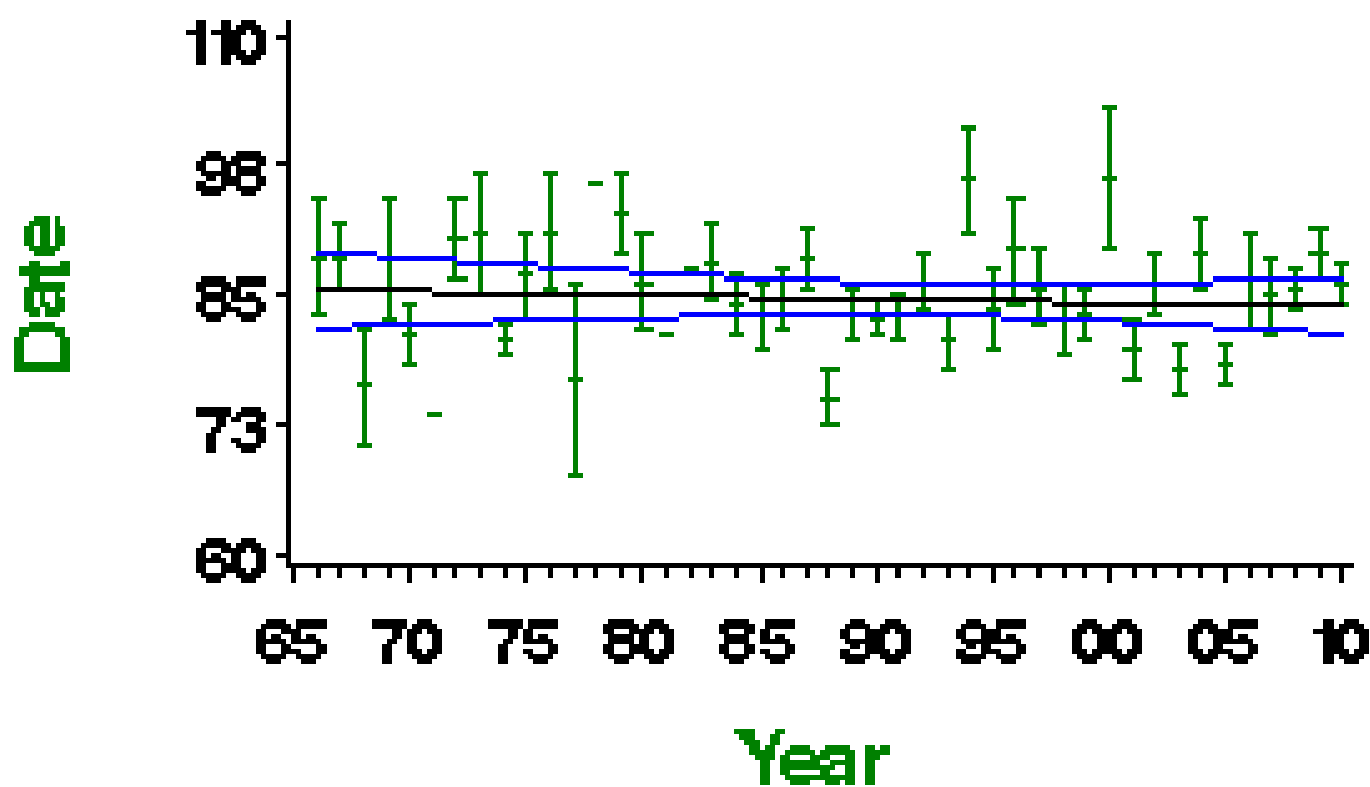
Fledglings per breeding attempt 1966–2010 Tawny Owl



Mean number of fledglings produced per nest - green bars represent standard error and black line shows long-term trend

Laying date 1966—2010

Tawny Owl



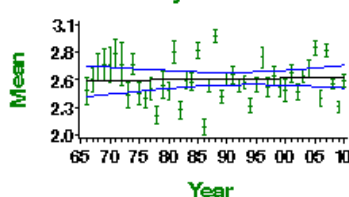
More on demographic trends

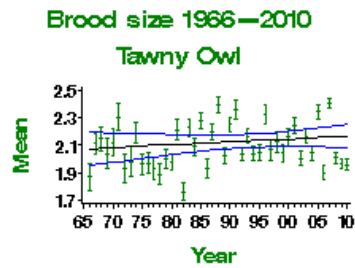
Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Fledglings per breeding attempt	41	1968-2009	56	Linear increase	1.39 fledglings	1.96 fledglings	41.0%		
Clutch size	41	1968-2009	87	None					
Brood size	41	1968-2009	166	None					
Nest failure rate at egg stage	41	1968-2009	59	Linear decline	0.89% nests/day	0.15% nests/day	-83.1%		
Nest failure rate at chick stage	41	1968-2009	89	Curvilinear	0.35% nests/day	0.11% nests/day	-68.6%		
Laying date	41	1968-2009	16	None			0 days		Small sample

For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).

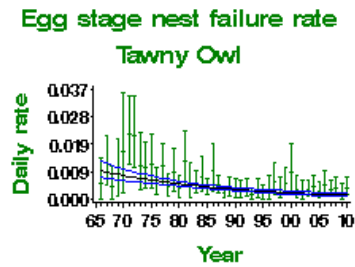
Clutch size 1966—2010

Tawny Owl

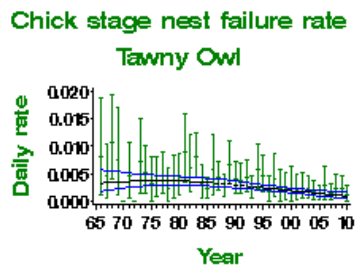




Mean number of chicks per nest - green bars represent standard error and black line shows long-term trend



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Key facts

Conservation listings:	Europe: SPEC category 2 (declining) (BiE04) UK: red (>50% distribution decline) (BoCC3) UK Biodiversity Action Plan: click here , priority species
Long-term trend:	UK: uncertain
Population size:	3,400 males in 1992 (Morris et al. 1994: BiE04, APEP06); 4,600 males in 2004 (Conway et al. 2007)

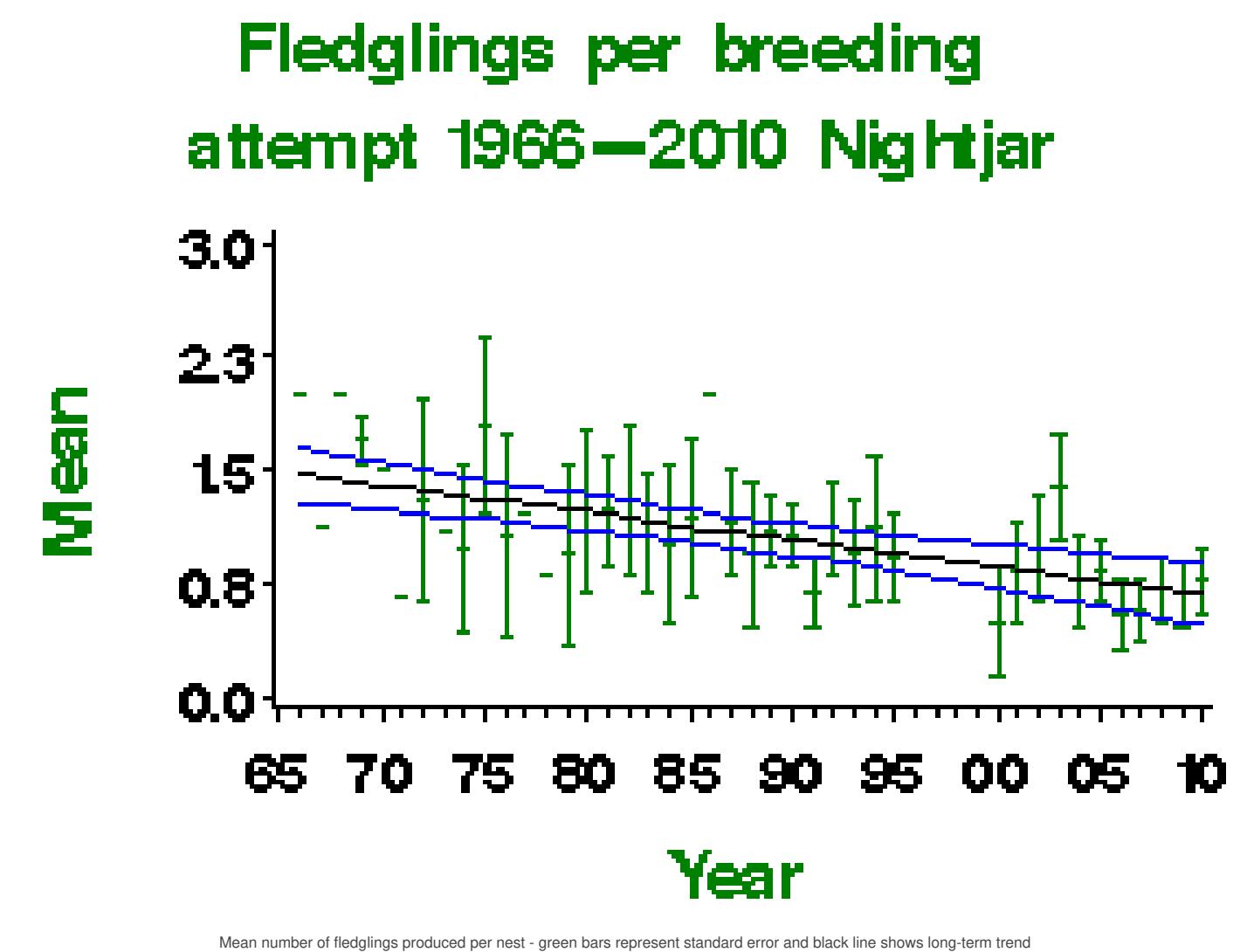
Status summary

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 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

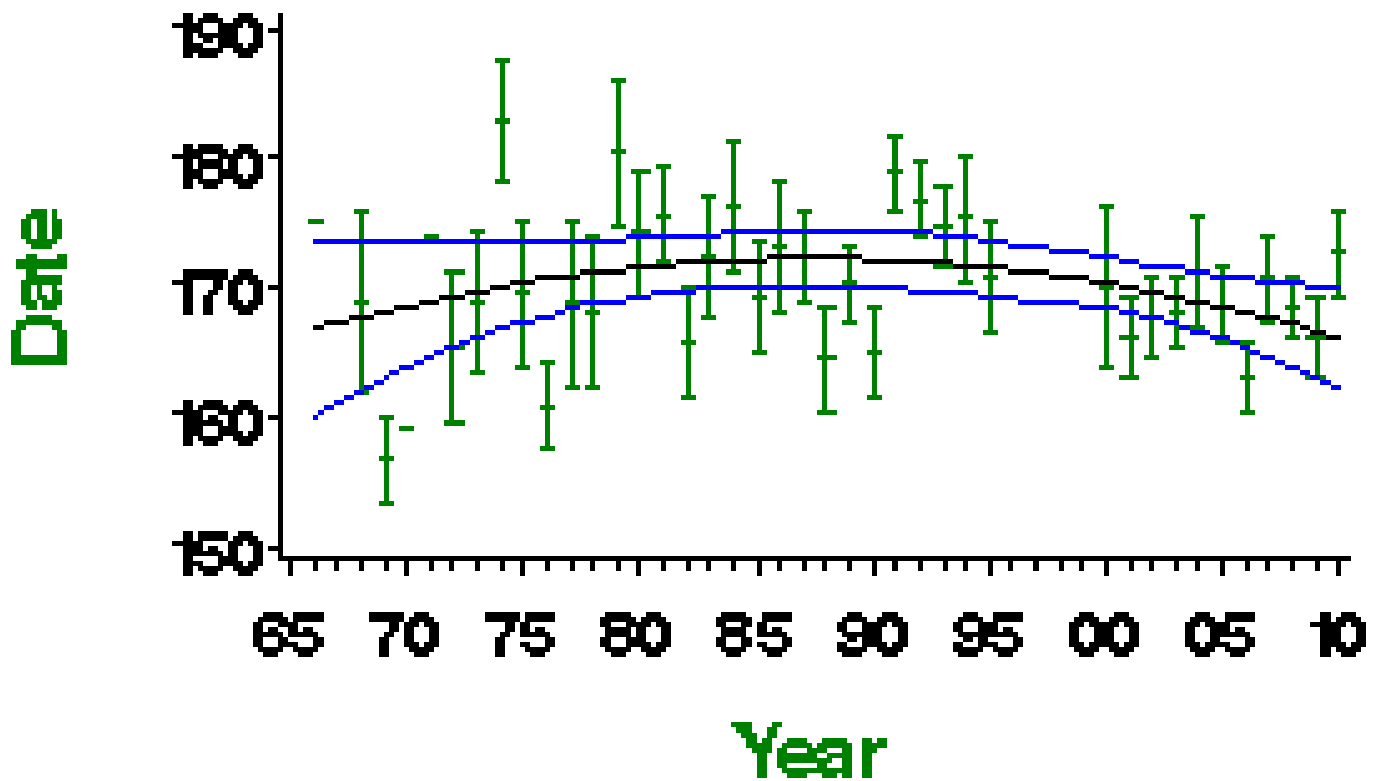
Annual breeding population changes for this species are not currently monitored by BTO

Demographic trends



Laying date 1966–2010

Nightjar



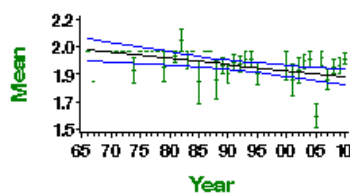
More on demographic trends

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Fledglings per breeding attempt	41	1968-2009	13	Linear decline	1.44 fledglings	0.71 fledglings	-50.8%		
Clutch size	41	1968-2009	18	Linear decline	2.00 eggs	1.83 eggs	-8.2%		Small sample
Brood size	41	1968-2009	26	None					Small sample
Nest failure rate at egg stage	41	1968-2009	23	Linear increase	1.21% nests/day	3.86% nests/day	219.0%		Small sample
Nest failure rate at chick stage	41	1968-2009	21	Curvilinear	0.12% nests/day	0.71% nests/day	491.7%		Small sample
Laying date	41	1968-2009	20	Curvilinear	Jun 17	Jun 16	-1 days		Small sample

For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).

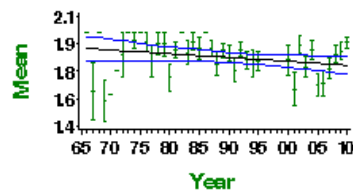
Clutch size 1966–2010

Nightjar



Brood size 1966—2010

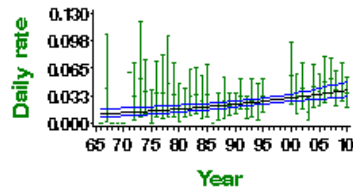
Nightjar



Mean number of chicks per nest - green bars represent standard error and black line shows long-term trend

Egg stage nest failure rate

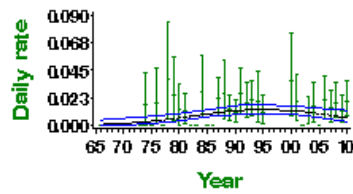
Nightjar



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Chick stage nest failure rate

Nightjar



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

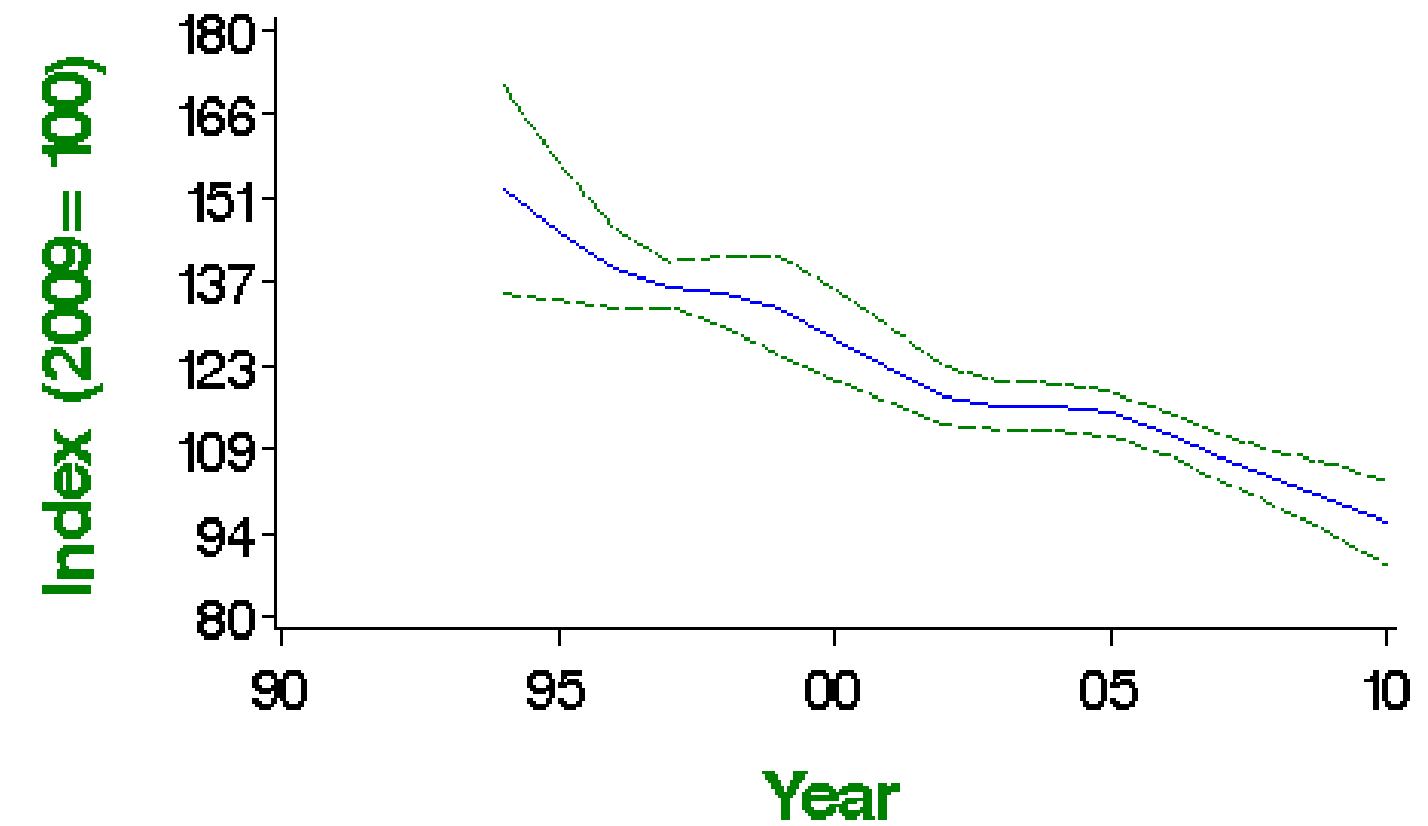
Key facts

Conservation listings:	Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe) (BiE04) UK: amber (25-50% decline) (BoCC3)
Long-term trend:	UK: decline
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). Crowe et al. 2010).

BBS UK 1994–2010
Swift



Smoothed population index, relative to an arbitrary 100 in the year given, with 85% confidence limits in green

Population changes in detail

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
BBS UK	14	1995-2009	1022	-31	-40	-22	>25	
	10	1999-2009	1096	-25	-32	-18		
	5	2004-2009	1200	-14	-20	-6		
BBS England	14	1995-2009	882	-32	-41	-21	>25	

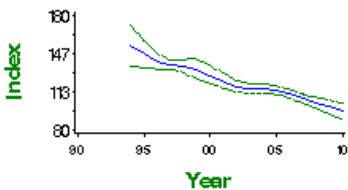
Source	Period (yrs)	1999-2009 Years	90% CIs (n)	Change (%)	Lower limit	Upper limit	>25 Alert	Comment
	5	2004-2009	1036	-15	-21	-9		
BBS Scotland	14	1995-2009	50	-27	-58	3		
	10	1999-2009	53	9	-31	64		
	5	2004-2009	60	25	-24	88		
BBS Wales	14	1995-2009	67	-50	-64	-28	>50	
	10	1999-2009	75	-50	-65	-34	>50	
	5	2004-2009	75	-39	-52	-26	>25	

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



BBS UK 1994–2010

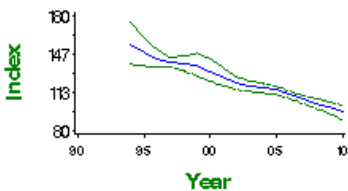
Swift



BBS UK graph

BBS England 1994–2010

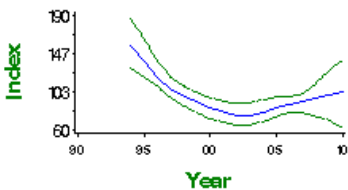
Swift



BBS England graph

BBS Scotland 1994–2010

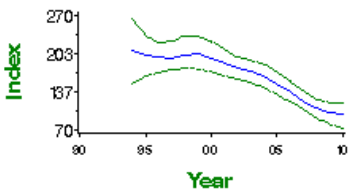
Swift



BBS Scotland graph

BBS Wales 1994–2010

Swift



BBS Wales graph

Demographic trends

Productivity and survival trends for this species are not currently produced by BTO

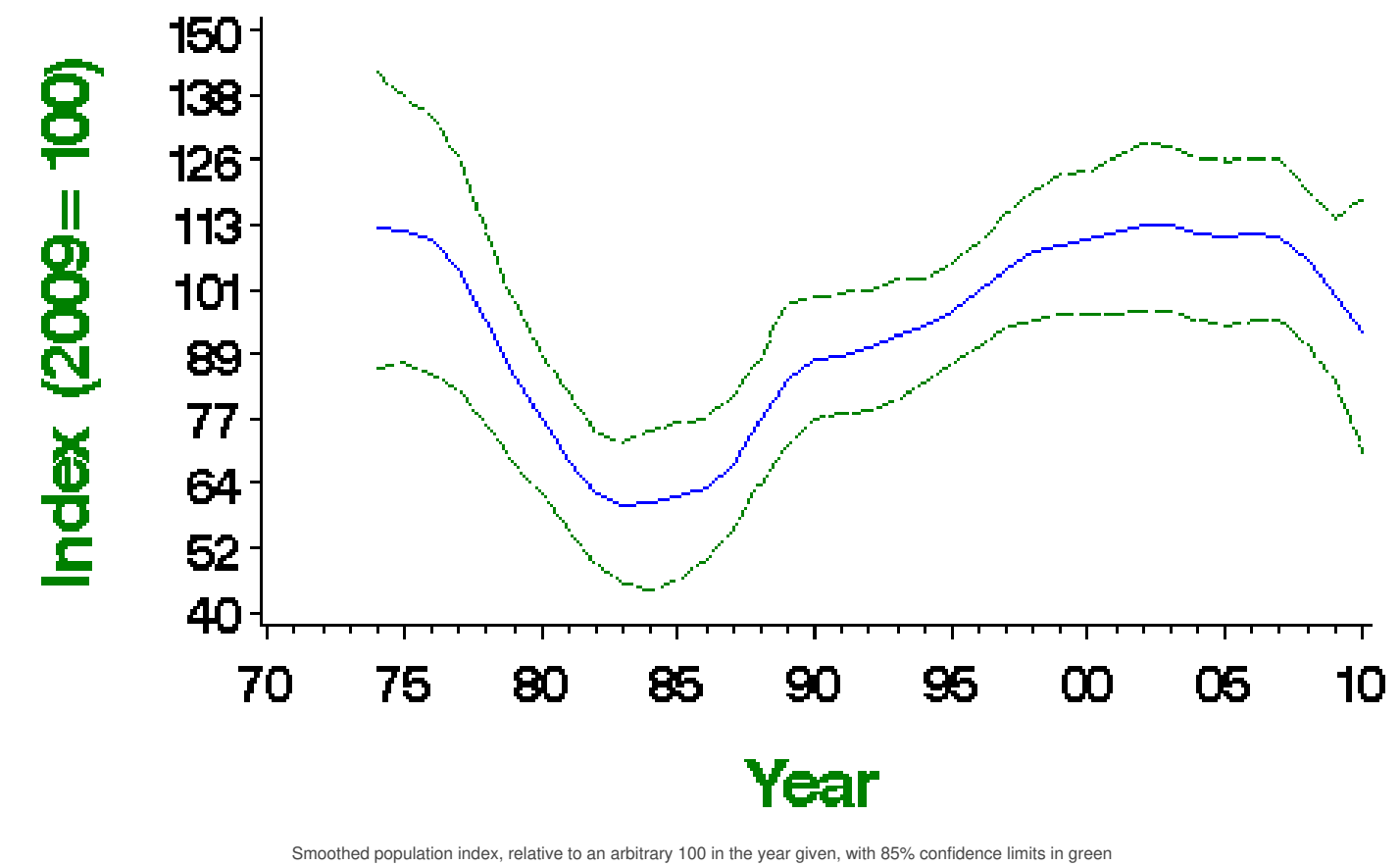
Key facts

Conservation listings:	Europe: SPEC category 3 (depleted) (BiE04) UK: amber (European status) (BoCC3)
Long-term trend:	UK waterways: fluctuating, with no long-term trend
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).

WBS/WBBS 1974–2010
Kingfisher



Smoothed population index, relative to an arbitrary 100 in the year given, with 85% confidence limits in green

Population changes in detail

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
WBS/WBBS waterways	34	1975-2009	54	-11	-40	42		
	25	1984-2009	63	65	13	156		
	10	1999-2009	103	-8	-23	8		
	5	2004-2009	104	-11	-23	4		
BBS UK	14	1995-2009	56	-17	-34	12		

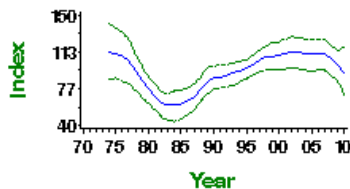
Source	10 Period (yrs)	1999-2009 Years	61 Plots	-10 Change (%)	-33 Lower limit	13 Upper limit	Alert >25	Comment
BBS England	14	1995-2009	49	-11	-30	23		
	10	1999-2009	54	3	-21	34		
	5	2004-2009	62	-25	-35	-10		

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See here for more information.



WBS/WBBS 1974—2010

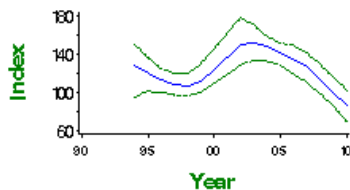
Kingfisher



WBS/WBBS waterways graph

BBS UK 1994—2010

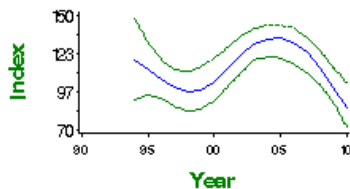
Kingfisher



BBS UK graph

BBS England 1994—2010

Kingfisher



BBS England graph

Demographic trends

Productivity and survival trends for this species are not currently produced by BTO

This report should be cited as: Baillie, S.R., Marchant, J.H., Leech, D.I., Renwick, A.R., Eglington, S.M., Joys, A.C., Noble, D.G., Barimore, C., Conway, G.J., Downie, I.S., Risely, K. & Robinson, R.A. (2012). BirdTrends 2011. BTO Research Report No. 609. BTO, Thetford. <https://www.bto.org/birdtrends>

Key facts

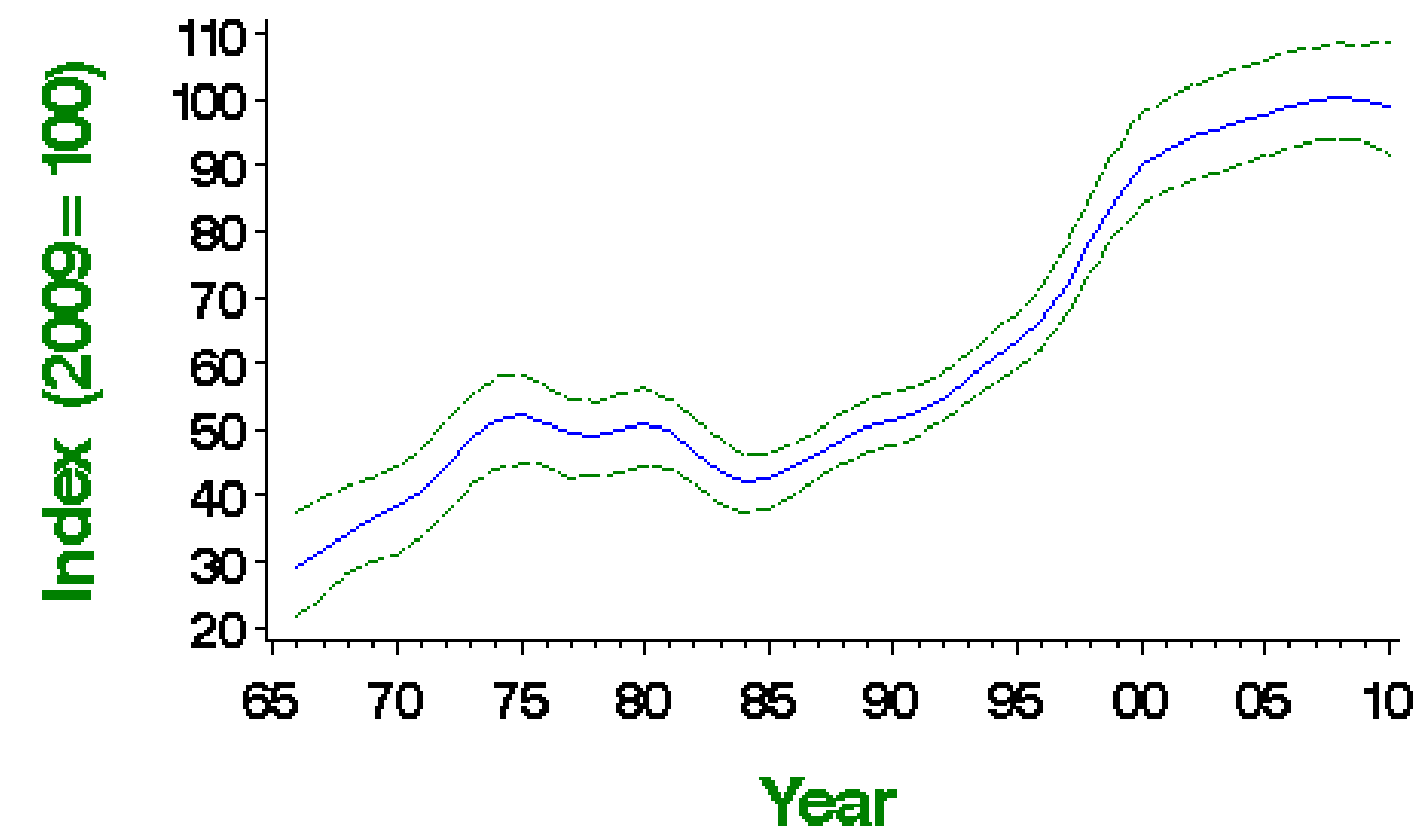
Conservation listings:	Europe: SPEC category 2 (depleted) (BiE04) UK: amber (European status) (BoCC3)
Long-term trend:	England: rapid increase
Population size:	24,200 pairs in 2000 (1988-91 Atlas estimate updated using CBC trend: BiE04, APEP06)
Migrant status:	Resident
Nesting habitat:	Cavity nester
Primary breeding habitat:	Woodland
Secondary breeding habitat:	
Breeding diet:	Animal
Winter diet:	Animal

Status summary

Green Woodpecker populations have risen steadily in Britain since 1966, except for a period of stability or shallow decline centred around 1980. 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 might be continuing across England, but not in Wales, where some contraction of range has recently been detected. Numbers have shown widespread moderate increase across Europe since 1980 (PECBMS 2011a).

CBC/BBS England 1966–2010

Green Woodpecker



Smoothed population index, relative to an arbitrary 100 in the year given, with 85% confidence limits in green

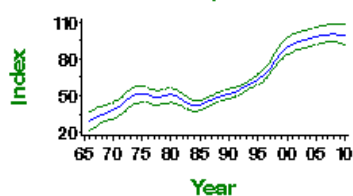
Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS England	42	1967-2009	310	214	132	341		
	25	1984-2009	477	139	103	197		
	10	1999-2009	849	17	13	24		
	5	2004-2009	951	4	0	8		
BBS UK	14	1995-2009	782	47	39	59		
	10	1999-2009	889	17	11	21		
	5	2004-2009	1017	3	-1	6		
BBS England	14	1995-2009	723	56	44	66		
	10	1999-2009	824	18	13	24		
	5	2004-2009	941	3	-1	6		
BBS Wales	14	1995-2009	48	-5	-27	23		
	10	1999-2009	51	-2	-22	22		
	5	2004-2009	57	-5	-21	13		

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



CBC/BBS England 1966—2010

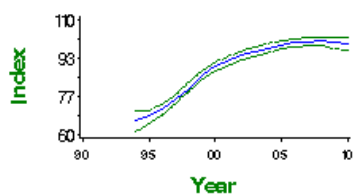
Green Woodpecker



CBC/BBS England graph

BBS UK 1994—2010

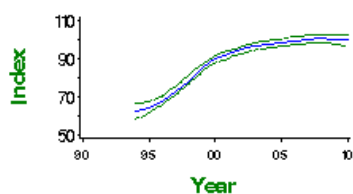
Green Woodpecker



BBS UK graph

BBS England 1994—2010

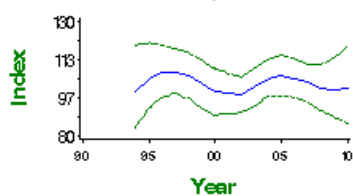
Green Woodpecker



BBS England graph

BBS Wales 1994—2010

Green Woodpecker



Demographic trends

Productivity and survival trends for this species are not currently produced by BTO

Causes of change

There is little evidence available regarding the demographic or ecological causes of population increase in this species.

Change factor	Primary driver	Secondary driver
Demographic	Unknown	
Ecological	Unknown	

Further information on causes of change

No information on demographic trends for this species is available. The ecological factors underlying the increase in population size are not yet known but, given the species' susceptibility to cold weather, it may be related to climate change. Smith (2007) found that Green Woodpeckers were not limited by nest-sites in his study woods in southern England and linked the upward trend in numbers to the availability of food outside the woods and higher survival due to a series of mild winters.

Species references

Smith, K.W. (2007) The utilization of dead wood resources by woodpeckers in Britain. Ibis 149: 183-192.

This report should be cited as: Baillie, S.R., Marchant, J.H., Leech, D.I., Renwick, A.R., Eglington, S.M., Joys, A.C., Noble, D.G., Barimore, C., Conway, G.J., Downie, I.S., Risely, K. & Robinson, R.A. (2012). BirdTrends 2011. BTO Research Report No. 609. BTO, Thetford. <https://www.bto.org/birdtrends>

Key facts

Conservation listings:	Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe) (BiE04) UK: green (species level); amber (race <i>anglicus</i> , >20% of European breeders) (BoCC3)
Long-term trend:	UK, England: rapid increase
Population size:	37,000-44,400 pairs in 2000 (1988-91 Atlas estimate updated using CBC/BBS trend: BiE04, APEP06)

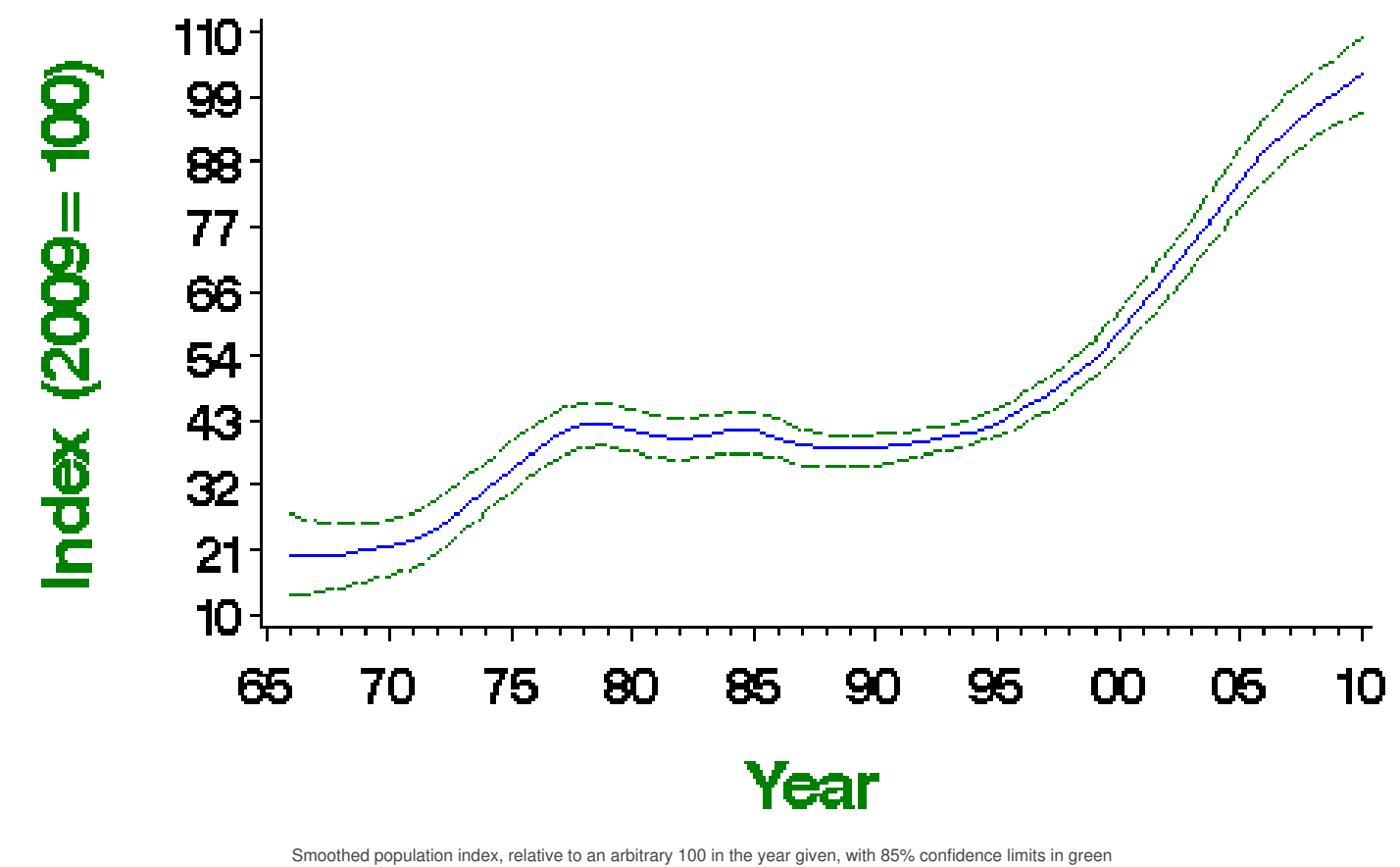
Migrant status:	Resident
Nesting habitat:	Cavity nester
Primary breeding habitat:	Woodland
Secondary breeding habitat:	
Breeding diet:	Animal
Winter diet:	Animal

Status summary

This species increased rapidly in the 1970s and began a further increase in the early 1990s. Numbers have shown widespread moderate increase across Europe since 1980 (PECBMS 2011a). A completely unexpected colonisation of Ireland, where there had previously been no resident woodpeckers, began in 2008.

CBC/BBS UK 1966—2010

Great Spotted Woodpecker

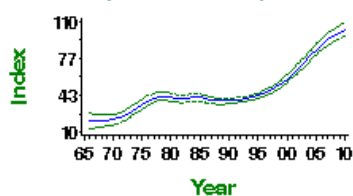


Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS UK	42	1967-2009	412	403	264	693		
	25	1984-2009	636	141	109	184		
	10	1999-2009	1163	85	75	94		
	5	2004-2009	1379	27	20	32		
CBC/BBS England	42	1967-2009	365	366	245	634		
	25	1984-2009	563	126	96	161		
	10	1999-2009	1020	71	62	80		
	5	2004-2009	1203	20	16	26		
BBS UK	14	1995-2009	975	139	123	155		
	10	1999-2009	1141	83	74	92		
	5	2004-2009	1379	27	22	32		
BBS England	14	1995-2009	850	120	106	133		
	10	1999-2009	989	68	59	76		
	5	2004-2009	1184	20	16	24		
BBS Scotland	14	1995-2009	43	311	202	462		
	10	1999-2009	54	176	103	280		
	5	2004-2009	75	48	22	76		
BBS Wales	14	1995-2009	71	178	125	253		
	10	1999-2009	84	132	95	174		
	5	2004-2009	99	67	42	94		

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.

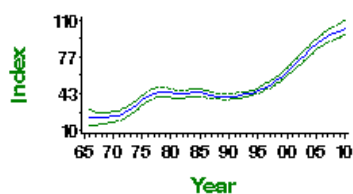


CBC/BBS UK 1966—2010
Great Spotted Woodpecker



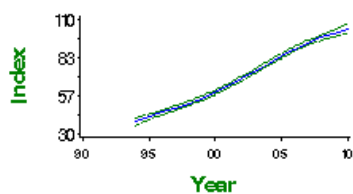
CBC/BBS UK graph

CBC/BBS England 1966—2010
Great Spotted Woodpecker

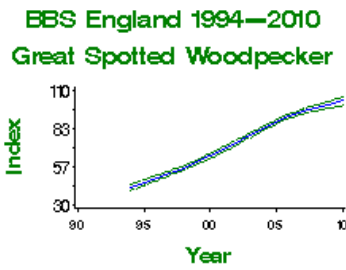


CBC/BBS England graph

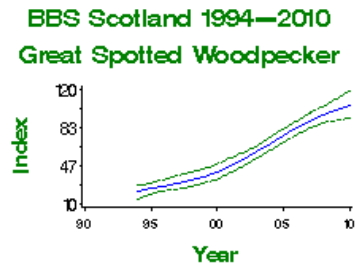
BBS UK 1994—2010
Great Spotted Woodpecker



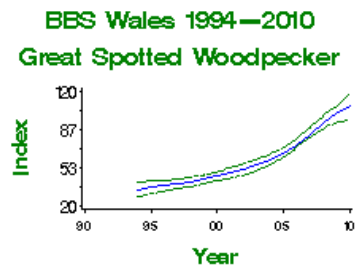
BBS UK graph



BBS England graph



BBS Scotland graph

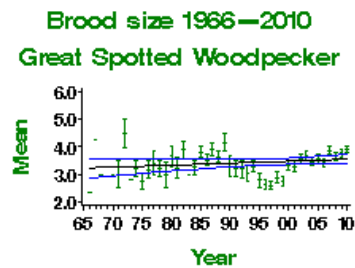


BBS Wales graph

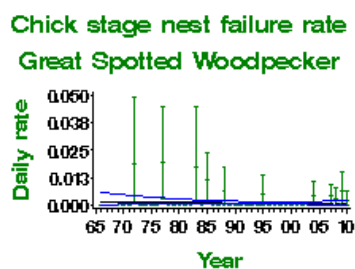
Demographic trends

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Brood size	41	1968-2009	29	None					Small sample
Nest failure rate at chick stage	41	1968-2009	34	None					

For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).



Mean number of chicks per nest - green bars represent standard error and black line shows long-term trend



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Causes of change

There is good evidence that nest survival has increased, most likely due to decreased competition with Starlings. This is based on one local study but supported by more extensive analysis of nest record cards.

Change factor	Primary driver	Secondary driver
Demographic	Increased breeding success	
Ecological	Decreased competition	

Further information on causes of change

The initial increase in Great Spotted Woodpeckers during the 1970s has been attributed to Dutch elm disease, which greatly increased the amount of standing dead timber, thereby increasing associated insects and so improving food supplies and providing nest sites (Marchant et al. 1990). However, studies giving demographic evidence supporting the effects of this are sparse. There has been speculation that the storms of 1987 and 1990 also benefited Great Spotted Woodpeckers by increasing the availability of dead wood, although a detailed study by Smith (1997), in two study woodlands, reported no specific link between woodpecker increase and the storms, despite the increase in dead wood.

A long-term study of the breeding success of an increasing population of Great Spotted Woodpeckers in southern England provides good evidence that nest survival has increased dramatically over the last 20 years (Smith 2005, 2006). Nest-site interference by Starlings was frequent during the 1980s and was described as the main cause of low nest survival and delayed nesting. Smith found that Starling numbers declined to such an extent later in the study that they ceased to nest in the study woods and nest-site interference was no longer a factor. Thus, the reduction in nest-site competition from Starlings is likely to be one of the factors contributing to the increase in Great Spotted Woodpeckers. Smith (2005) analysed national nest record cards and found similar trends in nest survival, supporting the hypothesis that reduced competition with Starlings has led to the increase in woodpecker population. The decline in Starling numbers in recent decades may also have allowed Great Spotted Woodpeckers to expand their breeding distribution into less wooded habitats (Smith 2005).

It is possible that recent increases of Great Spotted Woodpeckers, are also, at least in part, driven by changing climate (Fuller et al. 2005). In Scandinavia (Nilsson et al. 1992) and Białowieża Forest, Poland, (Wesolowski & Tomialojc 1986) breeding numbers were found to be related to the severity of the preceding winter and the availability of conifer seeds on which the birds then feed. No similar relationship has been found in Britain (Marchant et al. 1990), which is probably not surprising given our relatively mild winters (Smith 1997). Smith (2006) found no evidence that increasing spring temperatures impacted on clutch size, nesting success or number of young fledged.

Species references

Fuller, R.J., Noble, D.G., Smith, K.W. & Vanhinsbergh, D. (2005) Recent declines in populations of woodland birds in Britain: a review of possible causes. *British Birds* 98: 116-143.

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Smith, K.W. (2006) The implications of nest site competition from Starlings *Sturnus vulgaris* and the effect of spring temperatures on the timing and breeding performance of Great Spotted Woodpeckers *Dendrocopos major* in southern England. *Annales Zoologici Fennici* 43: 177-185.

Wesolowski, T. & Tomialojc, L. (1986) The breeding ecology of woodpeckers in a temperate primaeval forest - preliminary data. *Acta Ornithologica* 22: 1-21.

This report should be cited as: Baillie, S.R., Marchant, J.H., Leech, D.I., Renwick, A.R., Eglington, S.M., Joys, A.C., Noble, D.G., Barimore, C., Conway, G.J., Downie, I.S., Risely, K. & Robinson, R.A. (2012). *BirdTrends 2011*. BTO Research Report No. 609. BTO, Thetford. <https://www.bto.org/birdtrends>

Lesser Spotted Woodpecker

Dryobates minor

Key facts

Conservation listings:	Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe) (BiE04) UK: red (>50% population decline) (BoCC3) UK Biodiversity Action Plan: priority species
Long-term trend:	UK: rapid decline
Population size:	1,400-2,900 pairs in 2000 (1988-91 Atlas estimate updated using CBC trend: BiE04, APEP06)
Migrant status:	Resident
Nesting habitat:	Cavity nester
Primary breeding habitat:	Woodland
Secondary breeding habitat:	
Breeding diet:	Animal
Winter diet:	Animal

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 first 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. All UK breeding records since 2010 should be forwarded to the Rare Breeding Birds Panel. Lesser Spotted Woodpecker has been one of the most strongly declining bird species in Europe, with widespread rapid decrease since 1980 (PECBMS 2007, 2011a).



Smoothed population index, relative to an arbitrary 100 in 1999, with 85% confidence limits in green

Population changes in detail

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

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See here for more information.



CBC all habitats graph

Demographic trends

Productivity and survival trends for this species are not currently produced by BTO

Causes of change

The demographic causes of decline are not yet known and, although there is low breeding success in some populations, the reasons for the decline are unclear.

Change factor	Primary driver	Secondary driver
Demographic	Unknown	
Ecological	Unknown	

Further information on causes of change

The demographic causes of decline are not yet known, and although there is low breeding success in some populations the reasons for the decline in the UK and elsewhere in Europe are unclear (Charman et al. 2009). A detailed field study in Sweden provided good evidence that neither clutch size, brood size in successful nests, fledging success in successful nests nor mean nestling weight differed significantly between years, despite a threefold difference in population variation (Wiktander et al. 2001).

Loss of open woodland is one factor that has been suggested to have contributed to declines in this species. Lesser Spotted Woodpecker is a species that requires mature, open woodland and large areas of woodland at a landscape scale (Wiktander et al. 2001, Charman et al. 2010). Wiktander et al. postulate that the decrease in the area of deciduous forest in Sweden is probably one cause of this species' decline, although they present no specific evidence to support this (Wiktander et al. 1992). Loss of dead wood within woodlands has been proposed as another factor; however, given that dead wood has increased in Britain (Amar et al. 2010) this seems an unlikely cause here. A field study in Poland provided evidence that Lesser Spotted Woodpecker presence is closely correlated with the amount of dead wood and large deciduous trees (Angelstam et al. 2002). In their review of the causes of declines of woodland birds Fuller et al. (2005) state that reductions in small-diameter dead wood suitable for foraging may be a factor in the decline, although recent surveys provided evidence that there was no difference in dead-wood abundance between occupied and unoccupied woods (Charman et al. 2010). However, dead snags have a high turnover and were found to be suitable for nesting sites by woodpeckers for only a few years after death and, furthermore, dead-wood conditions may now be more favourable for Great Spotted Woodpeckers (Smith 2007).

A third hypothesis relates to competition and predation. A field study in Sweden found that Great Spotted Woodpeckers compete with Lesser Spotted for insect food in dead wood when spruce seed crops are low (Nilsson et al. 1992), but evidence for this in Britain is limited (Charman et al. 2010). The two species may compete for nest sites, since they overlap considerably in their use of nesting substrates (Glue & Boswell 1994). Amar et al. (2006) found that Lesser Spotted Woodpecker decreased more heavily in woods with relatively high numbers of grey squirrel dreys but there was no other evidence that squirrel density was a significant factor in declines.

Changing climate has been found to have an impact on survival and reproduction in some populations. In Norway, a positive relationship between spring numbers of Lesser Spotted Woodpecker and previous June temperatures has been interpreted as an effect of temperatures on woodpecker survival and reproduction during the breeding season (Steen et al. 2006, Selas et al. 2008). Steen et al. (2006) also found that winter temperatures exhibit a direct positive effect on winter survival. However, given that there has been a general trend for increasing temperatures in the UK (see [here](#)), it seems unlikely that changes in climate have been responsible for Lesser Spotted Woodpecker declines. Work in Sweden and Germany suggests that changes in phenology could play a role in breeding success, finding that declines in food availability during the breeding season are likely to be related to seasonal declines in reproductive performance as woodpeckers adjust their timing of breeding to coincide with the seasonal food peak (Wiktander et al. 2001, Rossmann et al. 2007). However, there is little further evidence for this.

Species references

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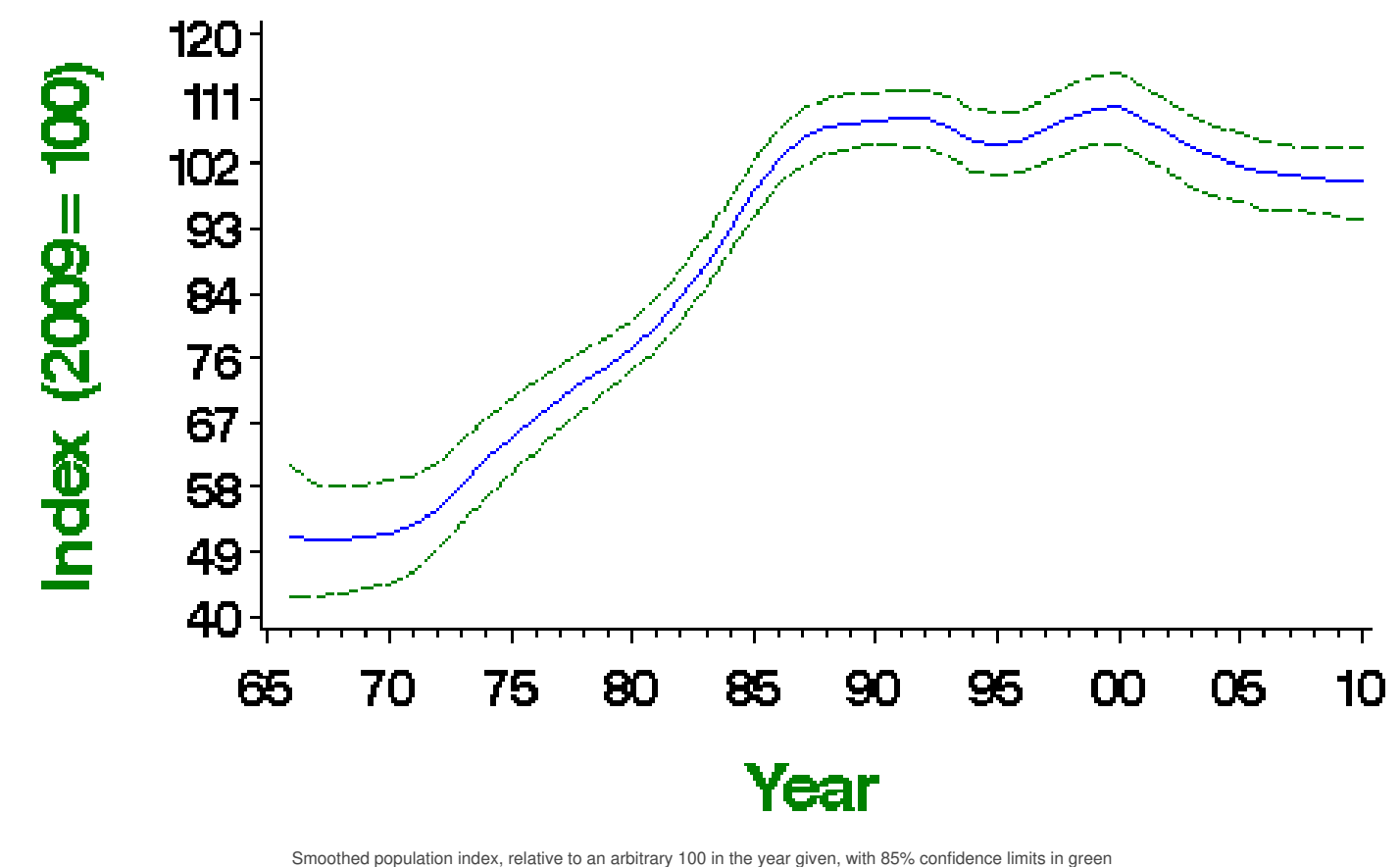
Key facts

Conservation listings:	Europe: no SPEC category (not concentrated in Europe, conservation status favourable) (BiE04) UK: green (BoCC3)
Long-term trend:	UK: moderate increase England: rapid increase
Population size:	650,000 territories in 2000 (1988-91 Atlas estimate updated using CBC/BBS trend: BiE04, APEP06)
Migrant status:	Resident
Nesting habitat:	Above-ground nester
Primary breeding habitat:	Woodland
Secondary breeding habitat:	Human habitats
Breeding diet:	Animal
Winter diet:	Vegetation

Status summary

Magpies increased steadily until the late 1980s, after which abundance stabilised (Gregory & Marchant 1996). A minor decrease has been recorded in the UK during the last ten years. There has been widespread moderate decrease across Europe since 1980 (PECBMS 2011a).

CBC/BBS UK 1966–2010
Magpie



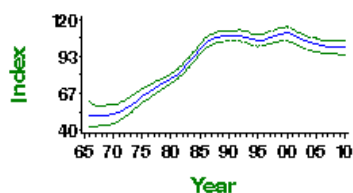
Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS UK	42	1967-2009	754	98	63	145		
	25	1984-2009	1166	7	-2	16		
	10	1999-2009	2020	-9	-12	-6		
	5	2004-2009	2228	-3	-6	0		
CBC/BBS England	42	1967-2009	640	104	62	165		
	25	1984-2009	984	11	1	21		
	10	1999-2009	1684	-6	-9	-3		
	5	2004-2009	1866	-2	-5	1		
BBS UK	14	1995-2009	1809	-3	-7	1		
	10	1999-2009	1982	-9	-12	-6		
	5	2004-2009	2208	-4	-6	-1		
BBS England	14	1995-2009	1512	-3	-7	2		
	10	1999-2009	1649	-6	-9	-3		
	5	2004-2009	1849	-2	-5	0		
BBS Scotland	14	1995-2009	44	2	-23	42		
	10	1999-2009	49	-16	-32	3		
	5	2004-2009	56	-16	-31	3		
BBS Wales	14	1995-2009	160	-10	-21	-1		
	10	1999-2009	178	-13	-22	-5		
	5	2004-2009	187	6	-2	13		
BBS N.Ireland	14	1995-2009	81	13	-12	43		
	10	1999-2009	93	-17	-25	-9		
	5	2004-2009	101	-12	-20	-2		

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



CBC/BBS UK 1966–2010

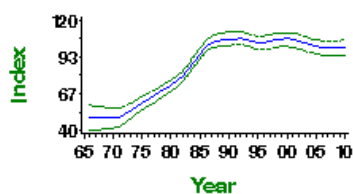
Magpie



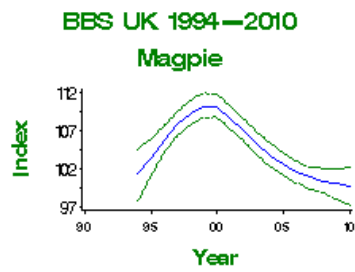
CBC/BBS UK graph

CBC/BBS England 1966–2010

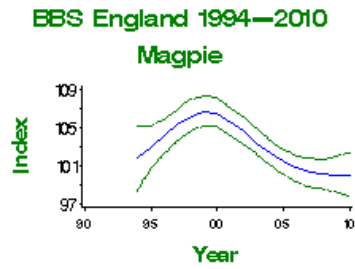
Magpie



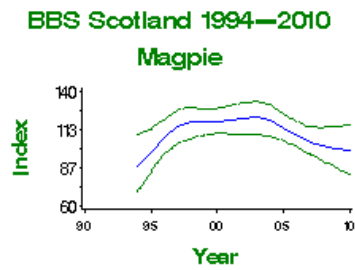
CBC/BBS England graph



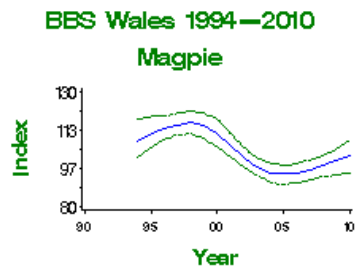
BBS UK graph



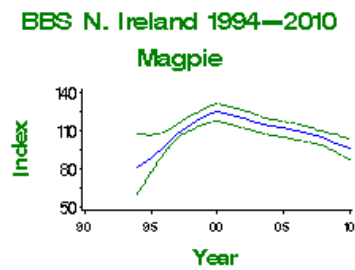
BBS England graph



BBS Scotland graph

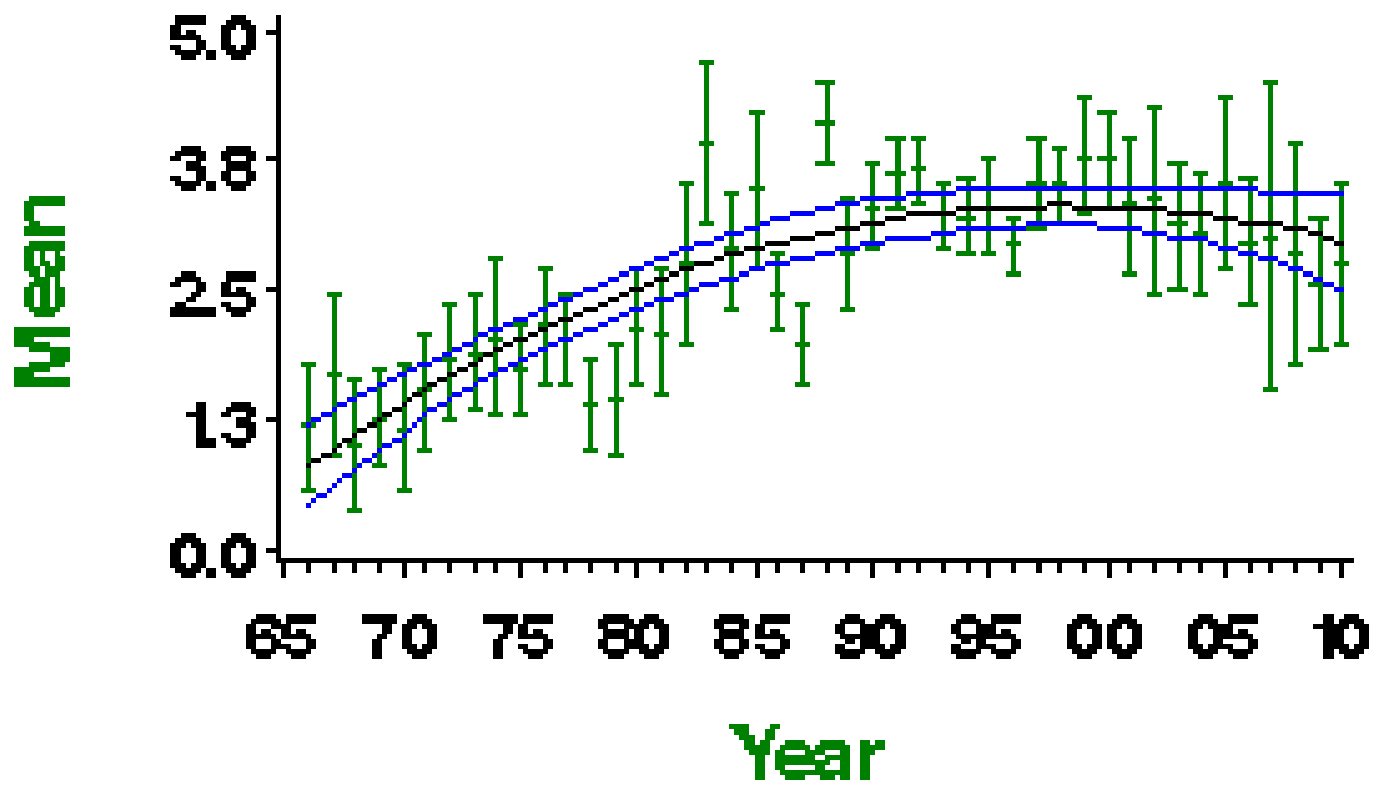


BBS Wales graph



BBS N. Ireland graph

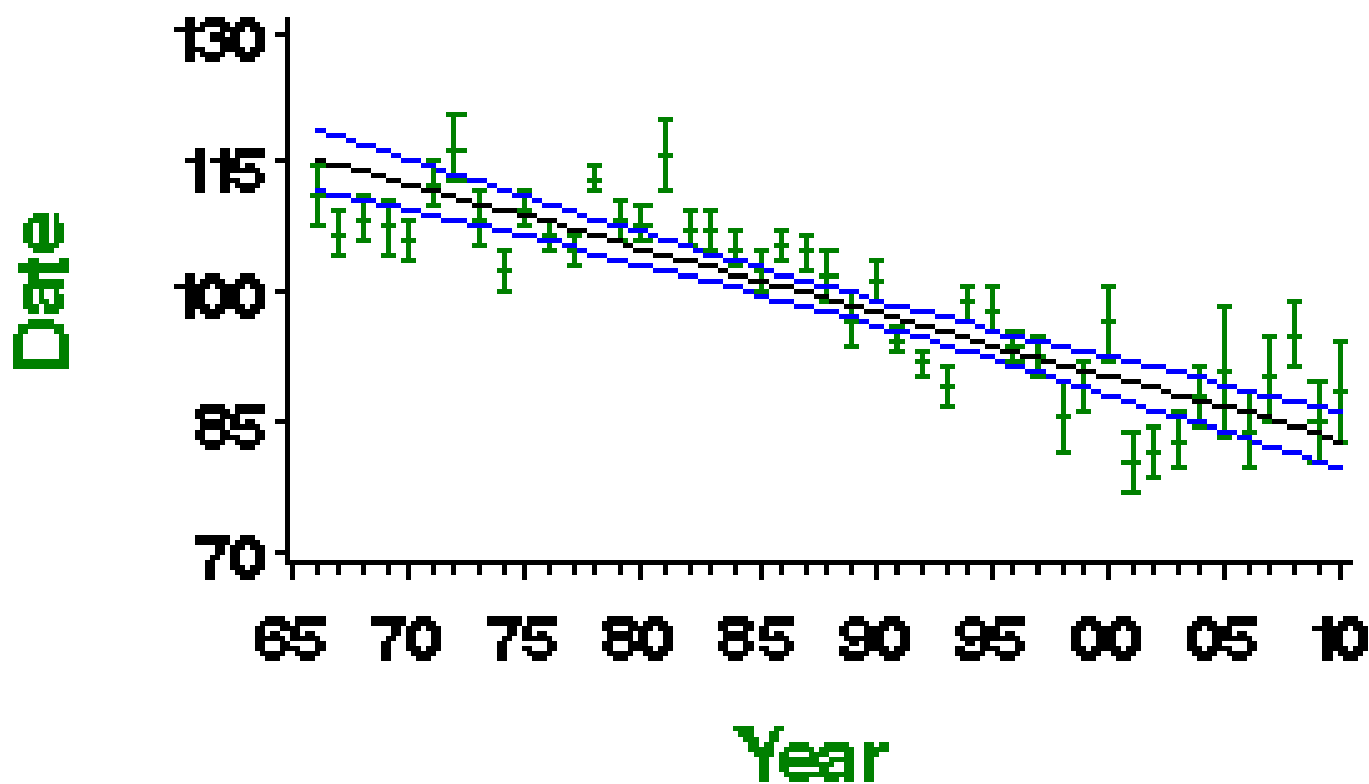
Fledglings per breeding attempt 1966–2010 Magpie



Mean number of fledglings produced per nest - green bars represent standard error and black line shows long-term trend

Laying date 1966—2010

Magpie



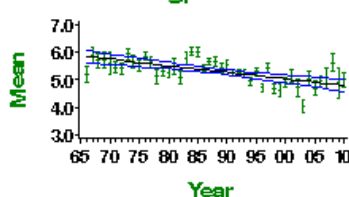
More on demographic trends

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Fledglings per breeding attempt	41	1968-2009	31	Curvilinear	1.12 fledglings	3.03 fledglings	169.4%		
Clutch size	41	1968-2009	43	Linear decline	5.80 eggs	4.83 eggs	-16.7%		
Brood size	41	1968-2009	75	Curvilinear	3.12 chicks	2.57 chicks	-17.5%		
Nest failure rate at egg stage	41	1968-2009	49	Linear decline	2.74% nests/day	0.22% nests/day	-92.0%		
Nest failure rate at chick stage	41	1968-2009	47	Linear decline	1.66% nests/day	0.12% nests/day	-92.8%		
Laying date	41	1968-2009	33	Linear decline	Apr 24	Mar 25	-30 days		

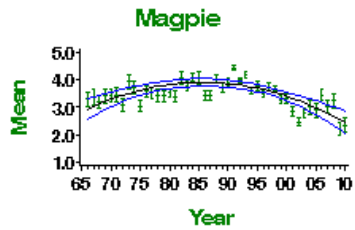
For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).

Clutch size 1966—2010

Magpie

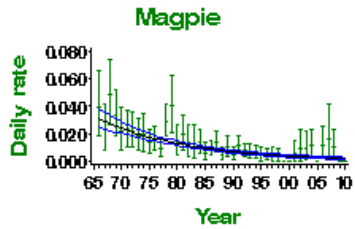


Brood size 1966—2010



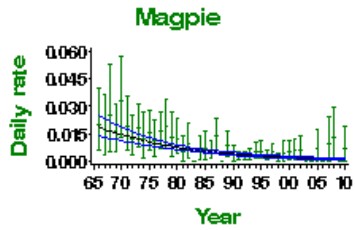
Mean number of chicks per nest - green bars represent standard error and black line shows long-term trend

Egg stage nest failure rate



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Chick stage nest failure rate



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Causes of change

The number of fledglings per breeding attempt increased dramatically up until the 1990s but then stabilised, a pattern mirroring the population index, which suggests that changing breeding success has been an important driver of population change. There is little published evidence about the ecological drivers of change. Changes in control of Magpies could have played a role, but their generalist ecology means that they are able to prosper in suburban and intensively farmed landscapes, which is likely to have allowed populations to reach a historically high equilibrium level.

Change factor	Primary driver	Secondary driver
Demographic	Change in breeding success	
Ecological	Unknown	

Further information on causes of change

Although there is little evidence directly supporting this, it is likely that the stabilisation in Magpie numbers reflects the population reaching carrying capacity in the intensively farmed and modern suburban landscapes. The fact that recent stability or decline is associated with parallel trends in fledglings per breeding attempt supports this. Demographic data presented here show that the number of fledglings per breeding attempt increased dramatically up until the 1990s but then stabilised (see above). Although clutch and brood sizes have declined over the whole time series (1968-2009), there have also been decreases in the failure of nests at the egg and chick stages (see above). A strong trend towards earlier laying has also been identified and may be partly explained by recent climate change (Crick & Sparks 1999).

The historical increases in Magpies have occurred at the same time as falling levels of control by gamekeepers from the time of the First World War (Tapper 1992), but there is no direct evidence for a causal link. 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 data](#)), and this could have played a role in stabilising population growth in some areas, but is unlikely to explain population change in towns and cities and is inconsistent with the observed changes in breeding success.

Magpies have increased in farmland and woodland habitats, with the largest population growth on mixed and pastoral farms, and the smallest on arable land (Gregory & Marchant 1996). The remarkable adaptability of Magpies has enabled them to colonise many new urban and suburban localities since the 1960s.

Species references

Crick, H.Q.P. & Sparks, T.H. (1999) Climate change related to egg-laying trends. *Nature* 399: 423-424.

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Key facts

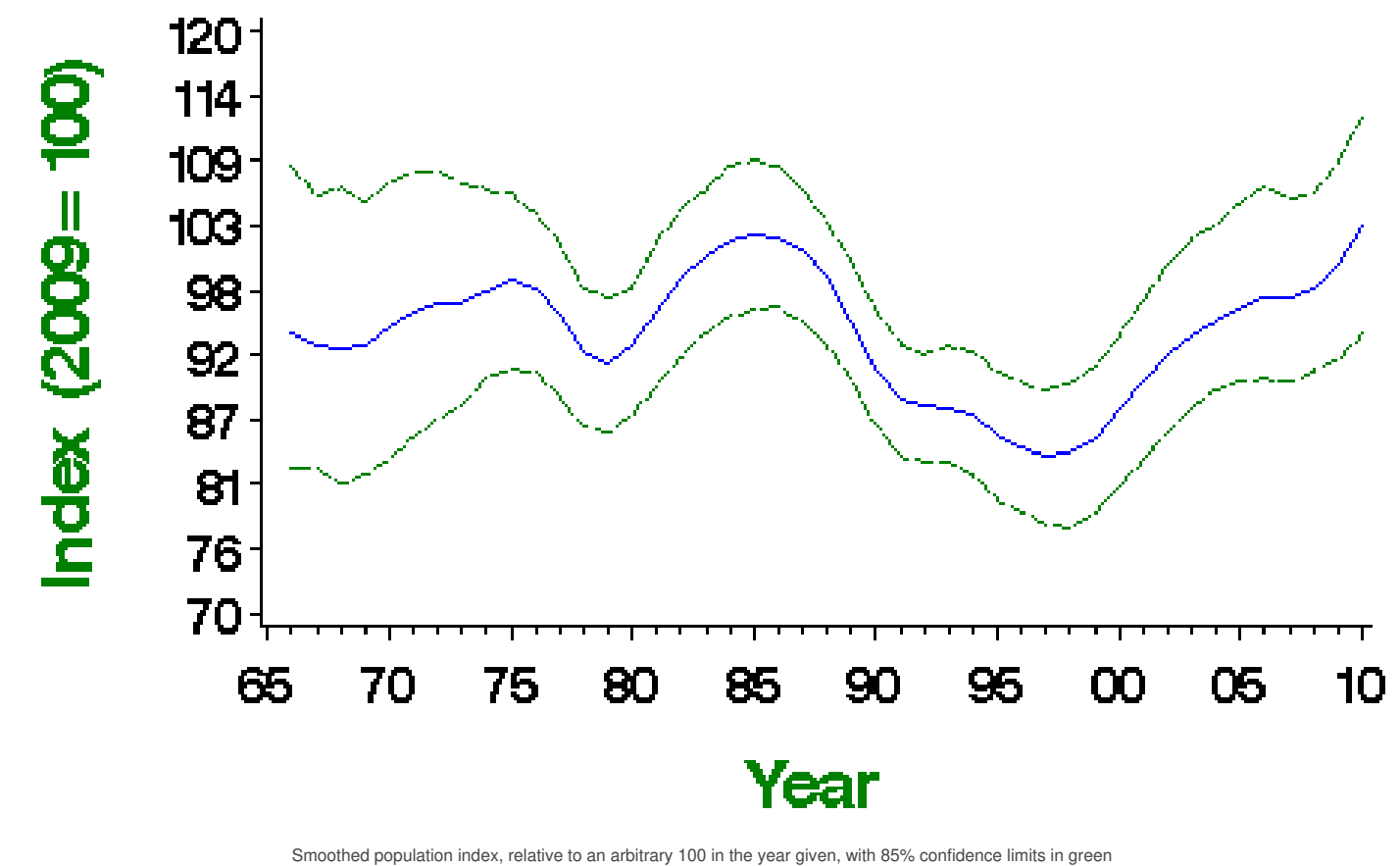
Conservation listings:	Europe: no SPEC category (not concentrated in Europe, conservation status favourable) (BiE04) UK: green (species level); amber (races hibernicus and rufitergum, >20% of European breeders) (BoCC3)
Long-term trend:	UK, England: fluctuating, with no long-term trend
Population size:	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 BBS has recorded some increase in the recent ten-year period. Brood size appears to have increased since 1968. There has been widespread moderate increase across Europe since 1980 (PECBMS 2011a).

CBC/BBS UK 1966–2010

Jay



Population changes in detail

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS UK	42	1967-2009	337	7	-14	32		
	25	1984-2009	492	-2	-14	13		
	10	1999-2009	823	17	10	26		
	5	2004-2009	923	5	-1	11		
CBC/BBS England	42	1967-2009	297	0	-18	32		
	25	1984-2009	431	-9	-21	6		

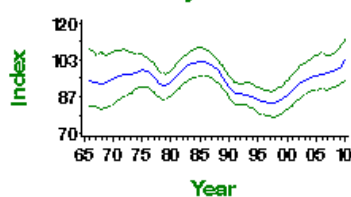
Source	Period (yrs)	1999-2009 Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
	5	2004-2009	795	8	2	14		
BBS UK	14	1995-2009	712	16	8	27		
	10	1999-2009	805	18	11	27		
	5	2004-2009	923	6	0	12		
BBS England	14	1995-2009	613	8	0	14		
	10	1999-2009	689	16	7	25		
	5	2004-2009	788	8	2	13		
BBS Wales	14	1995-2009	69	48	17	87		
	10	1999-2009	78	25	3	56		
	5	2004-2009	86	13	-1	37		

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



CBC/BBS UK 1966—2010

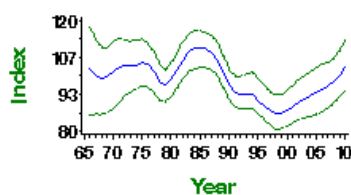
Jay



CBC/BBS UK graph

CBC/BBS England 1966—2010

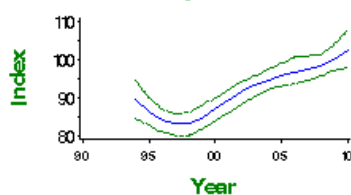
Jay



CBC/BBS England graph

BBS UK 1994—2010

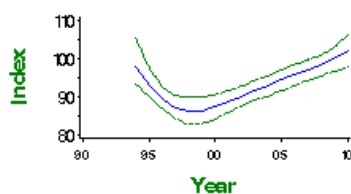
Jay



BBS UK graph

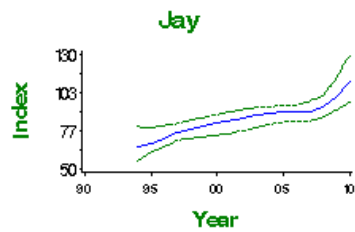
BBS England 1994—2010

Jay



BBS England graph

BBS Wales 1994—2010



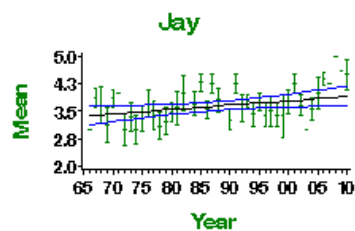
BBS Wales graph

Demographic trends

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Brood size	41	1968-2009	11	Linear increase	3.41 chicks	3.89 chicks	14.1%		Small sample

For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).

Brood size 1966—2010



Mean number of chicks per nest - green bars represent standard error and black line shows long-term trend

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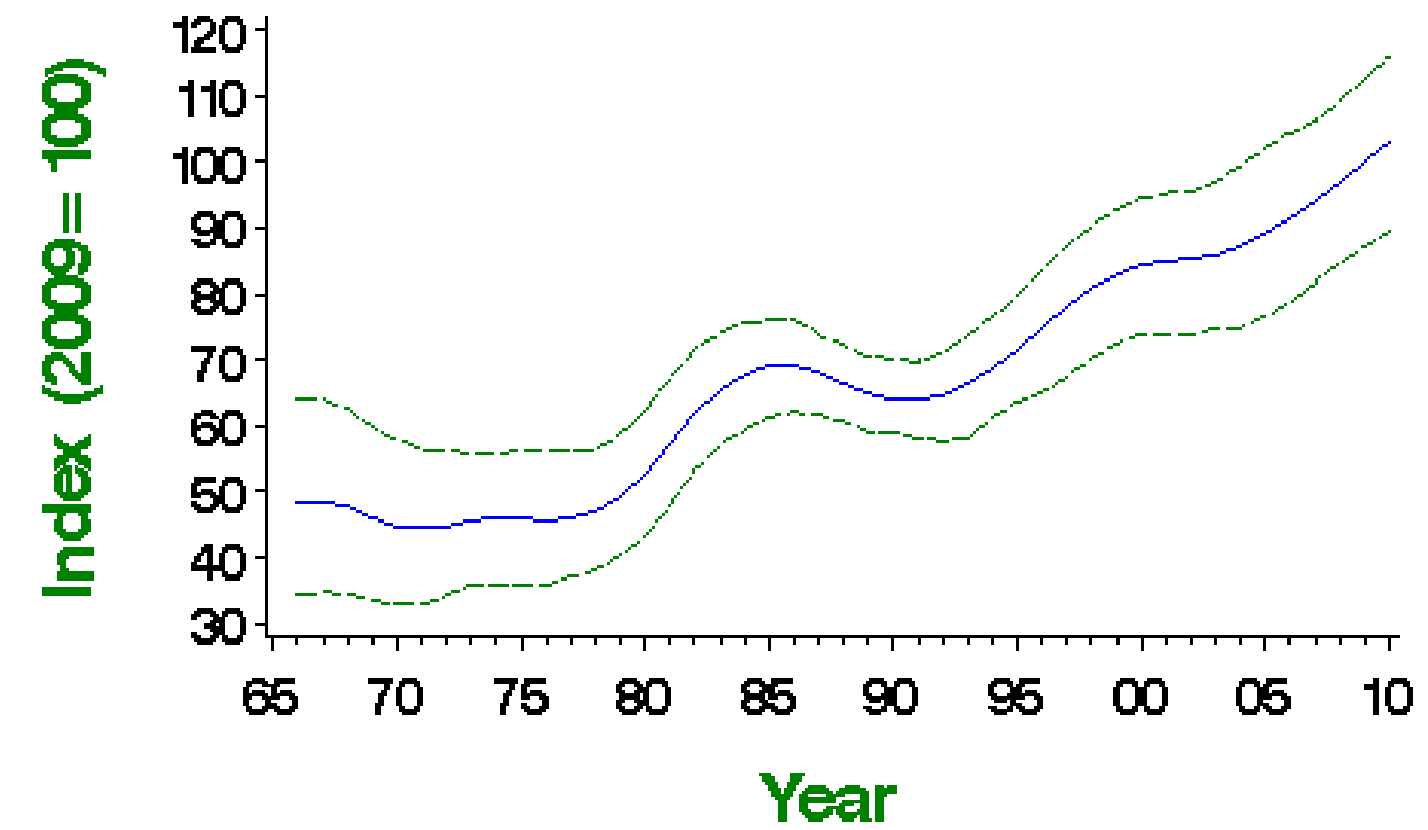
Key facts

Conservation listings:	Europe: no SPEC category (concentrated in Europe, conservation status favourable) (BiE04) UK: green (BoCC3)
Long-term trend:	UK: rapid increase England: moderate increase
Population size:	555,000 territories in 2000 (1988-91 Atlas estimate updated using CBC/BBS trend: BiE04, APEP06)
Migrant status:	Resident
Nesting habitat:	Cavity nester
Primary breeding habitat:	Farmland
Secondary breeding habitat:	
Breeding diet:	Animal
Winter diet:	Animal

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. There has been widespread moderate decrease across Europe since 1980 (PECBMS 2011a).

CBC/BBS UK 1966–2010
Jackdaw



Smoothed population index, relative to an arbitrary 100 in the year given, with 85% confidence limits in green

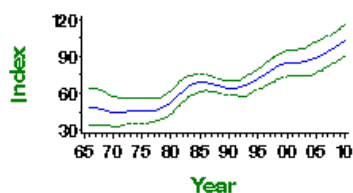
Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS UK	42	1967-2009	619	107	27	246		
	25	1984-2009	994	48	15	91		
	10	1999-2009	1814	20	14	27		
	5	2004-2009	2058	15	9	20		
CBC/BBS England	42	1967-2009	494	93	26	227		
	25	1984-2009	793	42	10	83		
	10	1999-2009	1444	24	17	30		
	5	2004-2009	1651	18	12	23		
BBS UK	14	1995-2009	1594	39	29	49		
	10	1999-2009	1771	22	15	28		
	5	2004-2009	2013	15	9	20		
BBS England	14	1995-2009	1270	44	36	54		
	10	1999-2009	1411	26	19	34		
	5	2004-2009	1618	18	13	23		
BBS Scotland	14	1995-2009	109	23	-1	53		
	10	1999-2009	116	11	-12	39		
	5	2004-2009	132	19	3	35		
BBS Wales	14	1995-2009	138	29	-13	88		
	10	1999-2009	155	13	-6	34		
	5	2004-2009	166	-3	-19	10		
BBS N.Ireland	14	1995-2009	73	77	22	122		
	10	1999-2009	85	29	5	55		
	5	2004-2009	93	20	4	41		

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



CBC/BBS UK 1966–2010

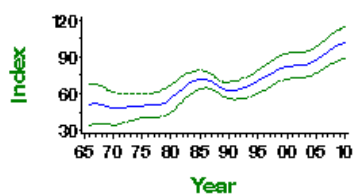
Jackdaw



CBC/BBS UK graph

CBC/BBS England 1966–2010

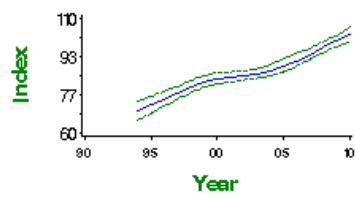
Jackdaw



CBC/BBS England graph

BBS UK 1994—2010

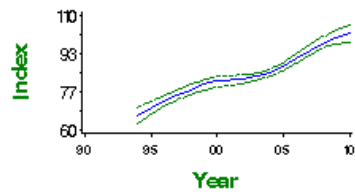
Jackdaw



BBS UK graph

BBS England 1994—2010

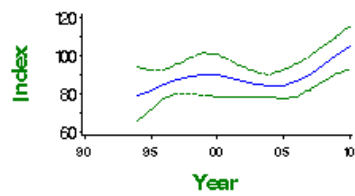
Jackdaw



BBS England graph

BBS Scotland 1994—2010

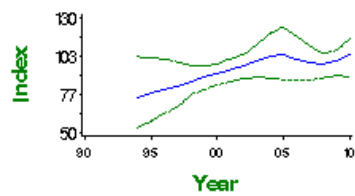
Jackdaw



BBS Scotland graph

BBS Wales 1994—2010

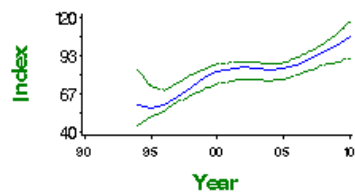
Jackdaw



BBS Wales graph

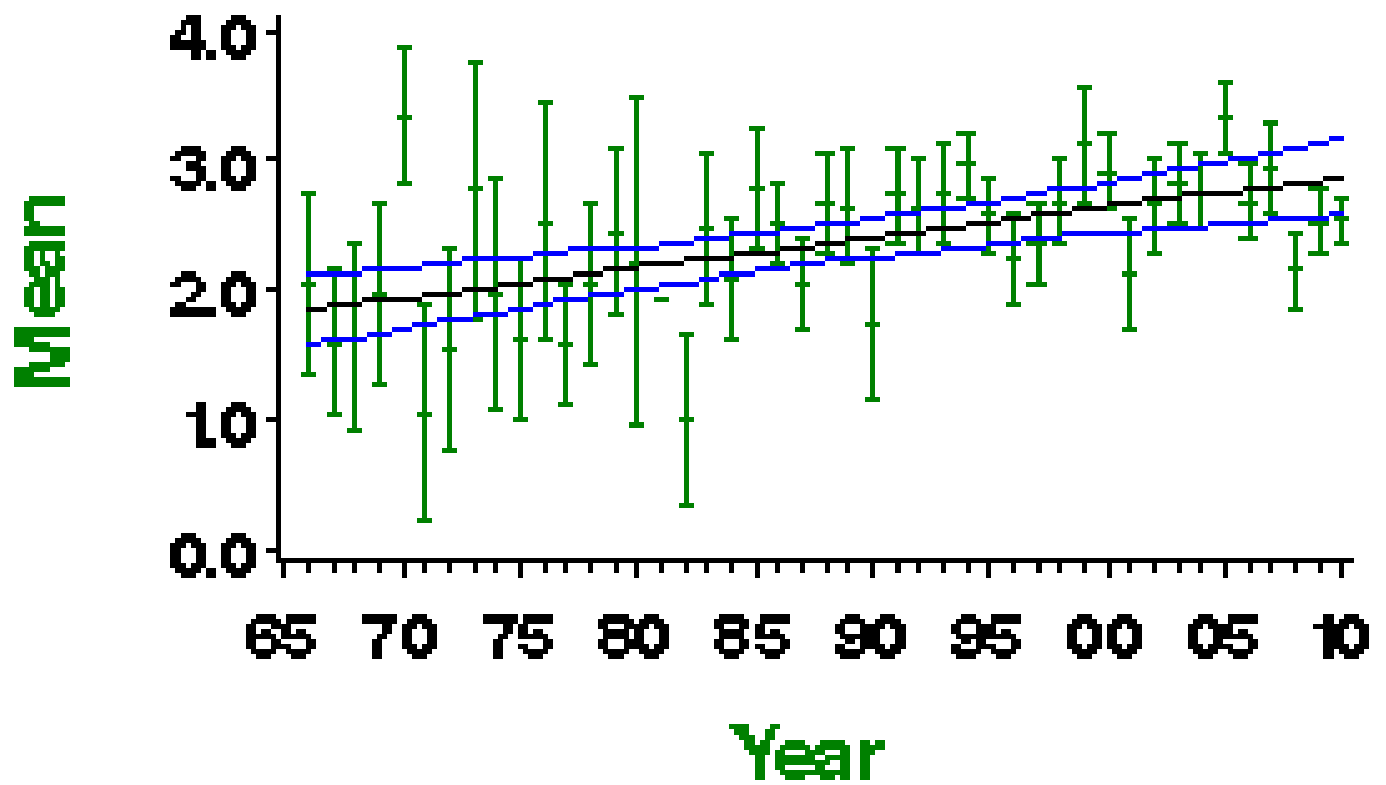
BBS N. Ireland 1994—2010

Jackdaw



BBS N.Ireland graph

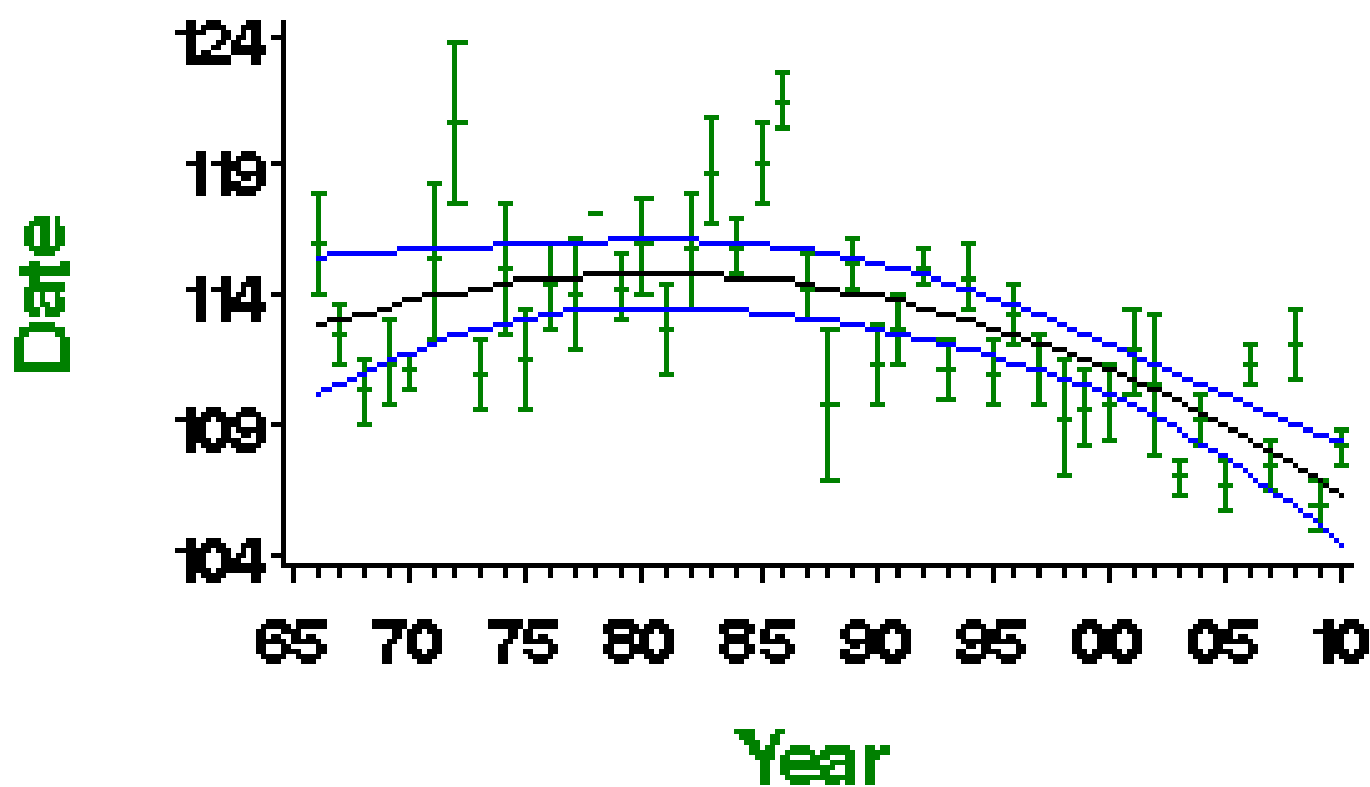
Fledglings per breeding attempt 1966–2010 Jackdaw



Mean number of fledglings produced per nest - green bars represent standard error and black line shows long-term trend

Laying date 1966—2010

Jackdaw



Mean laying date in Julian days (1st April = Day 90) - green bars represent standard error and black line shows long-term trend

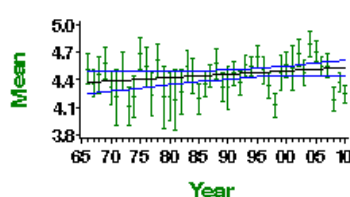
More on demographic trends

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Fledglings per breeding attempt	41	1968-2009	36	Linear increase	1.90 fledglings	2.84 fledglings	50.0%		
Clutch size	41	1968-2009	47	None					
Brood size	41	1968-2009	108	Curvilinear	2.70 chicks	2.60 chicks	-3.8%		
Nest failure rate at egg stage	41	1968-2009	59	Linear decline	0.72% nests/day	0.18% nests/day	-75.0%		
Nest failure rate at chick stage	41	1968-2009	57	Linear decline	1.13% nests/day	0.25% nests/day	-77.9%		
Laying date	41	1968-2009	26	Curvilinear	Apr 23	Apr 17	-6 days		Small sample

For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).

Clutch size 1966—2010

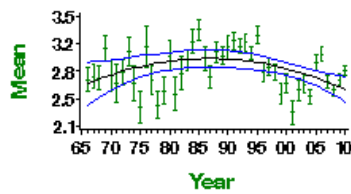
Jackdaw



Mean number of eggs per nest - green bars represent standard error and black line shows long-term trend

Brood size 1966–2010

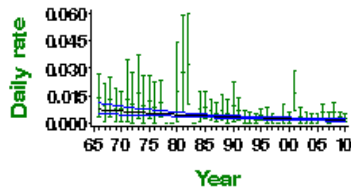
Jackdaw



Mean number of chicks per nest - green bars represent standard error and black line shows long-term trend

Egg stage nest failure rate

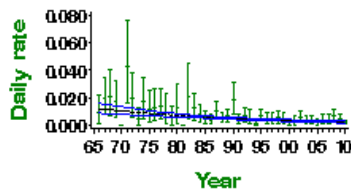
Jackdaw



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Chick stage nest failure rate

Jackdaw



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Causes of change

There is no evidence available regarding the ecological causes of increase for this species but changes have been associated with improvements in breeding performance, probably due to increased food availability.

Change factor	Primary driver	Secondary driver
Demographic	Increased breeding success	
Ecological	Unknown	

Further information on causes of change

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, although direct evidence for this is limited. A minor decrease in average brood size (see above) 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. Laying dates have advanced.

Typically in this species, the younger chicks of a brood perish quickly if food becomes limited. Henderson & Hart (1993) provided evidence that increases in fledging success are likely to be due to improved provisioning by the parents. Most of the variation in annual reproductive output was caused by nestling mortality rather than clutch size or hatching success. Soler & Soler (1996) used data from Spain to show that additional food advanced the laying date, increased the clutch size, independently of laying date, and increased fledging success.

Changes in the landscape may have also benefited this species. Gregory & Marchant (1996) found an increase in Jackdaw numbers in agricultural habitats, particularly in the south-west, but an overall decrease in forests. These increases were associated with trends in cultivation and population gains have been most pronounced on grazing farms and in the north and south-west where such farms predominate. A similar pattern was found in Sweden by Andren (1992), who provided evidence that the density of Jackdaws increased as forest became fragmented and intermixed with agricultural land.

Species references

Andren, H. (1992) Corvid density and nest predation in relation to forest fragmentation: a landscape perspective. *Ecology* 73: 794-804.

Gregory, R.D. & Marchant, J.H. (1996) Population trends of Jays, Magpies, Jackdaws and Carrion Crows in the United Kingdom. *Bird Study* 43: 28-37.

Henderson, I.G. & Hart, P.J.B. (1993) Provisioning, parental investment and reproductive success in Jackdaws *Corvus monedula*. *Ornis Scandinavica* 24: 142-148.

Soler, M. & Soler, J.J. (1996) Effects of experimental food provisioning on reproduction in the Jackdaw *Corvus monedula*, a semi-colonial species. *Ibis* 138: 377-383.

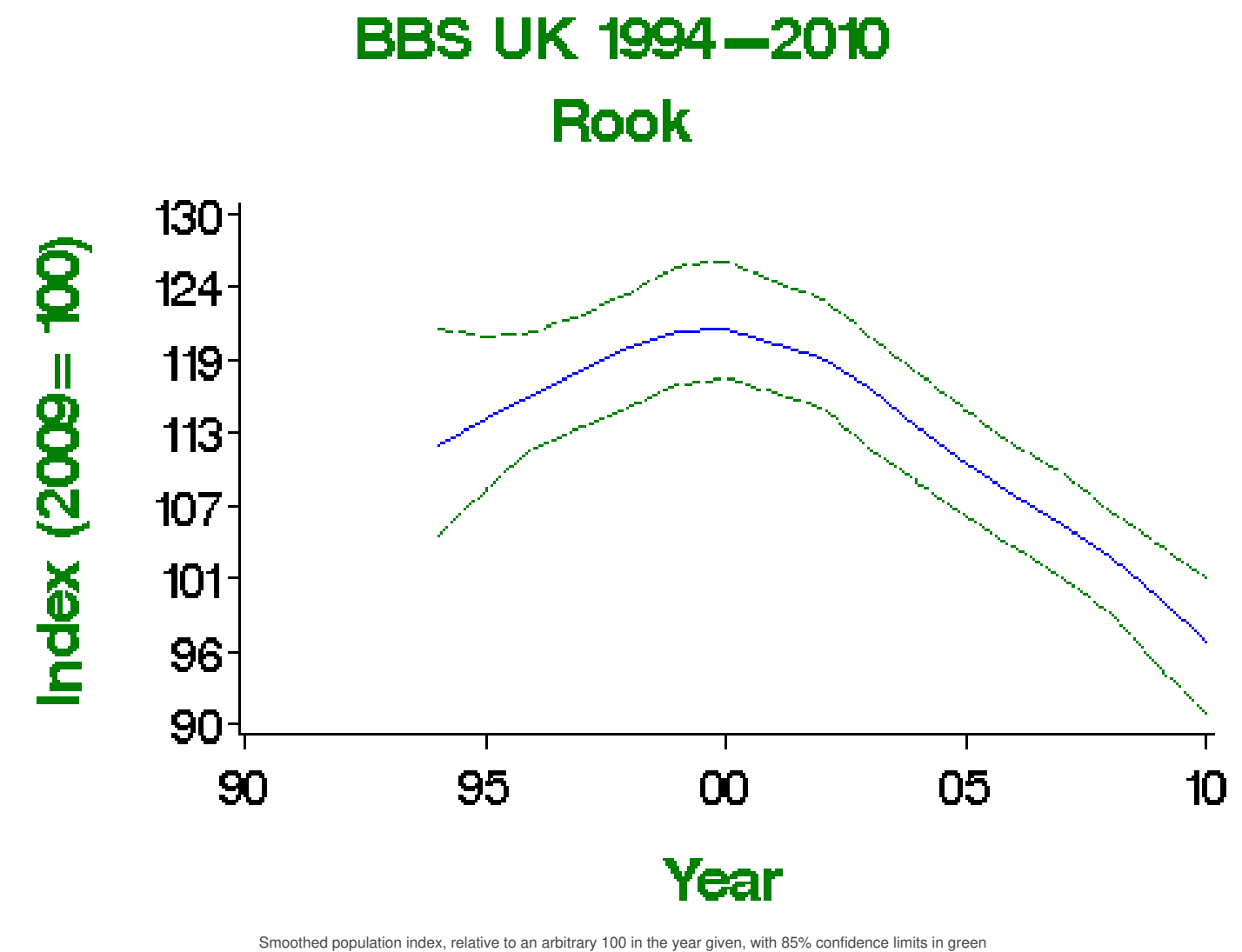
This report should be cited as: Baillie, S.R., Marchant, J.H., Leech, D.I., Renwick, A.R., Eglinton, S.M., Joys, A.C., Noble, D.G., Barimore, C., Conway, G.J., Downie, I.S., Risely, K. & Robinson, R.A. (2012). *BirdTrends 2011*. BTO Research Report No. 609. BTO, Thetford. <https://www.bto.org/birdtrends>

Key facts

Conservation listings:	Europe: no SPEC category (not concentrated in Europe, conservation status favourable) (BiE04) UK: green (BoCC3)
Long-term trend:	UK: increase
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 moderate increase across Europe since 1980 (PECBMS 2011a).



Population changes in detail

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
BBS UK	14	1995-2009	1243	-12	-21	-4		
	10	1999-2009	1334	-17	-25	-11		
	5	2004-2009	1477	-12	-18	-5		
BBS England	14	1995-2009	982	-6	-14	2		

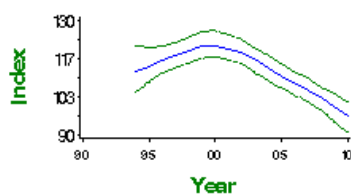
Source	Period (yrs)	1999-2009 Years	POBs (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
	5	2004-2009	1176	-4	-10	2		
BBS Scotland	14	1995-2009	108	-25	-44	-2		
	10	1999-2009	110	-24	-43	2		
	5	2004-2009	120	-24	-37	-7		
BBS Wales	14	1995-2009	77	-13	-40	22		
	10	1999-2009	86	-9	-35	29		
	5	2004-2009	86	3	-20	39		
BBS N.Ireland	14	1995-2009	73	-1	-25	34		
	10	1999-2009	86	-41	-55	-25	>25	
	5	2004-2009	92	-25	-39	-6		

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



BBS UK 1994—2010

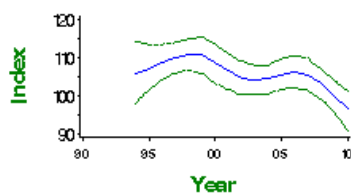
Rook



BBS UK graph

BBS England 1994—2010

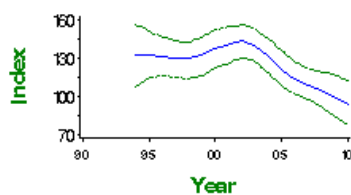
Rook



BBS England graph

BBS Scotland 1994—2010

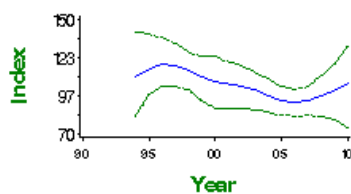
Rook



BBS Scotland graph

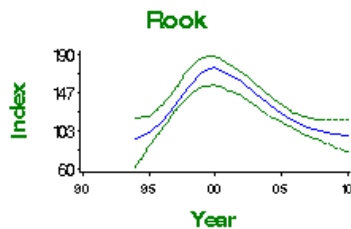
BBS Wales 1994—2010

Rook



BBS Wales graph

BBS N. Ireland 1994—2010



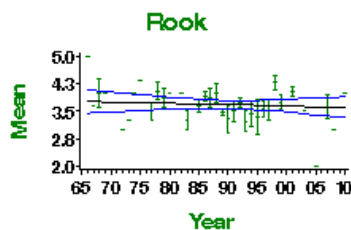
BBS N.Ireland graph

Demographic trends

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Clutch size	41	1968-2009	12	None					Small sample
Brood size	41	1968-2009	82	Curvilinear	2.21 chicks	2.07 chicks	-6.6%		
Nest failure rate at egg stage	41	1968-2009	31	None					
Nest failure rate at chick stage	41	1968-2009	48	None					
Laying date	41	1968-2009	13	None			0 days		Small sample

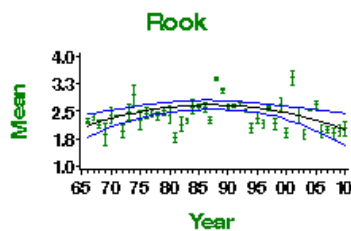
For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).

Clutch size 1966—2010



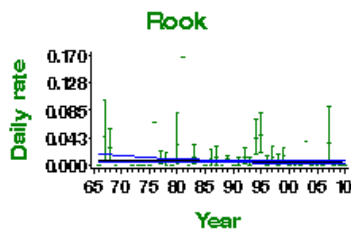
Mean number of eggs per nest - green bars represent standard error and black line shows long-term trend

Brood size 1966—2010



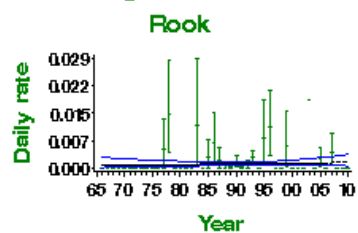
Mean number of chicks per nest - green bars represent standard error and black line shows long-term trend

Egg stage nest failure rate



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Chick stage nest failure rate



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

This report should be cited as: Baillie, S.R., Marchant, J.H., Leech, D.I., Renwick, A.R., Eglinton, S.M., Joys, A.C., Noble, D.G., Barimore, C., Conway, G.J., Downie, I.S., Risely, K. & Robinson, R.A. (2012). BirdTrends 2011. BTO Research Report No. 609. BTO, Thetford. <https://www.bto.org/birdtrends>

Key facts

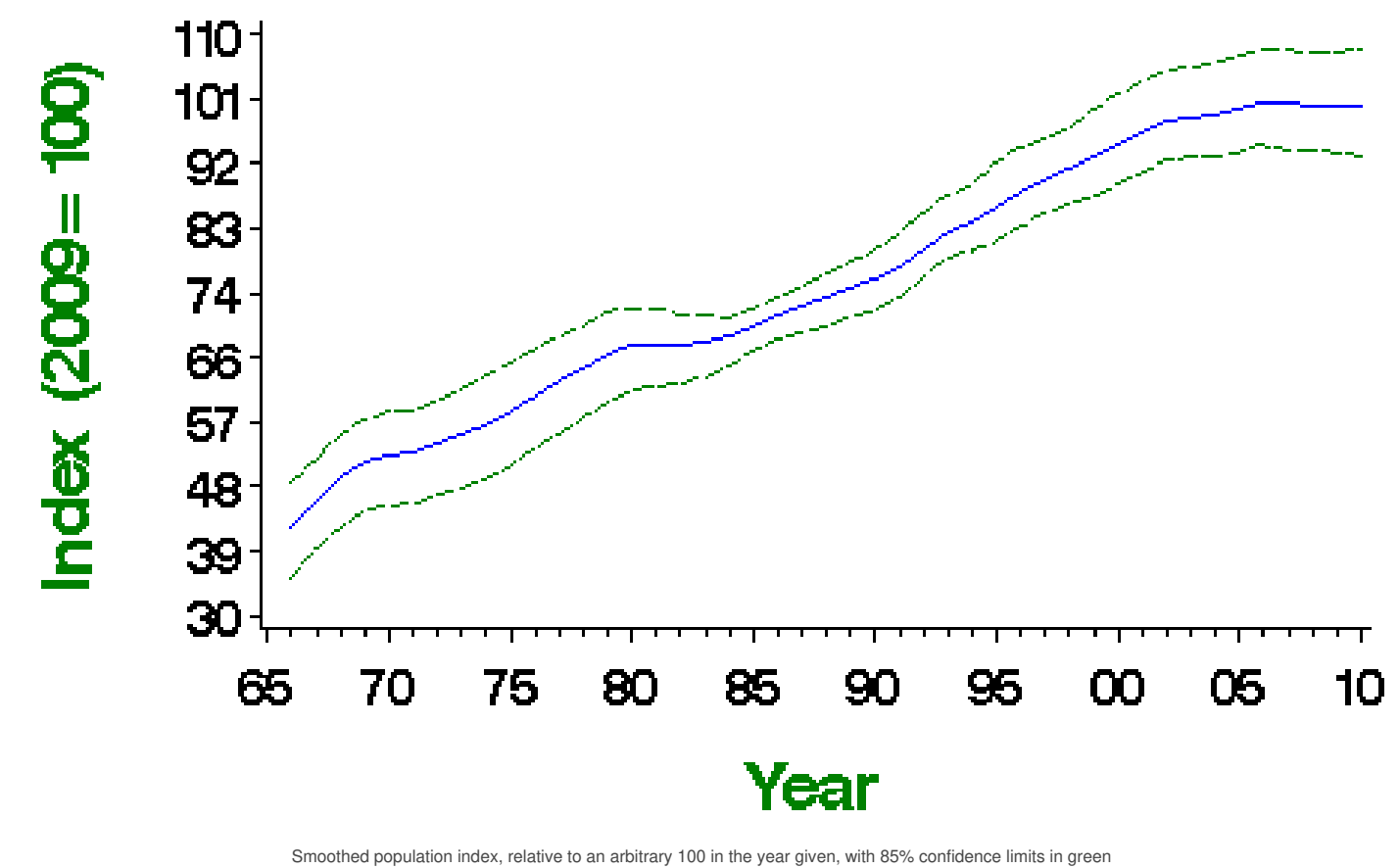
Conservation listings:	Europe (C. corone/cornix): no SPEC category (not concentrated in Europe, conservation status favourable) (BiE04) UK (C. corone/cornix): green (BoCC3)
Long-term trend:	England: rapid increase
Population size:	790,000 territories in 1990 (1988-91 Atlas: APEP06); 987,500 pairs in 2000 (updated using CBC/BBS trend)
Migrant status:	Resident
Nesting habitat:	Above-ground nester
Primary breeding habitat:	?
Secondary breeding habitat:	
Breeding diet:	Animal
Winter diet:	Animal

Status summary

Carrion Crows have increased steadily since the 1960s (Gregory & Marchant 1996) and only since 2002 are there signs of the UK population size stabilising. Since 1968, breeding productivity has increased steeply and laying date has advanced by almost a fortnight.

CBC/BBS England 1966–2010

Carrion Crow



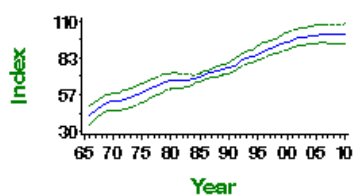
Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS England	42	1967-2009	758	119	76	175		Includes Hooded Crow
	25	1984-2009	1178	46	31	66		Includes Hooded Crow
	10	1999-2009	2067	7	2	13		Includes Hooded Crow
	5	2004-2009	2334	1	-3	4		
BBS UK	14	1995-2009	2223	9	3	17		
	10	1999-2009	2436	-4	-10	1		
	5	2004-2009	2746	-4	-8	0		
BBS England	14	1995-2009	1831	17	8	24		
	10	1999-2009	2007	6	0	11		
	5	2004-2009	2276	1	-3	4		
BBS Scotland	14	1995-2009	180	-10	-29	10		
	10	1999-2009	188	-23	-37	-7		
	5	2004-2009	213	-13	-21	-2		
BBS Wales	14	1995-2009	200	1	-16	15		
	10	1999-2009	226	-15	-26	-2		
	5	2004-2009	240	-11	-22	0		

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



CBC/BBS England 1966–2010

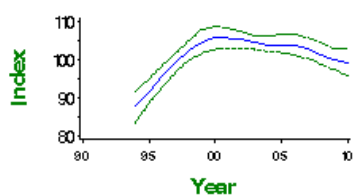
Carrion Crow



CBC/BBS England graph

BBS UK 1994–2010

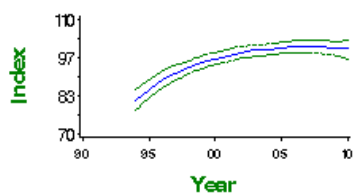
Carrion Crow



BBS UK graph

BBS England 1994–2010

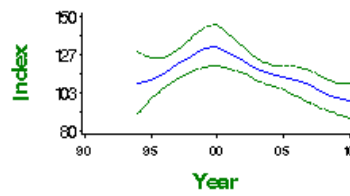
Carrion Crow



BBS England graph

BBS Scotland 1994–2010

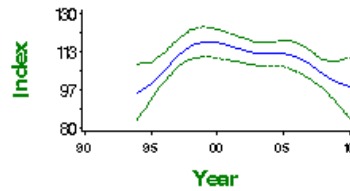
Carriion Crow



BBS Scotland graph

BBS Wales 1994–2010

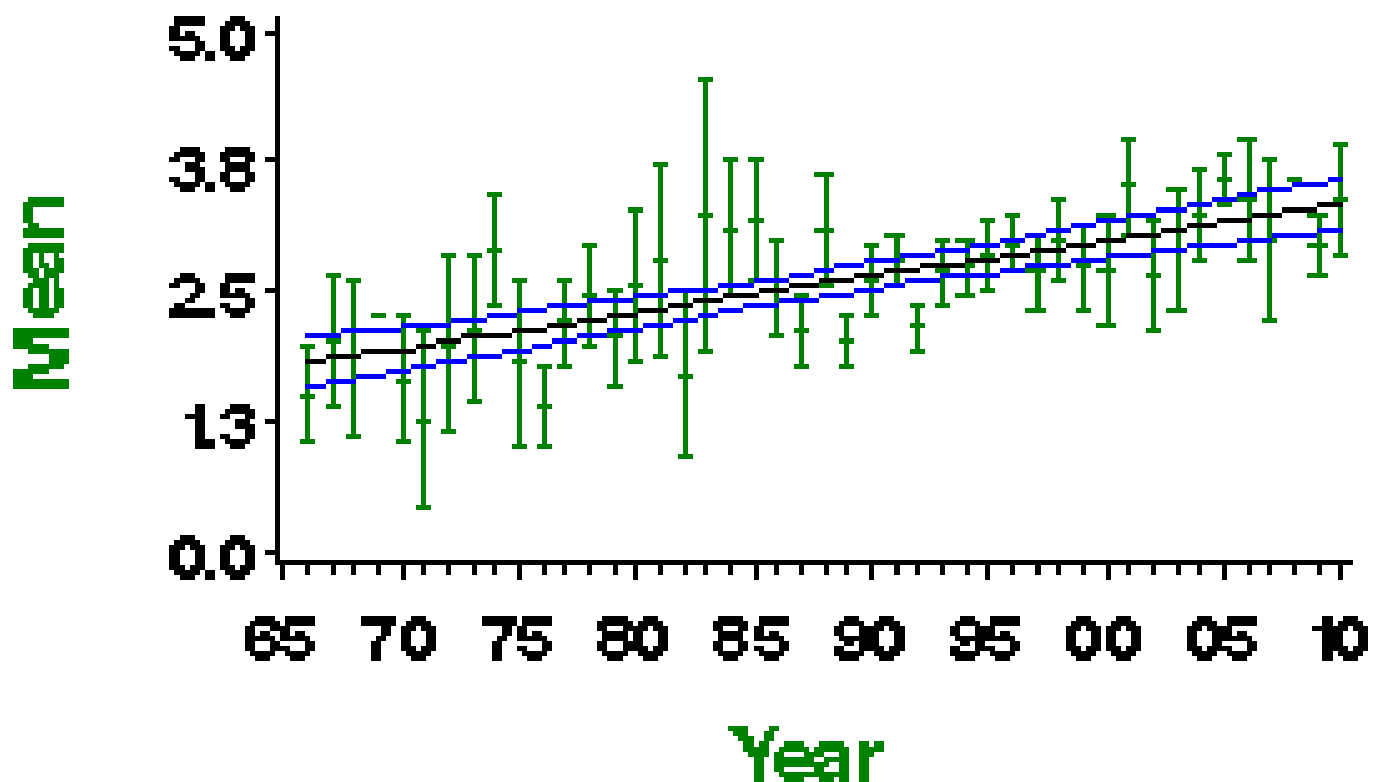
Carriion Crow



BBS Wales graph

Demographic trends

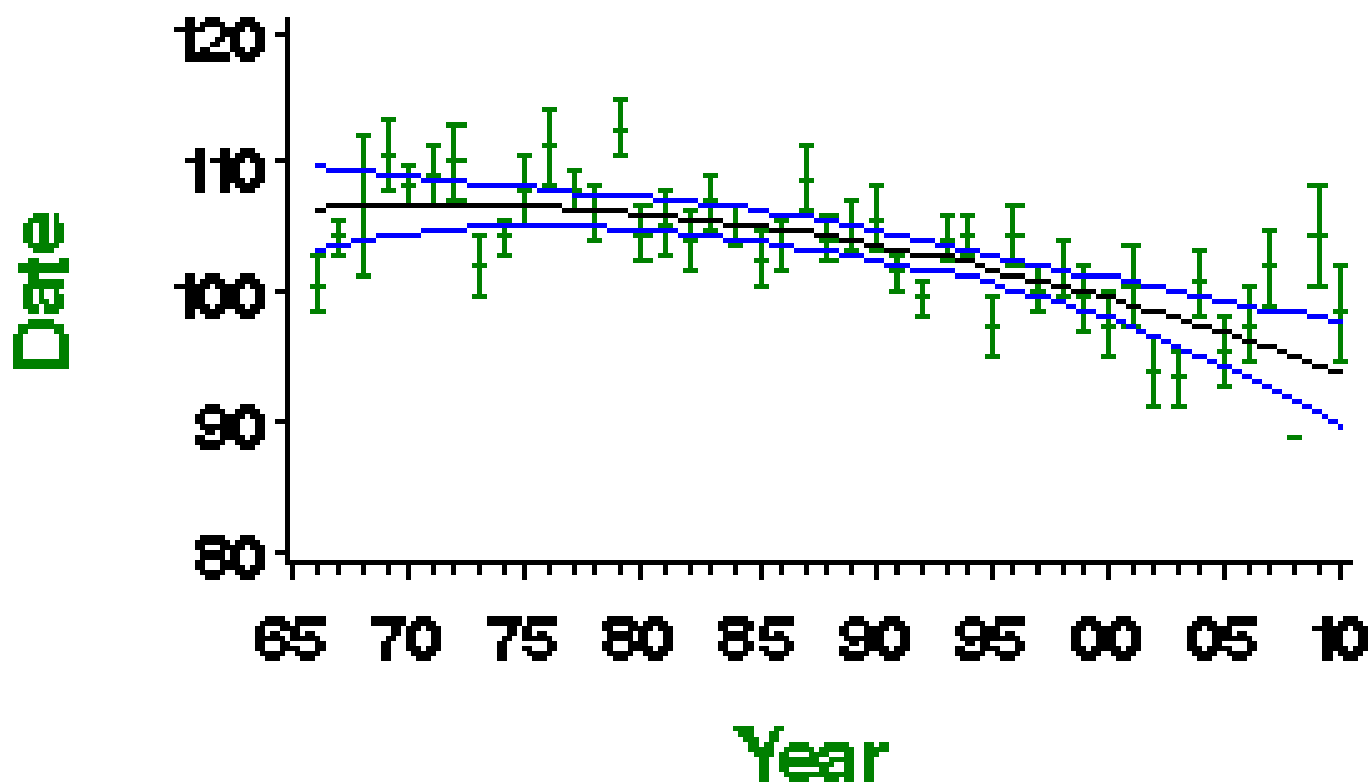
Fledglings per breeding attempt 1966–2010 Carriion Crow



Mean number of fledglings produced per nest - green bars represent standard error and black line shows long-term trend

Laying date 1966—2010

Carrion Crow



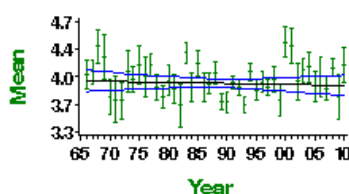
More on demographic trends

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Fledglings per breeding attempt	41	1968-2009	23	Linear increase	1.89 fledglings	3.31 fledglings	75.7%		
Clutch size	41	1968-2009	32	None					
Brood size	41	1968-2009	79	Curvilinear	2.89 chicks	2.43 chicks	-15.7%		
Nest failure rate at egg stage	41	1968-2009	48	Linear decline	1.78% nests/day	0.13% nests/day	-92.7%		
Nest failure rate at chick stage	41	1968-2009	41	Linear decline	0.76% nests/day	0.11% nests/day	-85.5%		
Laying date	41	1968-2009	30	Curvilinear	Apr 17	Apr 4	-13 days		Small sample

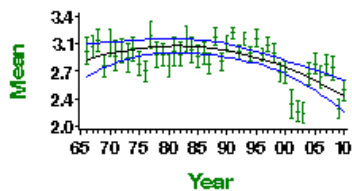
For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).

Clutch size 1966—2010

Carrion Crow

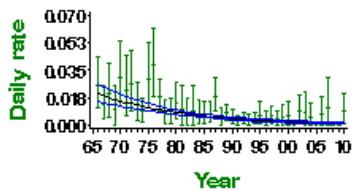


Brood size 1966—2010
Carrion Crow



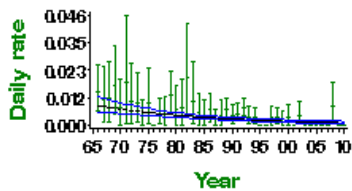
Mean number of chicks per nest - green bars represent standard error and black line shows long-term trend

Egg stage nest failure rate
Carrion Crow



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Chick stage nest failure rate
Carrion Crow



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Causes of change

There are few specific studies providing evidence for the causes of the increase in this species, although evidence presented here shows that increases in breeding success have been important. Ecological causes of this could be increases in food availability and the increasing suitability of urban areas (driving the species' expansion there), although specific evidence supporting these hypotheses is limited.

Change factor	Primary driver	Secondary driver
Demographic	Increased breeding success	
Ecological	Other	

Further information on causes of change

The demographic trends shown here reveal that there has been a linear increase in the number of fledglings produced per breeding attempt between 1968 and 2008, reflecting a linear decline in daily failure rate of nests at the egg and chick stage. Clutch size has increased, but brood size has decreased. Thus this suggests that the increase in Carrion Crow numbers is related to increases in breeding success, although as there are no estimates of survival, it is not possible to say whether this has also increased.

This species is omnivorous and highly adaptable and is thus able to exploit changing habitats and the ephemeral food resources in intensive agriculture, from ploughed fields to grazed pasture, allowing breeding pairs to hold year-round territories. It is also able to exploit the varied food sources found in towns and cities. Richner (1992) provided good evidence that food-supplemented pairs had a higher nesting success and produced more and heavier fledglings, demonstrating that food limitation can cause low fitness for individuals and thus could potentially restrict population-level reproductive success. In a local study, Yom-Tov (1974) showed that provision of excess food improved chick survival, and concluded that the distribution pattern of food was the ultimate factor limiting breeding success, perhaps because this affects levels of intraspecific nest predation. Although the impact on population size was not considered in these studies, it is possible that food availability for Carrion Crows has increased and so helped the support the population increase. O'Connor & Shrubbs (1986) suggest that the general increase in density of sheep in upland areas, and the increase in carrion resulting from this, may be responsible for the expansion of Carrion Crow populations, although evidence for this was not given and this is clearly not relevant to lowland areas (where sheep numbers have decreased).

A second hypothesis to explain this species' increase is that control by gamekeepers has reduced, but evidence supporting this is limited. Tharme et al. (2001) stated that the control of Carrion Crows by gamekeepers was the most probable cause of the low densities on grouse moors, although they found no significant relationship between the number of gamekeepers and Carrion Crow density. Furthermore, bag returns have shown no overall change in the number of Carrion Crows killed since 1961 (Tapper 1992, Tapper & France 1992).

Species references

Gregory, R.D. & Marchant, J.H. (1996) Population trends of Jays, Magpies, Jackdaws and Carrion Crows in the United Kingdom. *Bird Study* 43: 28-37.

O'Connor, R.J. & Shrubbs, M. (1986) *Farming and Birds*. Cambridge University Press, Cambridge.

Richner, H. (1992) The effect of extra food on fitness in breeding Carrion Crows. *Ecology* 73: 330-335.

Tapper, S. & France, J. (1992) The National Game Bag Census 1991. *Game Conservancy Annual Review* 23: 38-40.

Tapper, S. (1992) *Game Heritage: an ecological review from shooting and gamekeeping records*. Game Conservancy, Fordingbridge.

Tharme, A.P., Green, R.E., Baines, D., Bainbridge, I.P. & O'Brien, M. (2001) The effect of management for Red Grouse shooting on the population density of breeding birds on heather-dominated moorland. *Journal of Applied Ecology* 38: 439-457.

Yom-Tov, Y. (1974) The effect of food and predation on breeding density and success, clutch size and laying date of the crow (*Corvus corone* L.). *Journal of Animal Ecology* 43: 479-498.

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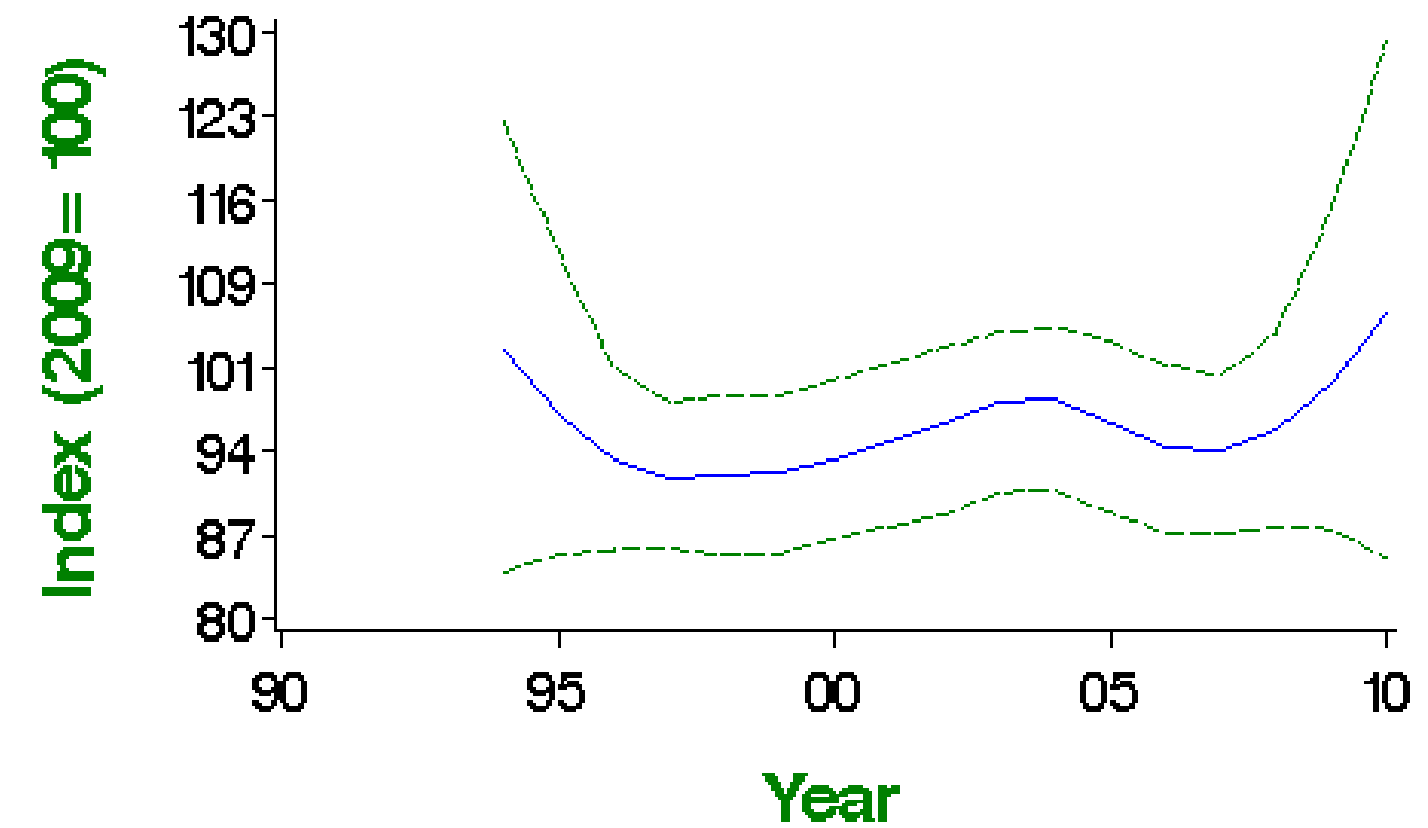
Key facts

Conservation listings:	Europe (C. corone/cornix): no SPEC category (not concentrated in Europe, conservation status favourable) (BiE04) UK: green (BoCC3)
Long-term trend:	UK: uncertain
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 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).

BBS UK 1994–2010
Hooded Crow



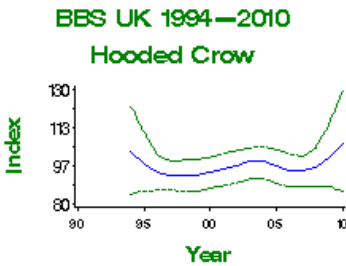
Smoothed population index, relative to an arbitrary 100 in the year given, with 85% confidence limits in green

Population changes in detail

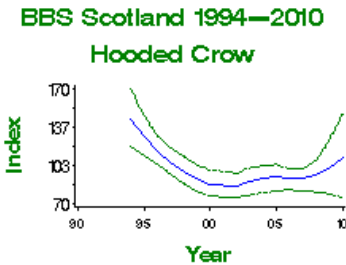
Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
BBS UK	14	1995-2009	133	3	-22	33		
	10	1999-2009	143	8	-13	34		
	5	2004-2009	154	1	-17	28		
BBS Scotland	14	1995-2009	51	-22	-46	10		

Source	Period (yrs)	1999-2009 Years	#Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
	5	2004-2009	52	8	-25	59		
BBS N.Ireland	14	1995-2009	78	108	60	151		
	10	1999-2009	92	7	-7	23		
	5	2004-2009	99	-6	-17	5		

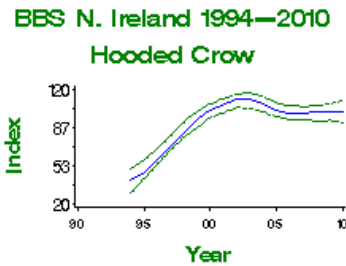
Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



BBS UK graph



BBS Scotland graph



BBS N.Ireland graph

Demographic trends

Productivity and survival trends for this species are not currently produced by BTO

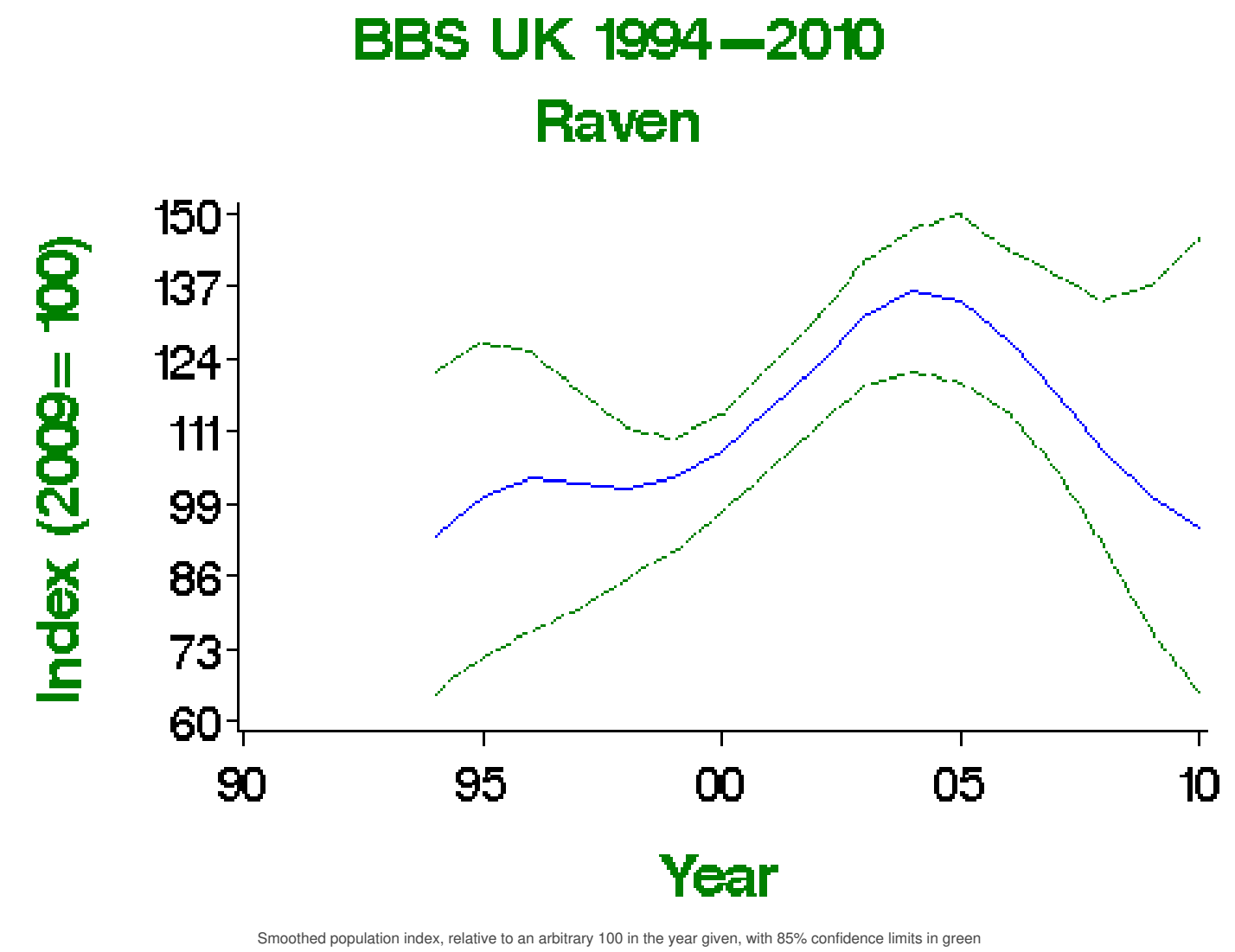
This report should be cited as: Baillie, S.R., Marchant, J.H., Leech, D.I., Renwick, A.R., Eglington, S.M., Joys, A.C., Noble, D.G., Barimore, C., Conway, G.J., Downie, I.S., Risely, K. & Robinson, R.A. (2012). BirdTrends 2011. BTO Research Report No. 609. BTO, Thetford. <https://www.bto.org/birdtrends>

Key facts

Conservation listings:	Europe: no SPEC category (not concentrated in Europe, conservation status favourable) (BiE04) UK: green (BoCC3)
Long-term trend:	UK: increase
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 have increased markedly across Europe since 1980 (PECBMS 2011a): increases are evident in all regions but are weakest in the south and west, including UK (PECBMS 2009).



Population changes in detail

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
BBS UK	14	1995-2009	261	0	-41	88		
	10	1999-2009	303	-3	-33	48		

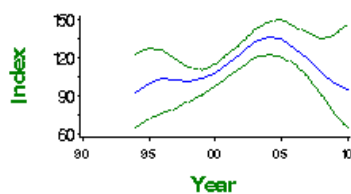
Source	5 Period (Yrs)	2004-2009 Years	362 Plots	-27 Change (%)	-45 Lower limit	10 Upper limit	Alert	Comment
BBS England		1995-2009	105	36	9	32		
	10	1999-2009	130	-12	8	25		
	5	2004-2009	172	-49	-5	6		
BBS Scotland	14	1995-2009	43	65	-7	150		
	10	1999-2009	44	73	-3	221		
	5	2004-2009	47	23	-24	85		
BBS Wales	14	1995-2009	86	29	-14	118		
	10	1999-2009	98	1	-23	36		
	5	2004-2009	106	-22	-37	0		

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



BBS UK 1994—2010

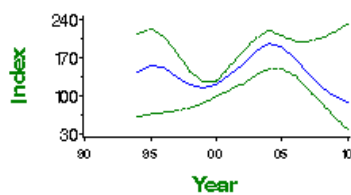
Raven



BBS UK graph

BBS England 1994—2010

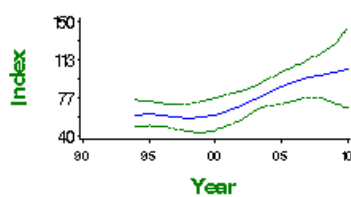
Raven



BBS England graph

BBS Scotland 1994—2010

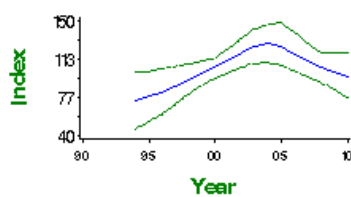
Raven



BBS Scotland graph

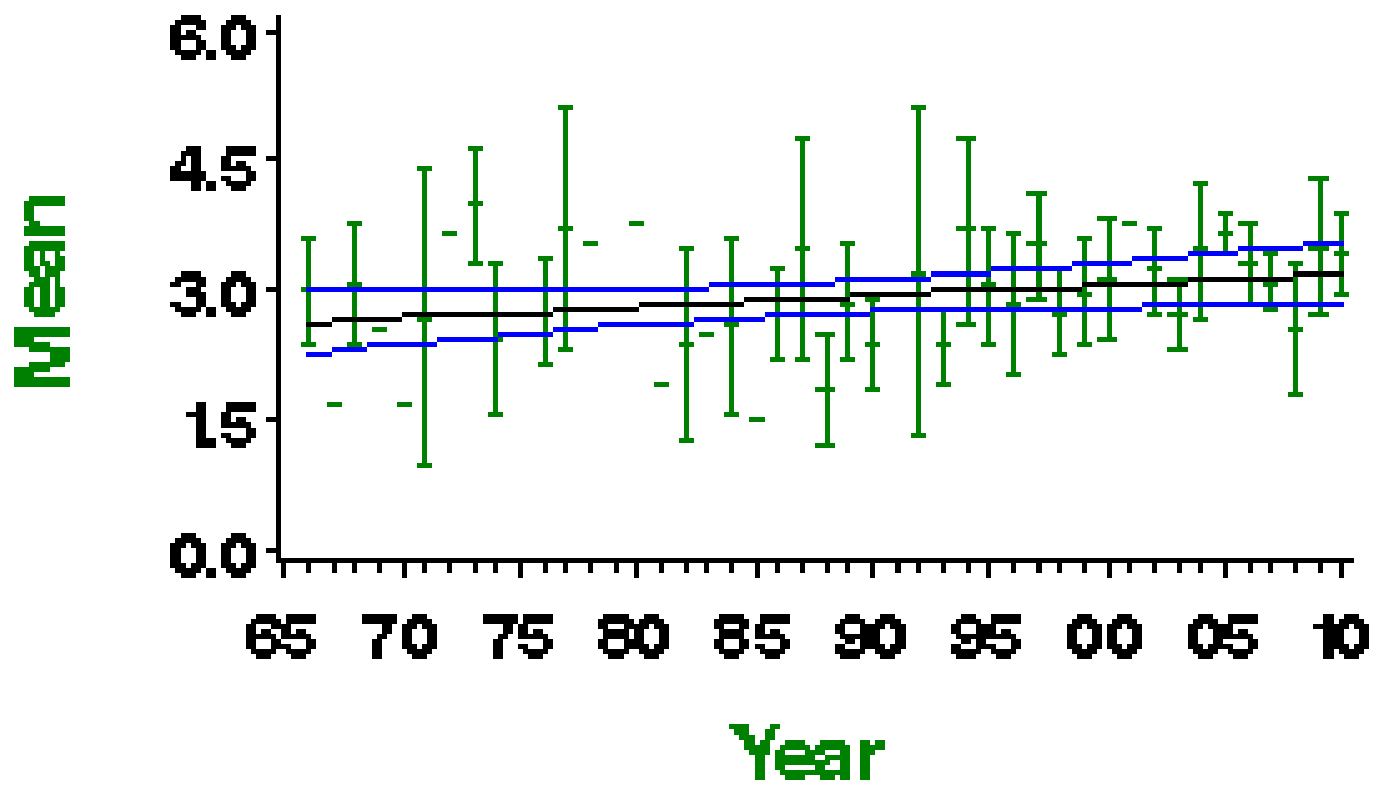
BBS Wales 1994—2010

Raven



BBS Wales graph

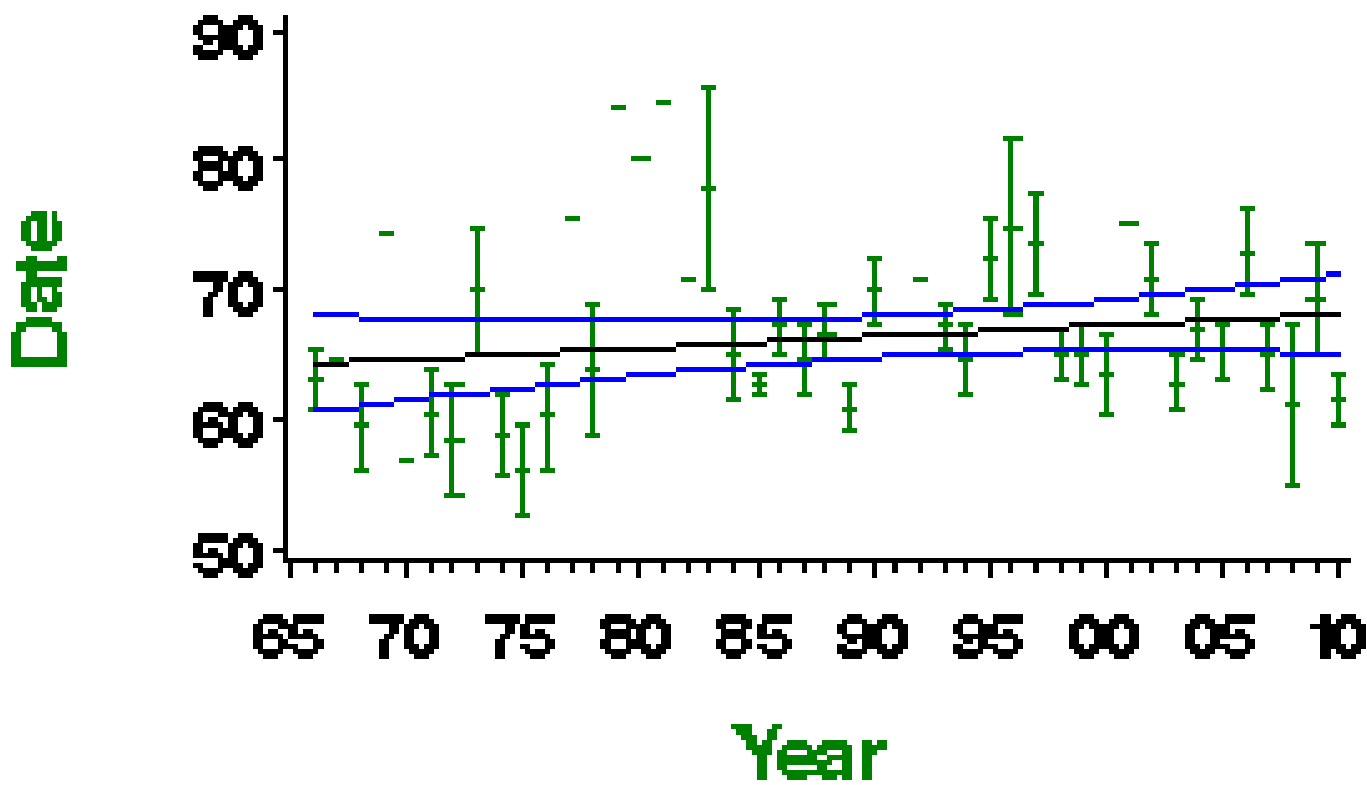
Fledglings per breeding attempt 1966–2010 Raven



Mean number of fledglings produced per nest - green bars represent standard error and black line shows long-term trend

Laying date 1966—2010

Raven



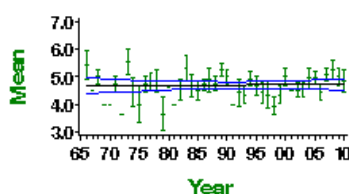
More on demographic trends

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Fledglings per breeding attempt	41	1968-2009	11	None					
Clutch size	41	1968-2009	14	None					Small sample
Brood size	41	1968-2009	69	Linear decline	3.17 chicks	2.88 chicks	-9.3%		
Nest failure rate at egg stage	41	1968-2009	22	Curvilinear	0.27% nests/day	0.06% nests/day	-77.8%		Small sample
Nest failure rate at chick stage	41	1968-2009	30	Curvilinear	0.03% nests/day	0.01% nests/day	-66.7%		Small sample
Laying date	41	1968-2009	11	None			0 days		Small sample

For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).

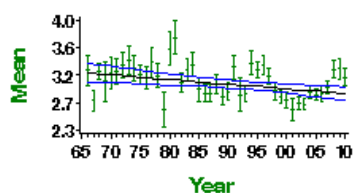
Clutch size 1966—2010

Raven



Brood size 1966—2010

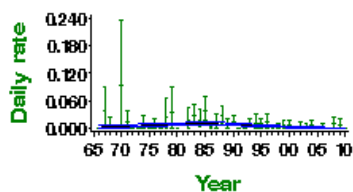
Raven



Mean number of chicks per nest - green bars represent standard error and black line shows long-term trend

Egg stage nest failure rate

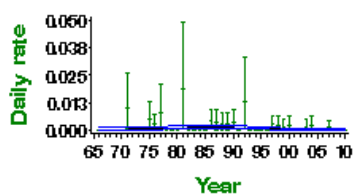
Raven



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Chick stage nest failure rate

Raven



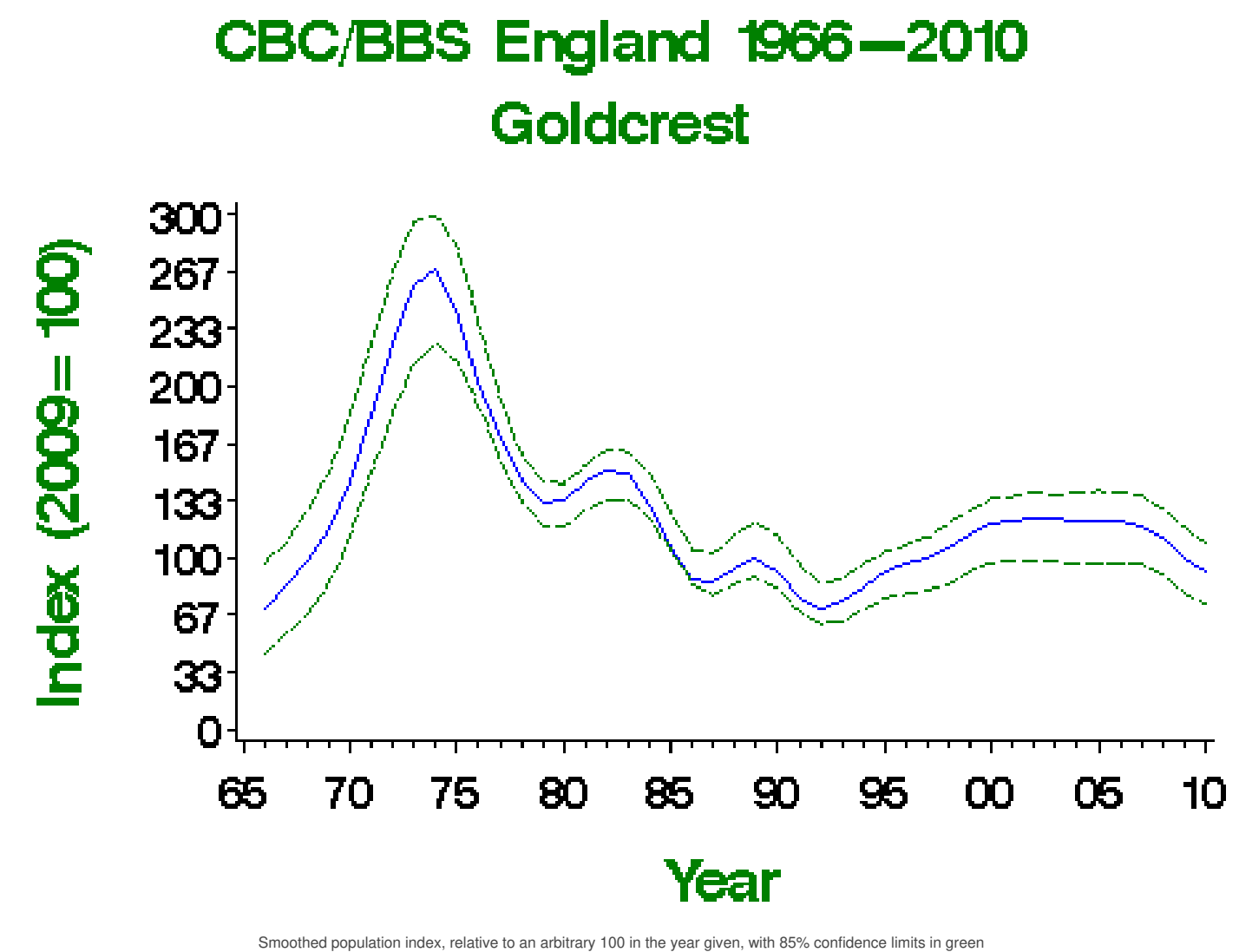
Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Key facts

Conservation listings:	Europe: no SPEC category (concentrated in Europe, conservation status favourable) (BiE04) UK: green (BoCC3)
Long-term trend:	England: fluctuating, with no long-term trend
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. The long-term trend looks very much like a series of damped oscillations following recovery from 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. CBC had relatively poor coverage of conifer plantations, in which Goldcrests occur at increasing densities as the trees mature. A general increase in the area of prime habitat has therefore been poorly reflected in the long-term trend. BBS has recorded substantial decreases in Wales, and all UK countries show decline in the recent five-year period. Numbers have shown widespread moderate decline across Europe since 1980 (PECBMS 2011a).



Population changes in detail

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS England	42	1967-2009	244	20	-24	119		
	25	1984-2009	354	-24	-43	-6		
	10	1999-2009	625	-12	-20	3		

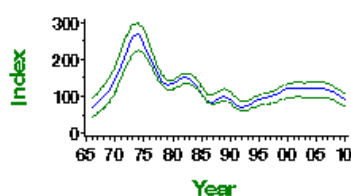
Source	Period (yrs)	Years	Plots	Change (%)	Lower limit	Upper limit	Alert	Comment
BBS UK	5	2004-2009	690	-18	-21	-8		
	10	1999-2009	860	-29	-32	-17	>25	
	5	2004-2009	973	-33	-34	-22	>25	
BBS England	14	1995-2009	525	6	-4	26		
	10	1999-2009	602	-12	-19	3		
	5	2004-2009	677	-19	-22	-9		
BBS Scotland	14	1995-2009	95	-6	-22	28		
	10	1999-2009	102	-42	-49	-25	>25	
	5	2004-2009	124	-53	-58	-40	>50	
BBS Wales	14	1995-2009	82	-52	-69	-22	>50	
	10	1999-2009	91	-53	-64	-35	>50	
	5	2004-2009	95	-33	-43	-19	>25	
BBS N.Ireland	14	1995-2009	45	44	8	102		
	10	1999-2009	51	-26	-29	10		
	5	2004-2009	59	-18	-20	17		

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



CBC/BBS England 1966—2010

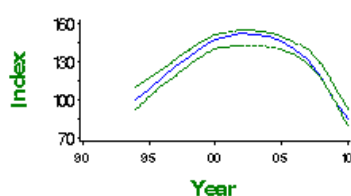
Goldcrest



CBC/BBS England graph

BBS UK 1994—2010

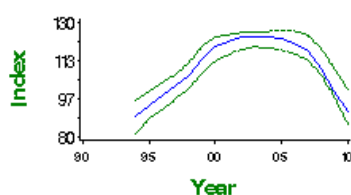
Goldcrest



BBS UK graph

BBS England 1994—2010

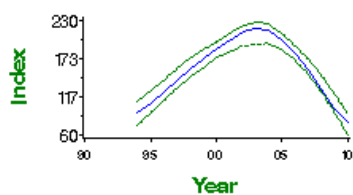
Goldcrest



BBS England graph

BBS Scotland 1994–2010

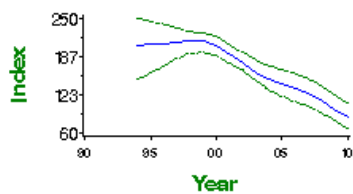
Goldcrest



BBS Scotland graph

BBS Wales 1994–2010

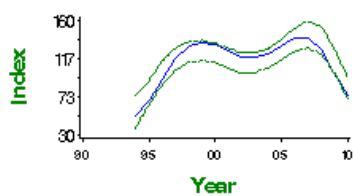
Goldcrest



BBS Wales graph

BBS N. Ireland 1994–2010

Goldcrest



BBS N.Ireland graph

Demographic trends

Productivity and survival trends for this species are not currently produced by BTO

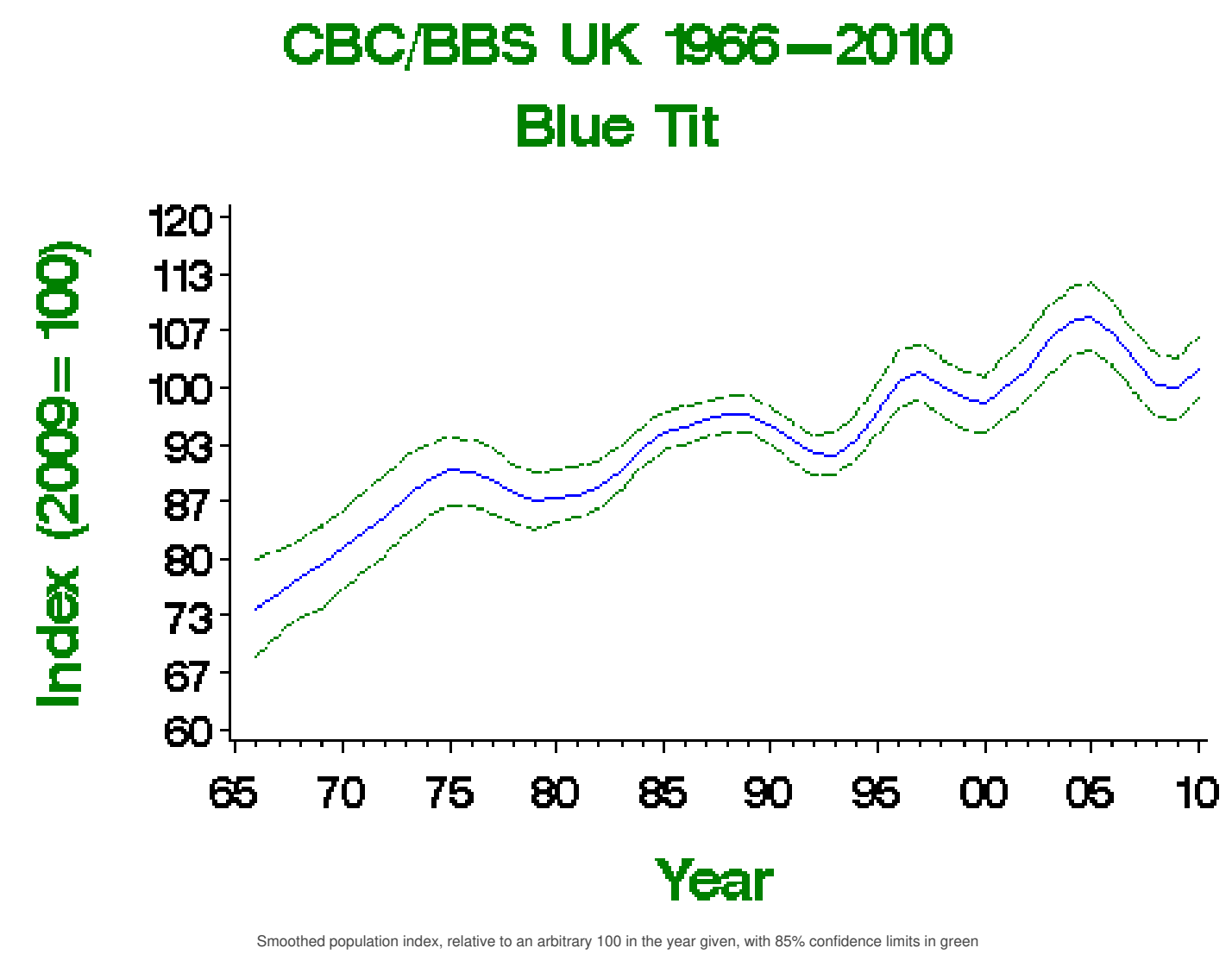
This report should be cited as: Baillie, S.R., Marchant, J.H., Leech, D.I., Renwick, A.R., Eglington, S.M., Joys, A.C., Noble, D.G., Barimore, C., Conway, G.J., Downie, I.S., Risely, K. & Robinson, R.A. (2012). BirdTrends 2011. BTO Research Report No. 609. BTO, Thetford. <https://www.bto.org/birdtrends>

Key facts

Conservation listings:	Europe: no SPEC category (concentrated in Europe, conservation status favourable) (BiE04) UK: green (species level); amber (race obscurus, >20% of European breeders) (BoCC3)
Long-term trend:	UK, England: shallow increase
Population size:	3,535,000 territories in 2000 (1988-91 Atlas estimate updated using CBC/BBS trend: BiE04, APEP06)

Status summary

Blue Tit populations have increased in abundance, in parallel with those of PECBMS 2011a).



Population changes in detail

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS UK	42	1967-2009	941	32	19	46		
	25	1984-2009	1431	8	1	14		
	10	1999-2009	2471	1	-1	4		
	5	2004-2009	2754	-7	-9	-5		
CBC/BBS England	42	1967-2009	772	31	19	46		
	25	1984-2009	1168	5	-1	15		
	10	1999-2009	1995	0	-3	3		

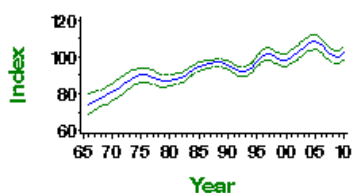
Source	Period (yrs)	2004-2009 Years	2226 Plots (n)	5 Change (%)	7 Lower limit -19	3 Upper limit 11	Alert	Comment
CES adults	25	1984-2009	98					
	10	1999-2009	109	-8	-16	3		
	5	2004-2009	106	-18	-24	-11		
CES juveniles	25	1984-2009	98	-13	-34	20		
	10	1999-2009	109	20	4	39		
	5	2004-2009	105	-5	-15	8		
BBS UK	14	1995-2009	2217	4	0	7		
	10	1999-2009	2435	1	-1	4		
	5	2004-2009	2754	-6	-8	-4		
BBS England	14	1995-2009	1783	2	-1	6		
	10	1999-2009	1946	0	-3	3		
	5	2004-2009	2196	-4	-6	-2		
BBS Scotland	14	1995-2009	162	3	-8	13		
	10	1999-2009	176	3	-10	15		
	5	2004-2009	209	-14	-24	-6		
BBS Wales	14	1995-2009	175	13	-1	26		
	10	1999-2009	197	9	-1	18		
	5	2004-2009	210	-5	-11	2		
BBS N.Ireland	14	1995-2009	75	14	-18	38		
	10	1999-2009	86	-2	-12	11		
	5	2004-2009	95	-12	-21	-5		

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



CBC/BBS UK 1966–2010

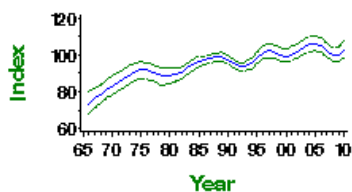
Blue Tit



CBC/BBS UK graph

CBC/BBS England 1966–2010

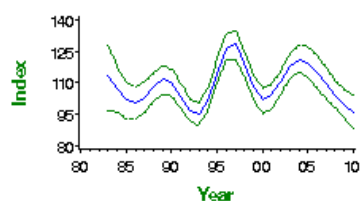
Blue Tit



CBC/BBS England graph

CES adult abundance 1983–2010

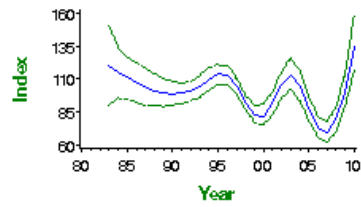
Blue Tit



CES adults graph

CES juvenile abundance 1983—2010

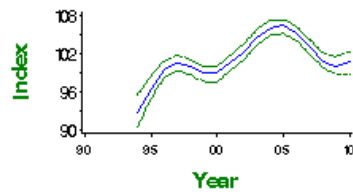
Blue Tit



CES juveniles graph

BBS UK 1994—2010

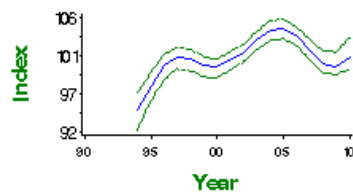
Blue Tit



BBS UK graph

BBS England 1994—2010

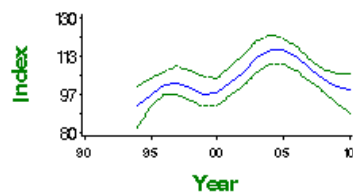
Blue Tit



BBS England graph

BBS Scotland 1994—2010

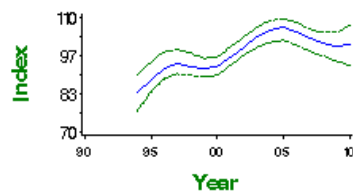
Blue Tit



BBS Scotland graph

BBS Wales 1994—2010

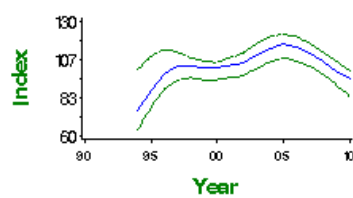
Blue Tit



BBS Wales graph

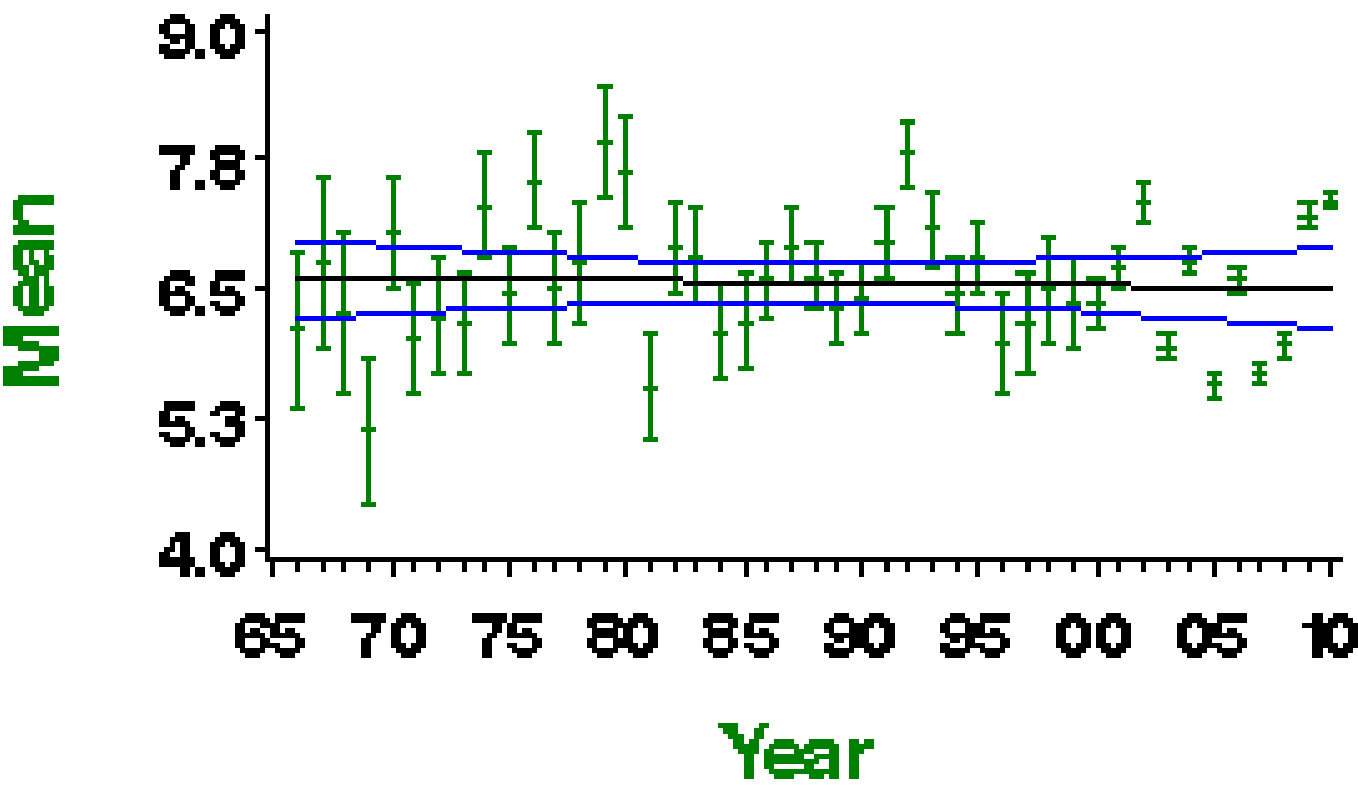
BBS N. Ireland 1994—2010

Blue Tit



BBS N.Ireland graph

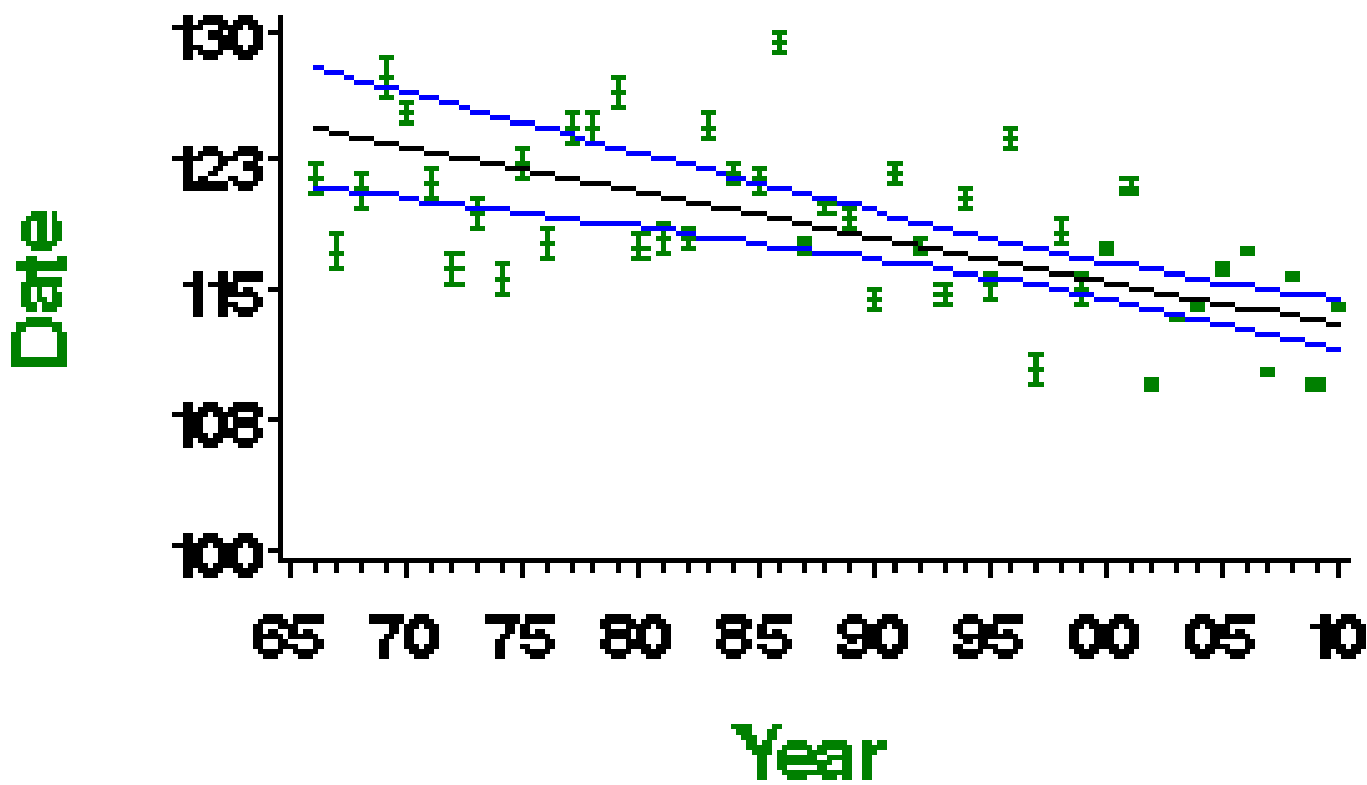
Fledglings per breeding attempt 1966–2010 Blue Tit



Mean number of fledglings produced per nest - green bars represent standard error and black line shows long-term trend

Laying date 1966–2010

Blue Tit



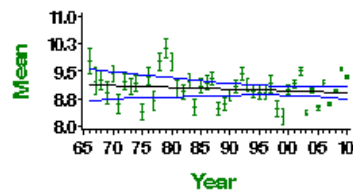
More on demographic trends

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Fledglings per breeding attempt	41	1968-2009	250	None					
Clutch size	41	1968-2009	341	None					
Brood size	41	1968-2009	644	Curvilinear	7.80 chicks	7.18 chicks	-7.9%		
Nest failure rate at egg stage	41	1968-2009	571	Curvilinear	0.42% nests/day	0.23% nests/day	-45.2%		
Nest failure rate at chick stage	41	1968-2009	406	Linear increase	0.63% nests/day	0.83% nests/day	31.7%		
Laying date	41	1968-2009	417	Linear decline	May 4	Apr 23	-11 days		
Juvenile to Adult ratio (CES)	25	1984-2009	102	Smoothed trend	158 Index value	100 Index value	-37%	>25	
Juvenile to Adult ratio (CES)	10	1999-2009	114	Smoothed trend	82 Index value	100 Index value	22%		
Juvenile to Adult ratio (CES)	5	2004-2009	109	Smoothed trend	92 Index value	100 Index value	8%		

For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).

Clutch size 1966—2010

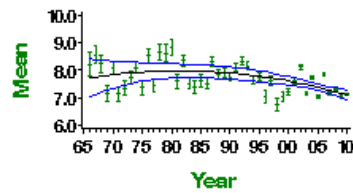
Blue Tit



Mean number of eggs per nest - green bars represent standard error and black line shows long-term trend

Brood size 1966—2010

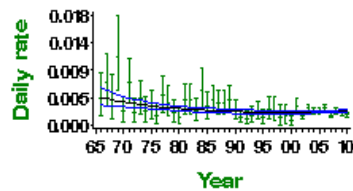
Blue Tit



Mean number of chicks per nest - green bars represent standard error and black line shows long-term trend

Egg stage nest failure rate

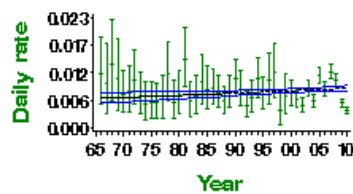
Blue Tit



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Chick stage nest failure rate

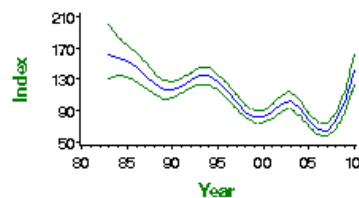
Blue Tit



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

CES productivity 1983—2010

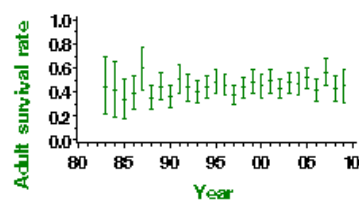
Blue Tit



Smoothed long-term trend in ratio of juvenile:adult birds caught - green lines indicate 85% confidence limits

CES survival 1983—2009

Blue Tit



Proportion of adult birds surviving to following year - green bars represent 95% confidence limits

This report should be cited as: Baillie, S.R., Marchant, J.H., Leech, D.I., Renwick, A.R., Eglinton, S.M., Joys, A.C., Noble, D.G., Barimore, C., Conway, G.J., Downie, I.S., Risely, K. & Robinson, R.A. (2012). BirdTrends 2011. BTO Research Report No. 609. BTO, Thetford. <https://www.bto.org/birdtrends>

Key facts

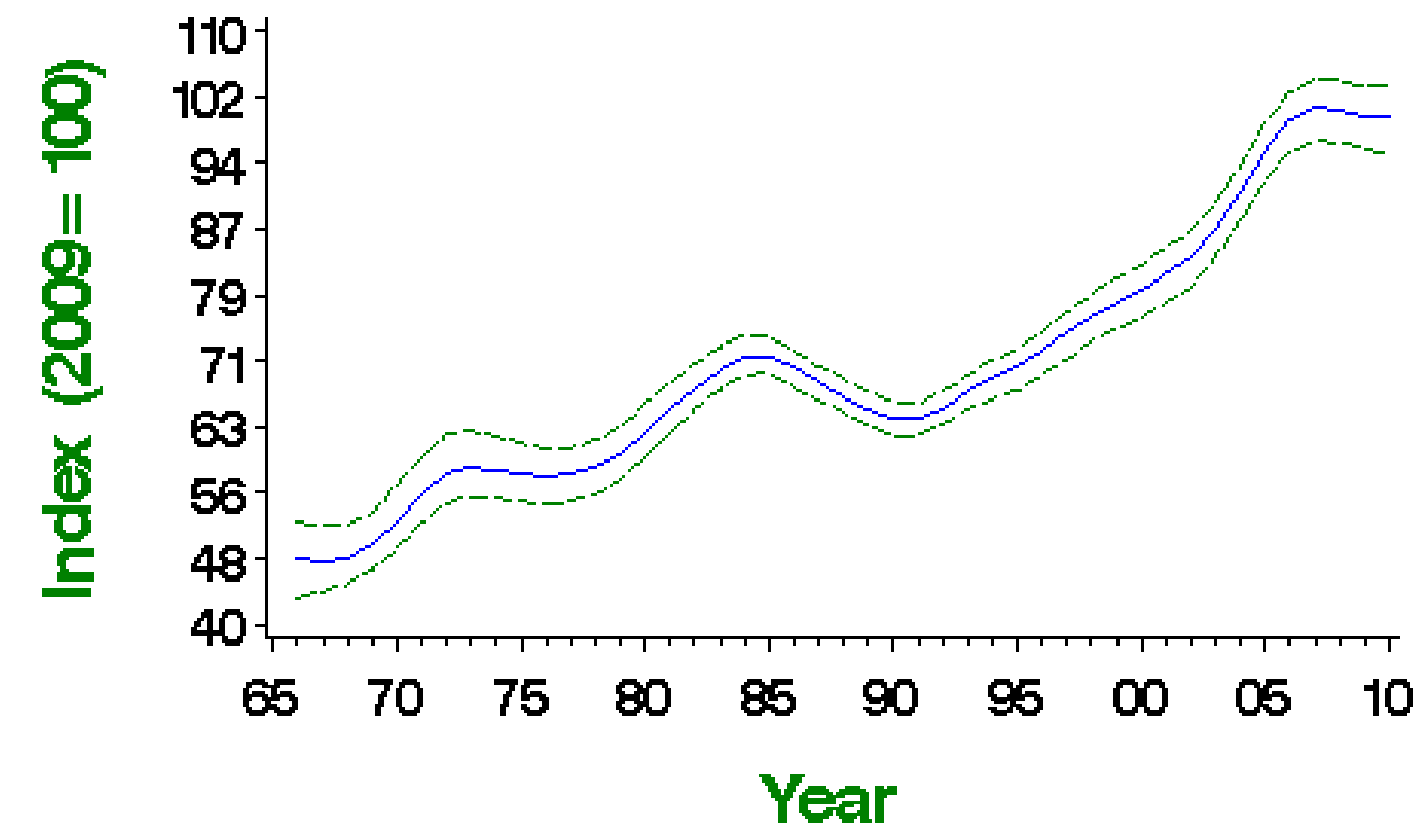
Conservation listings:	Europe: no SPEC category (not concentrated in Europe, conservation status favourable) (BiE04) UK: green (species level, race major); amber (race newtoni, >20% of European breeders) (BoCC3)
Long-term trend:	UK, England: rapid increase
Population size:	2,074,000 territories in 2000 (1988-91 Atlas estimate updated using CBC/BBS trend: BiE04, APEP06)

Migrant status:	Resident
Nesting habitat:	Cavity nester
Primary breeding habitat:	Woodland
Secondary breeding habitat:	
Breeding diet:	Animal
Winter diet:	Animal

Status summary

Great Tit numbers 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 BBS results suggest that this increase may recently have ceased, in all UK countries. Laying dates have advanced by 11 days since 1968.

CBC/BBS UK 1966—2010
Great Tit



Smoothed population index, relative to an arbitrary 100 in the year given, with 85% confidence limits in green

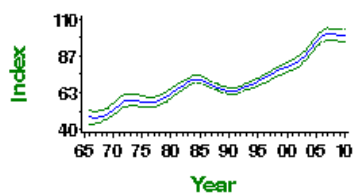
Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS UK	42	1967-2009	889	110	86	139		
	25	1984-2009	1351	40	29	48		
	10	1999-2009	2352	28	24	32		
	5	2004-2009	2643	10	7	13		
CBC/BBS England	42	1967-2009	731	101	74	132		
	25	1984-2009	1103	35	25	48		
	10	1999-2009	1901	26	23	30		
	5	2004-2009	2137	7	5	10		
CES adults	25	1984-2009	93	28	9	55		
	10	1999-2009	105	28	13	42		
	5	2004-2009	103	3	-6	14		
CES juveniles	25	1984-2009	95	13	-15	57		
	10	1999-2009	108	38	18	61		
	5	2004-2009	104	1	-12	16		
BBS UK	14	1995-2009	2085	45	40	49		
	10	1999-2009	2317	28	24	32		
	5	2004-2009	2643	10	8	12		
BBS England	14	1995-2009	1678	41	36	47		
	10	1999-2009	1853	27	23	31		
	5	2004-2009	2108	8	6	11		
BBS Scotland	14	1995-2009	147	47	28	68		
	10	1999-2009	162	26	13	43		
	5	2004-2009	194	14	4	23		
BBS Wales	14	1995-2009	168	51	30	75		
	10	1999-2009	191	35	19	53		
	5	2004-2009	206	14	3	24		
BBS N.Ireland	14	1995-2009	69	172	109	199		
	10	1999-2009	81	50	36	69		
	5	2004-2009	91	33	17	44		

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



CBC/BBS UK 1966—2010

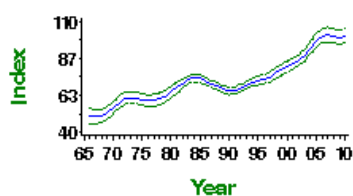
Great Tit



CBC/BBS UK graph

CBC/BBS England 1966—2010

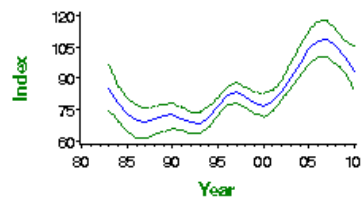
Great Tit



CBC/BBS England graph

CES adult abundance 1983–2010

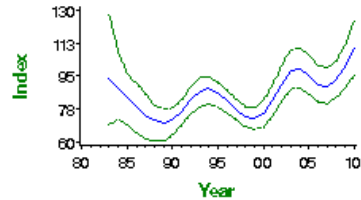
Great Tit



CES adults graph

CES juvenile abundance 1983–2010

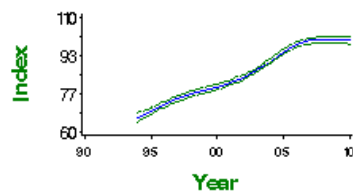
Great Tit



CES juveniles graph

BBS UK 1994–2010

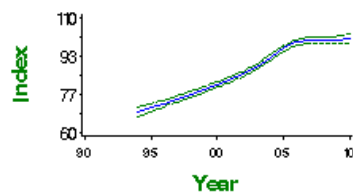
Great Tit



BBS UK graph

BBS England 1994–2010

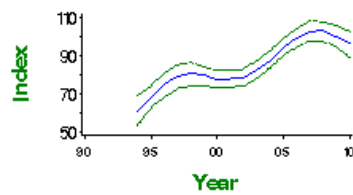
Great Tit



BBS England graph

BBS Scotland 1994–2010

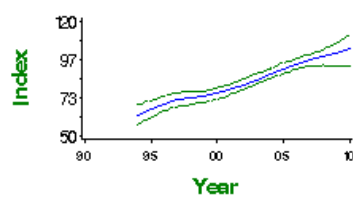
Great Tit



BBS Scotland graph

BBS Wales 1994–2010

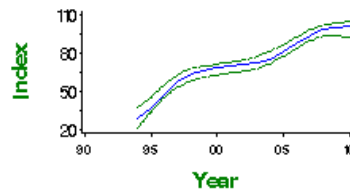
Great Tit



BBS Wales graph

BBS N. Ireland 1994–2010

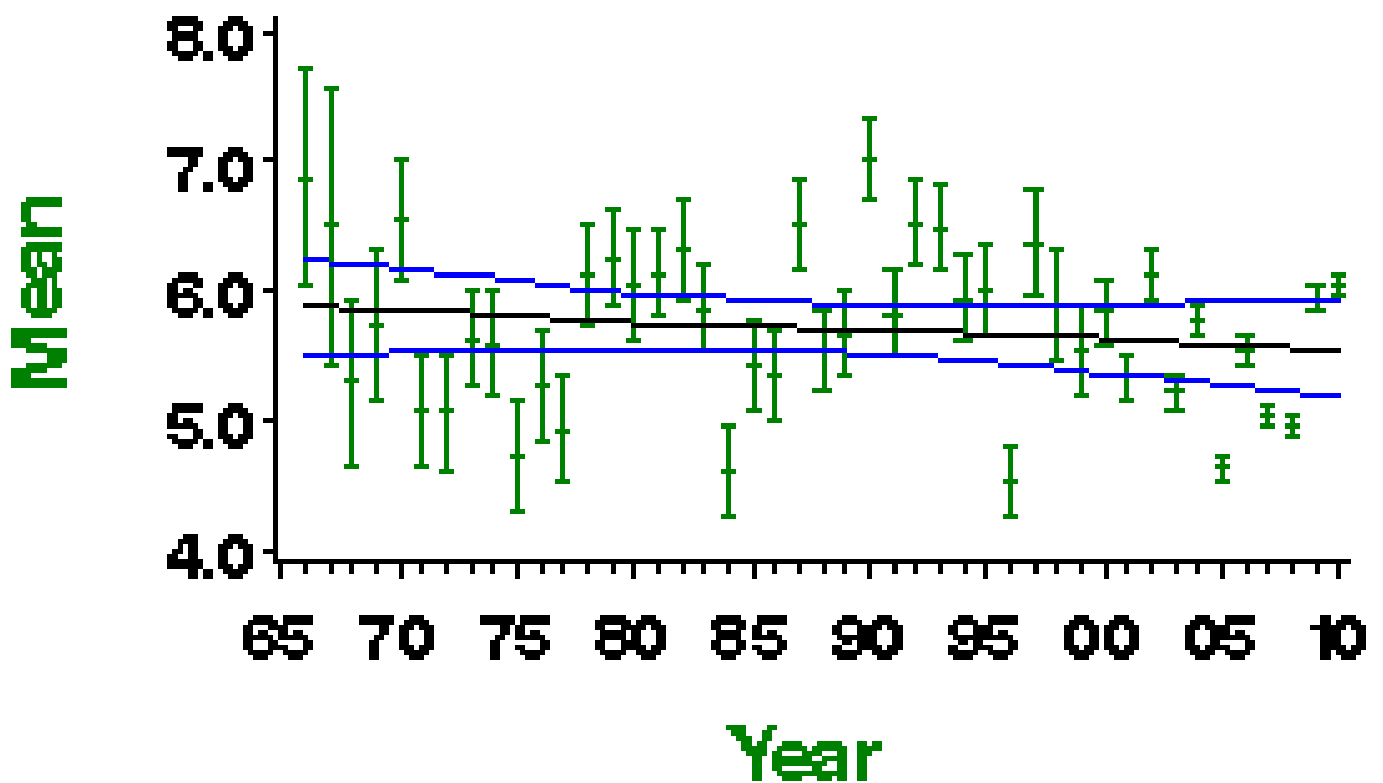
Great Tit



BBS N.Ireland graph

Demographic trends

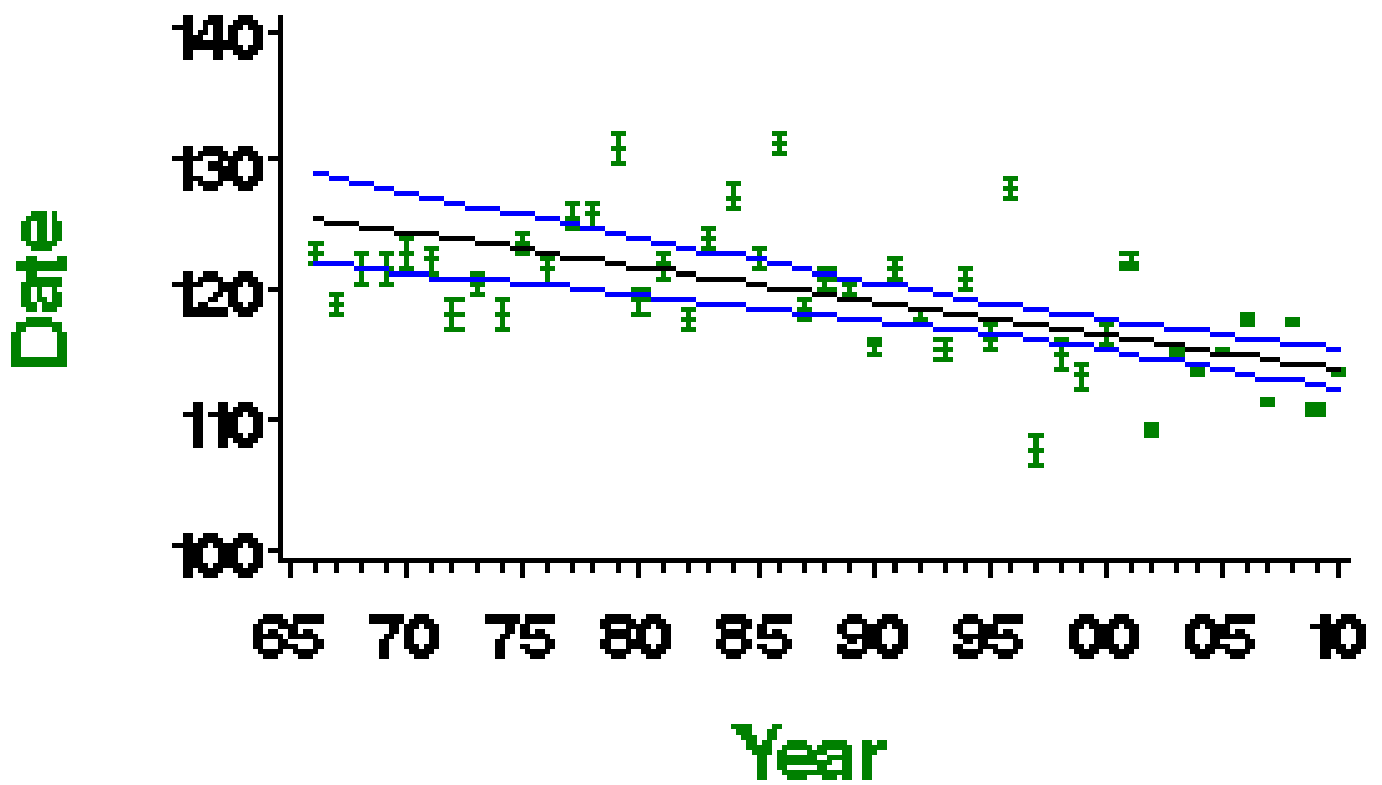
Fledglings per breeding attempt 1966–2010 Great Tit



Mean number of fledglings produced per nest - green bars represent standard error and black line shows long-term trend

Laying date 1966–2010

Great Tit



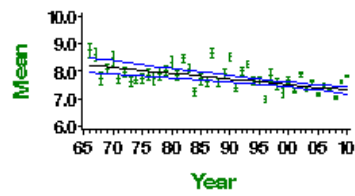
More on demographic trends

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Fledglings per breeding attempt	41	1968-2009	214	None					
Clutch size	41	1968-2009	289	Linear decline	8.19 eggs	7.33 eggs	-10.4%		
Brood size	41	1968-2009	596	Linear decline	7.37 chicks	6.19 chicks	-16.0%		
Nest failure rate at egg stage	41	1968-2009	526	Curvilinear	0.63% nests/day	0.29% nests/day	-54.0%		
Nest failure rate at chick stage	41	1968-2009	367	None					
Laying date	41	1968-2009	332	Linear decline	May 5	Apr 24	-11 days		
Juvenile to Adult ratio (CES)	25	1984-2009	101	Smoothed trend	127 Index value	100 Index value	-21%		
Juvenile to Adult ratio (CES)	10	1999-2009	113	Smoothed trend	91 Index value	100 Index value	10%		
Juvenile to Adult ratio (CES)	5	2004-2009	109	Smoothed trend	101 Index value	100 Index value	-1%		

For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).

Clutch size 1966—2010

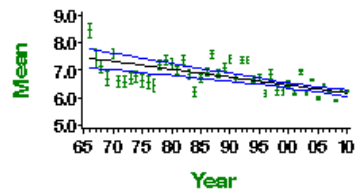
Great Tit



Mean number of eggs per nest - green bars represent standard error and black line shows long-term trend

Brood size 1966—2010

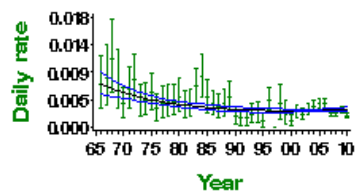
Great Tit



Mean number of chicks per nest - green bars represent standard error and black line shows long-term trend

Egg stage nest failure rate

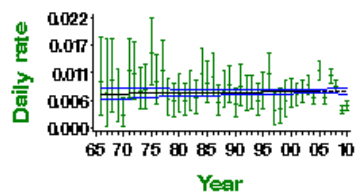
Great Tit



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Chick stage nest failure rate

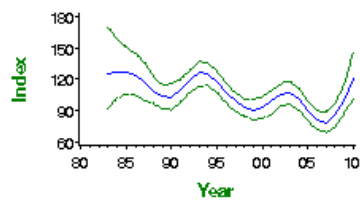
Great Tit



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

CES productivity 1983—2010

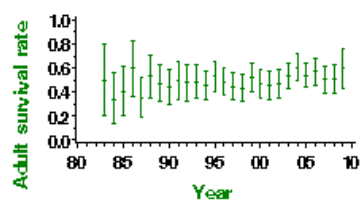
Great Tit



Smoothed long-term trend in ratio of juvenile:adult birds caught - green lines indicate 85% confidence limits

CES survival 1983—2009

Great Tit



Proportion of adult birds surviving to following year - green bars represent 95% confidence limits

Causes of change

Demographic trends in breeding parameters do not suggest that increases in this species are due to improvements in breeding performance. There is some evidence, albeit limited, that improvements in survival rates, due to amelioration in wintering conditions, may have been responsible. Evidence for ecological drivers of the population increase is limited but increased provisioning in gardens and milder winters may have played a role.

Change factor	Primary driver	Secondary driver
Demographic	Improved survival	
Ecological	Other	Climate change

Further information on causes of change

The number of fledglings per breeding attempt has gone down and clutch and brood sizes have decreased, as has productivity (see above). Daily failure rates at the egg stage have also decreased but daily failure rates at the chick stage have increased. Thus, there is little good evidence from this that improvements in breeding parameters have driven the population increase.

Increases in survival rates, due to more widespread food provision in gardens during winter is one possible explanation for the increase. Horak & Lebreton (1998) found that survival rates in Estonia were higher in urban populations than rural ones and suggested that this was partly due to supplementary feeding in gardens. Increasing winter temperature may have also played a role. Ahola et al. (2009) suggested that, for their study population in Sweden, increasingly favourable conditions in winters have enhanced the survival rates of Great Tit and resulted in the observed increase in Great Tit breeding density.

Other factors may also have influenced survival rates. There is some evidence that the beech crop production may be influential and it has been shown that survival rates can be related to beech crop (Verhulst 1992, Perdeck et al. 2000), although there is no evidence that beechmast production has gone up. Perdeck et al. (2000) provided further evidence for this as supplemental food increased survival of both juveniles and adults, supporting the winter-food limitation hypothesis. In a Finnish population, Orell (1989) reported that the high survival rates of resident juveniles after a warm August may be attributable to food availability during the time when the birds undergo their post-juvenile moult. Great Tits have advanced their laying date (see above), in line with climatic change. This has been found by several studies (e.g. Sanz 2002, Visser et al. 2009, Bauer et al. 2010).

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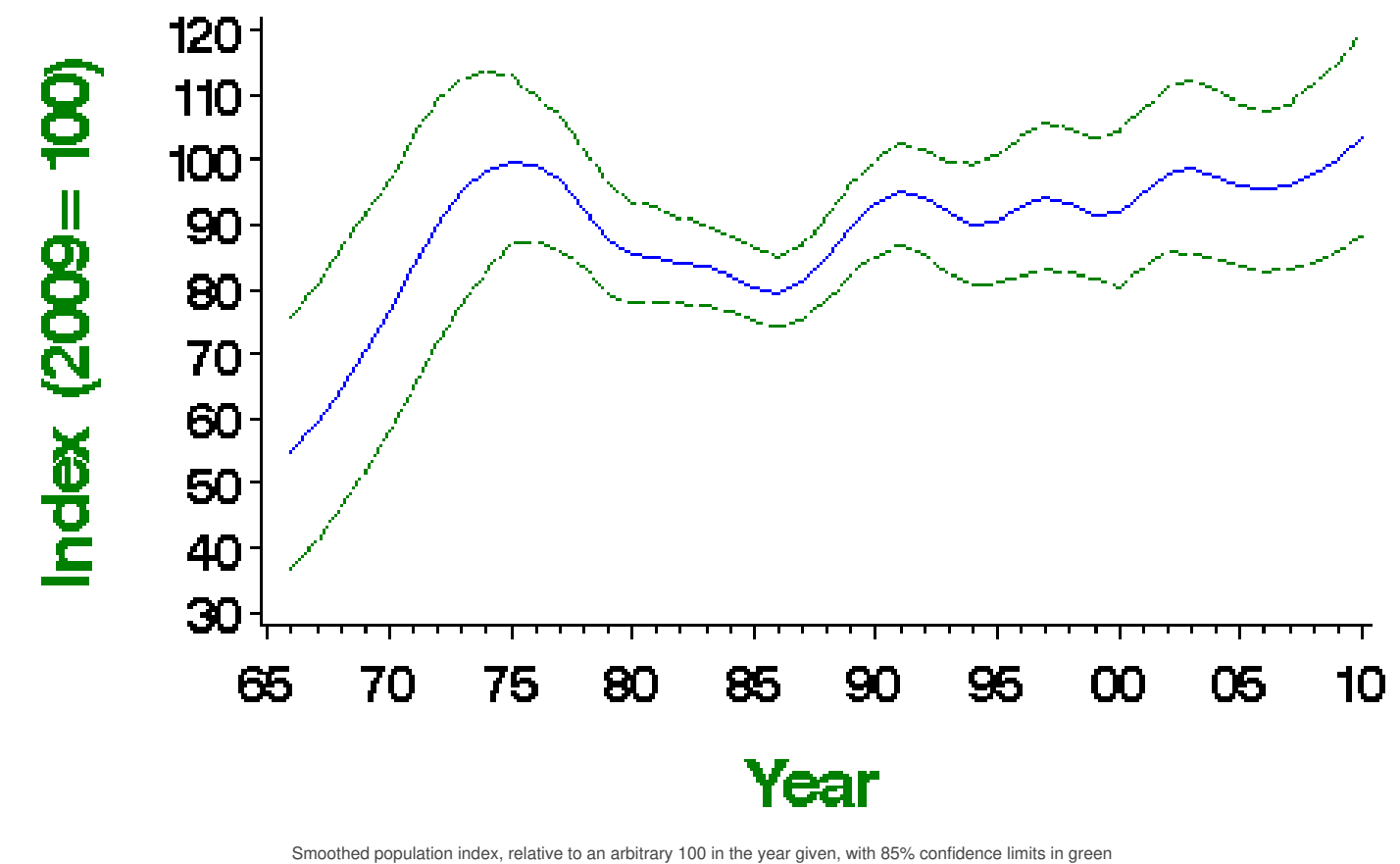
Key facts

Conservation listings:	Europe: no SPEC category (not concentrated in Europe, conservation status favourable) (BiE04) UK: green (species level, race hibernicus); amber (race britannicus, >20% of European breeders) (BoCC3)
Long-term trend:	UK, England: moderate increase
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 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.

CBC/BBS UK 1966–2010
Coal Tit



Population changes in detail

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS UK	42	1967-2009	352	68	1	190		
	25	1984-2009	515	22	-1	49		
	10	1999-2009	871	9	1	19		
	5	2004-2009	984	3	-3	12		
CBC/BBS England	42	1967-2009	245	71	-3	203		

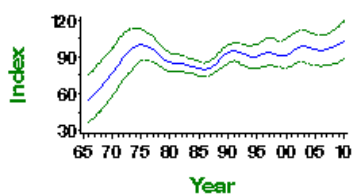
Source	25 Period (yrs)	1984-2009 Years	350 Plots	27 Change (%)	4 Lower limit	57 Upper limit	Alert	Comment
	5	2004-2009	661	14	6	24		
BBS UK	14	1995-2009	759	12	3	24		
	10	1999-2009	853	8	0	17		
	5	2004-2009	984	3	-3	10		
BBS England	14	1995-2009	493	26	10	46		
	10	1999-2009	557	18	7	31		
	5	2004-2009	642	14	7	21		
BBS Scotland	14	1995-2009	126	0	-16	16		
	10	1999-2009	134	0	-17	15		
	5	2004-2009	164	-4	-16	10		
BBS Wales	14	1995-2009	71	-11	-35	21		
	10	1999-2009	79	2	-20	24		
	5	2004-2009	82	18	-2	39		
BBS N.Ireland	14	1995-2009	60	66	18	108		
	10	1999-2009	69	1	-12	21		
	5	2004-2009	76	-10	-22	4		

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



CBC/BBS UK 1966–2010

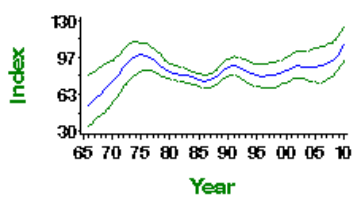
Coal Tit



CBC/BBS UK graph

CBC/BBS England 1966–2010

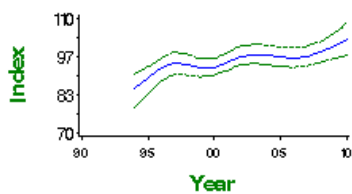
Coal Tit



CBC/BBS England graph

BBS UK 1994–2010

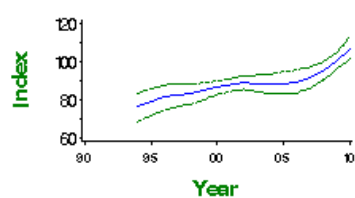
Coal Tit



BBS UK graph

BBS England 1994—2010

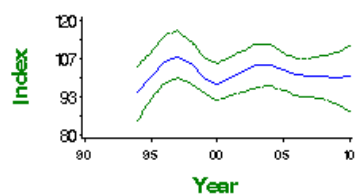
Coal Tit



BBS England graph

BBS Scotland 1994—2010

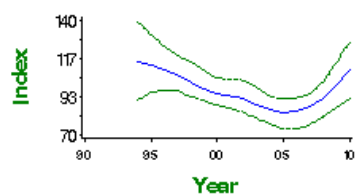
Coal Tit



BBS Scotland graph

BBS Wales 1994—2010

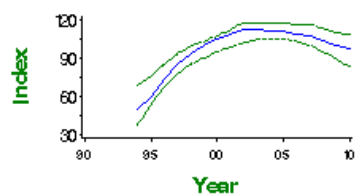
Coal Tit



BBS Wales graph

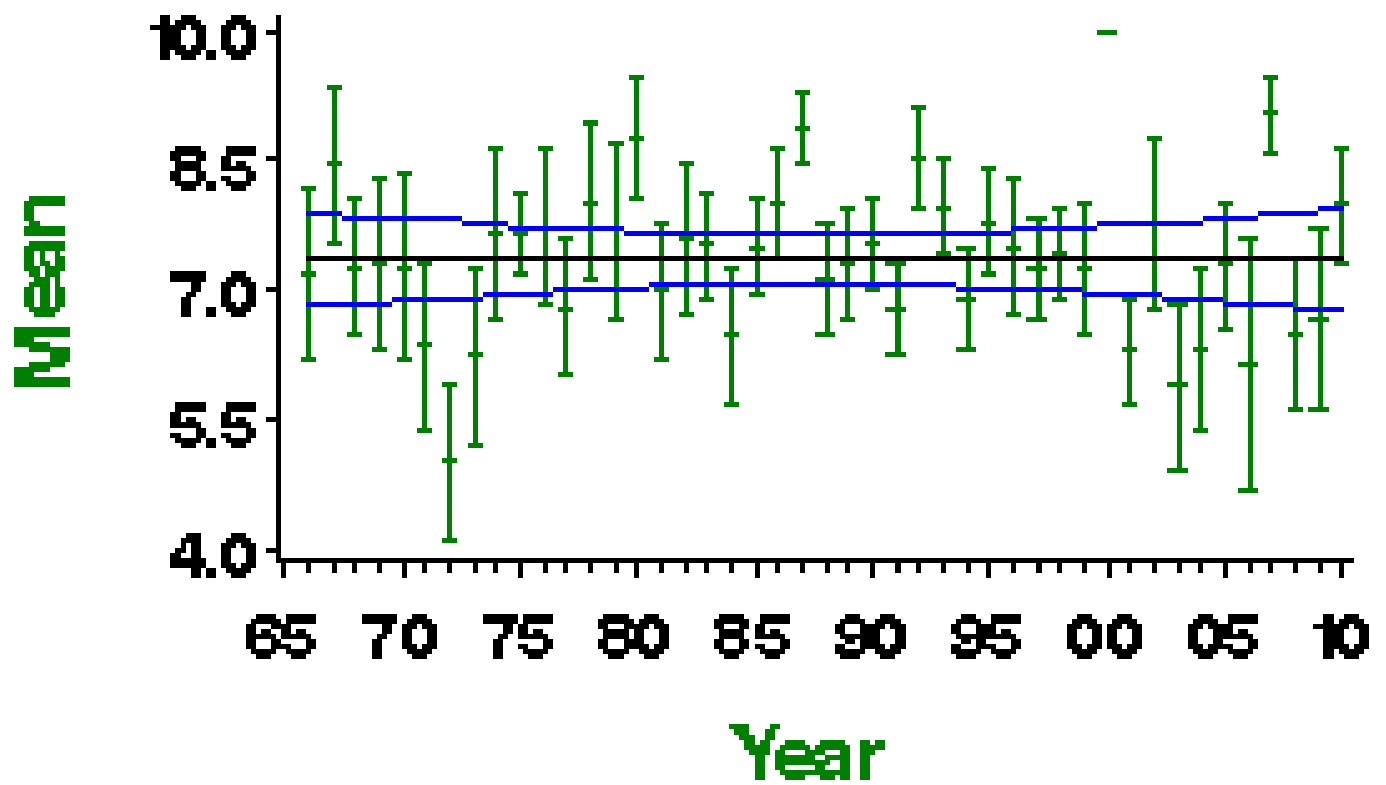
BBS N. Ireland 1994—2010

Coal Tit



BBS N.Ireland graph

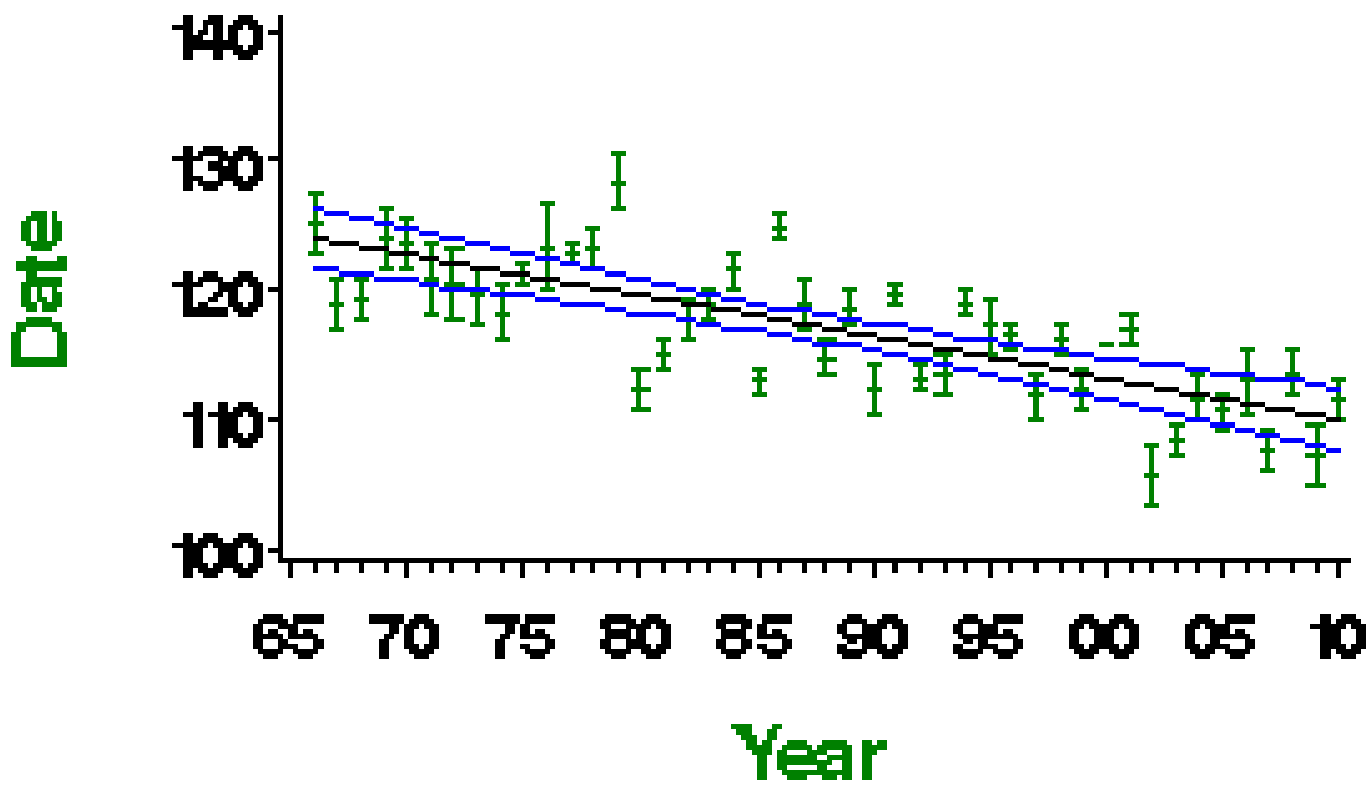
Fledglings per breeding attempt 1966–2010 Coal Tit



Mean number of fledglings produced per nest - green bars represent standard error and black line shows long-term trend

Laying date 1966—2010

Coal Tit



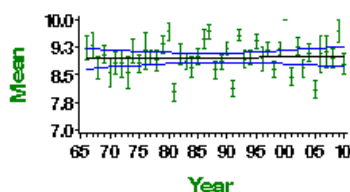
More on demographic trends

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Fledglings per breeding attempt	41	1968-2009	31	None					
Clutch size	41	1968-2009	40	None					
Brood size	41	1968-2009	74	Curvilinear	7.31 chicks	6.81 chicks	-6.8%		
Nest failure rate at egg stage	41	1968-2009	55	Linear decline	0.48% nests/day	0.16% nests/day	-66.7%		
Nest failure rate at chick stage	41	1968-2009	57	Curvilinear	0.29% nests/day	0.82% nests/day	182.8%		
Laying date	41	1968-2009	44	Linear decline	May 3	Apr 20	-13 days		

For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).

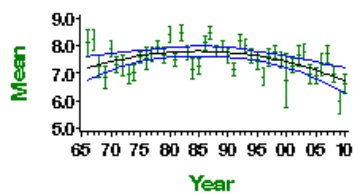
Clutch size 1966—2010

Coal Tit



Brood size 1966—2010

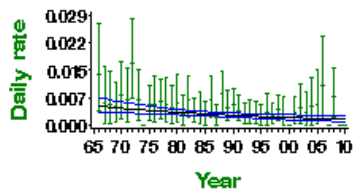
Coal Tit



Mean number of chicks per nest - green bars represent standard error and black line shows long-term trend

Egg stage nest failure rate

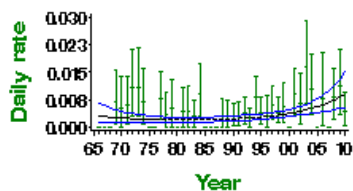
Coal Tit



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Chick stage nest failure rate

Coal Tit



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

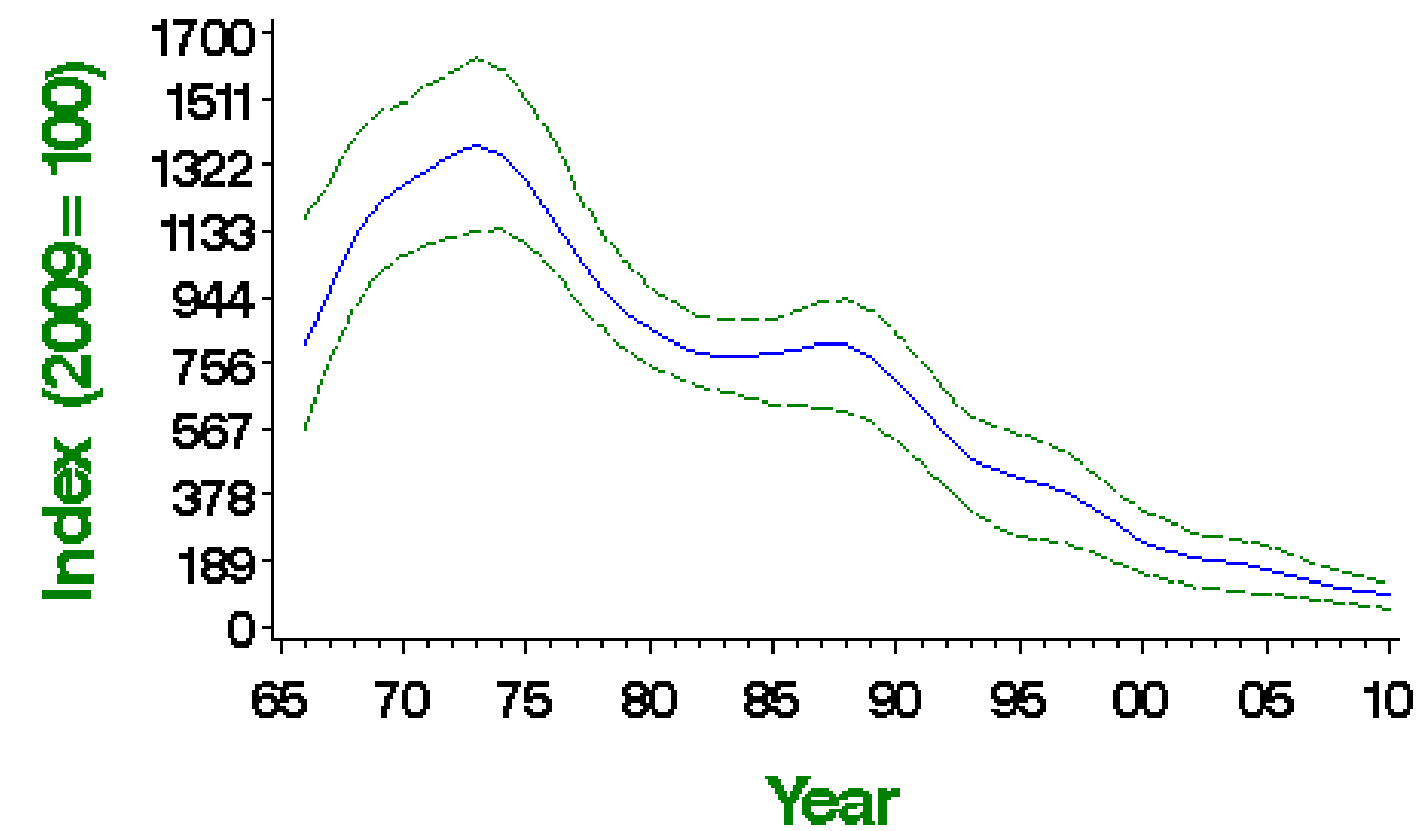
Key facts

Conservation listings:	Europe: no SPEC category (not concentrated in Europe, conservation status favourable) (BiE04) UK: red (>50% population decline) (BoCC3) UK Biodiversity Action Plan: priority species
Long-term trend:	UK, England: rapid decline
Population size:	8,500 territories in 2000 (1988-91 Atlas estimate updated using CBC/BBS trend: BiE04, APEP06)
Migrant status:	Resident
Nesting habitat:	Cavity nester
Primary breeding habitat:	Woodland
Secondary breeding habitat:	
Breeding diet:	Animal
Winter diet:	Vegetation

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. Willow Tit has shown widespread moderate 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, 2011a).

CBC/BBS UK 1966–2010
Willow Tit



Smoothed population index, relative to an arbitrary 100 in the year given, with 85% confidence limits in green

Population changes in detail

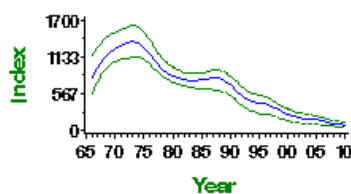
Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS UK	42	1967-2009	43	-90	-96	-83	>50	
	25	1984-2009	45	-87	-93	-80	>50	Small CBC sample
	10	1999-2009	50	-65	-76	-56	>50	
	5	2004-2009	48	-44	-56	-29	>25	
CBC/BBS England	42	1967-2009	40	-89	-95	-80	>50	
	25	1984-2009	41	-87	-92	-79	>50	Small CBC sample
	10	1999-2009	44	-64	-72	-53	>50	
	5	2004-2009	43	-40	-51	-24	>25	
CES adults	25	1984-2009	19	-53	-82	-9	>50	Small sample
	10	1999-2009	11	-13	-69	42		Small sample
CES juveniles	25	1984-2009	27	-50	-74	-3	>25	
	10	1999-2009	17	-8	-46	54		Small sample
	5	2004-2009	13	-9	-43	48		Small sample
BBS UK	14	1995-2009	52	-76	-82	-67	>50	
	10	1999-2009	48	-65	-73	-54	>50	
	5	2004-2009	48	-41	-52	-25	>25	
BBS England	14	1995-2009	46	-76	-82	-69	>50	
	10	1999-2009	43	-63	-72	-53	>50	
	5	2004-2009	43	-39	-53	-24	>25	

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



CBC/BBS UK 1966–2010

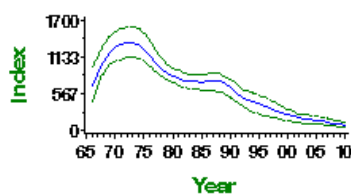
Willow Tit



CBC/BBS UK graph

CBC/BBS England 1966–2010

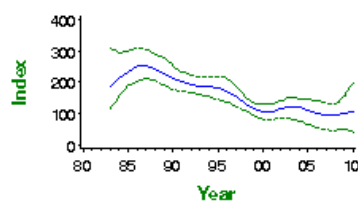
Willow Tit



CBC/BBS England graph

CES adult abundance 1983–2010

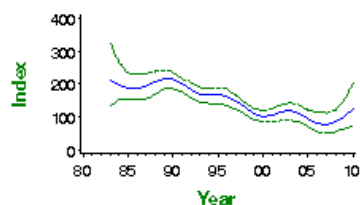
Willow Tit



CES adults graph

CES juvenile abundance 1983–2010

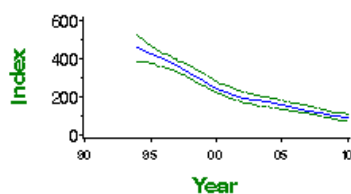
Willow Tit



CES juveniles graph

BBS UK 1994–2010

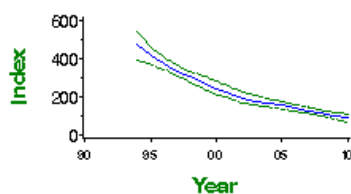
Willow Tit



BBS UK graph

BBS England 1994–2010

Willow Tit



BBS England graph

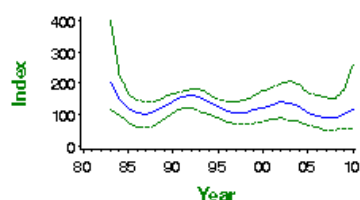
Demographic trends

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Juvenile to Adult ratio (CES)	25	1984-2009	30	Smoothed trend	153 Index value	100 Index value	-35%		
Juvenile to Adult ratio (CES)	10	1999-2009	19	Smoothed trend	114 Index value	100 Index value	-12%		
Juvenile to Adult ratio (CES)	5	2004-2009	15	Smoothed trend	125 Index value	100 Index value	-20%		

For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).

CES productivity 1983–2010

Willow Tit



Smoothed long-term trend in ratio of juvenile:adult birds caught - green lines indicate 85% confidence limits

Causes of change

Willow Tits have declined in woodland, probably because of habitat degradation. How this relates to demographic trends is unclear.

Change factor	Primary driver	Secondary driver
Demographic	Unknown	

Further information on causes of change

Little evidence is available regarding changes in the demography of this species but CES trends suggest a decline in productivity since 1983 (see above). Lampila et al. (2006) found that adult survival was the main driver of Willow Tit populations in northern Finland, although this was in a study in boreal forests, so the processes may not be the same as for the British population. The British subspecies does in fact show very different habitat preferences to the Fennoscandian one, preferring wet woodland rather than conifers, emphasising that European studies may not be very relevant to population change in the UK.

There are several hypotheses that have been put forward to explain the cause of population declines of Willow Tit. One is that deterioration in the quality of woodland as feeding habitat for this species through canopy closure and increased browsing by deer (Perrins 2003, Siriwardena 2004, Fuller et al. 2005) has been important. The area of wet woodland and scrub is also thought to have declined as a result of drainage and the occurrence of increasingly dry summers (Vanhinsbergh et al. 2003). A field study based on former CBC sites and other woods that were known to have held the species in the past provided good evidence that the sites still holding Willow Tit tended to be wetter, so drying out of woodlands may have been a factor (Lewis et al. 2007, 2009). Siriwardena (2004) analysed long-term CBC trends and found that, although population trends have been stable in their preferred, wet habitats, Willow Tit have declined in woodland, probably because of habitat degradation.

A second hypothesis is that nest predation pressure, from Jays, Great Spotted Woodpeckers and grey squirrel, for example, has increased, both because some of these predators have grown more abundant (Harris et al. 1995, this report) and because restrictions in nest-site availability are likely to have forced more birds into suboptimal, more vulnerable sites. In the study mentioned above, Siriwardena (2004) found increases in Green Woodpecker abundance on CBC plots at the same time as declines in Willow Tit abundance, but this is unlikely to reflect a causal link - this woodpecker being unrecorded as a nest predator. A negative relationship between Great Spotted Woodpecker and Willow Tit abundance on farmland plots is more likely to reflect a real population effect, but farmland is only a minor habitat for the species, so it is unlikely that such a relationship has biological significance for Willow Tits nationally. There were no significant associations with other avian potential nest predators. Supporting this result, Lewis et al. (2007, 2009) found that sites that were known to have held the species in the past and that were still holding Willow Tits did not differ in the density of potential nest predators.

Thirdly, increases in the local populations of behaviourally dominant, sympatric species such as Blue Tit, Great Tit, Marsh Tit and Nuthatch could have led to increased competition, especially for nest-holes. There is little direct evidence specifically concerning foraging interactions involving Willow Tit in the UK but it is possible that increases in other tit species have placed extra pressure on Willow Tit populations through competition for food or nest sites (Vanhinsbergh et al. 2003). In Lanarkshire, central Scotland, Great and Blue Tits were found commonly to take over the nest sites of Willow Tit (Maxwell 2002, 2003) but it is unclear how widespread this phenomenon is. In the analysis of long-term CBC trends carried out by Siriwardena (2004), no negative relationships were found between Willow Tit and its potential competitors. Again, this was supported by field data from Lewis et al. (2007, 2009), who found that sites that were known to have held the species in the past and that that were still holding Willow Tits did not differ in the density of avian competitors.

Overall, therefore, habitat deterioration is the strongest candidate as the cause of Willow Tit decline nationally. As well as increasing woodland drainage, degradation has been hypothesised to have occurred via a reduction in nest-site availability resulting from falls in the amount of dead wood and number of dead trees in woodland reducing nesting opportunities (Vanhinsbergh et al. 2003). This has yet to be tested formally, however, probably because historical data on quantities of dead wood are not available.

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Vanhinsbergh, D., Fuller, R. & Noble, D. (2003) A review of possible causes of recent changes in populations of woodland birds in Britain. Research Report 245. British Trust for Ornithology, Thetford.

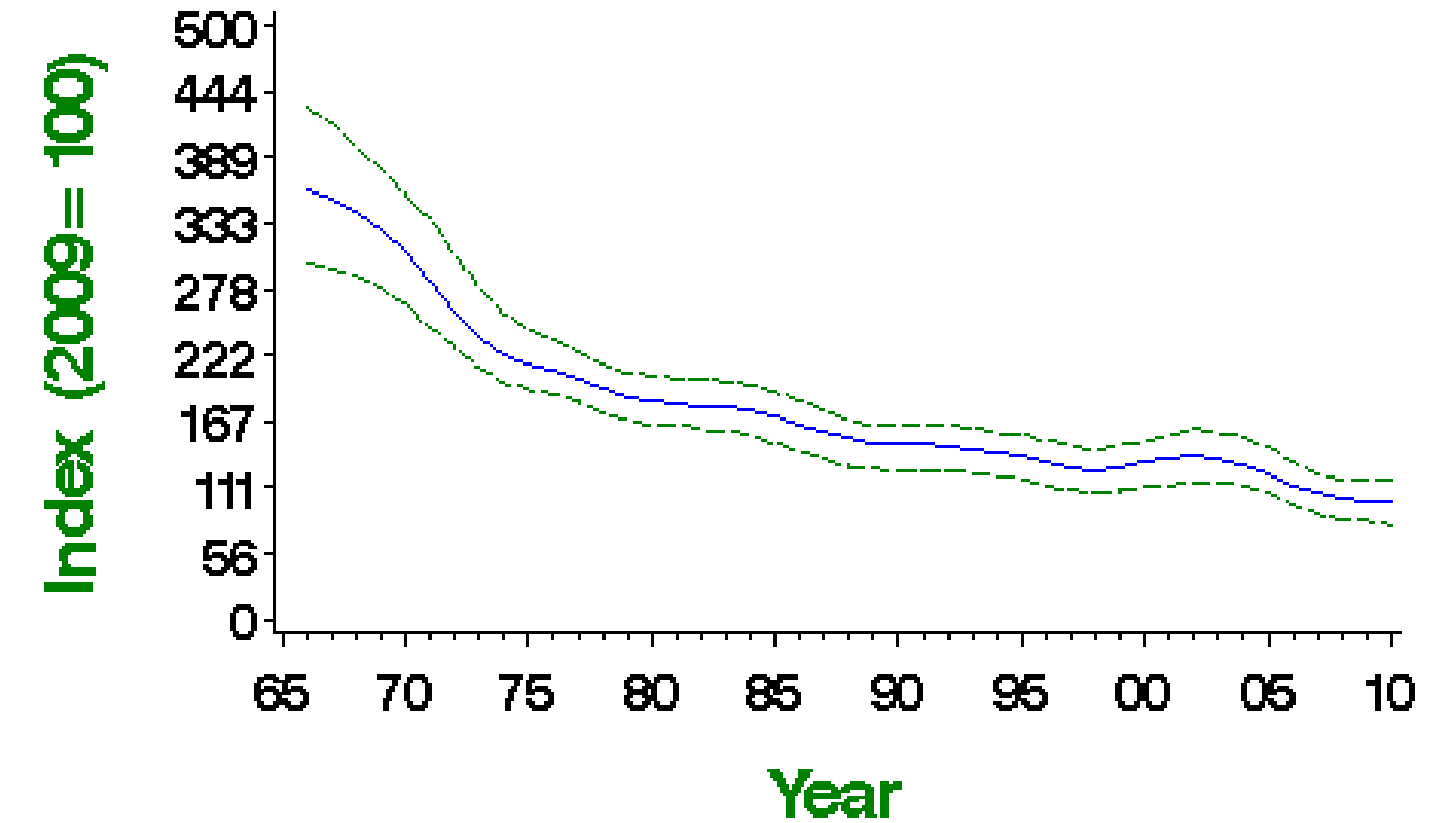
Key facts

Conservation listings:	Europe: SPEC category 3 (declining) (BiE04) UK: red (>50% population decline) (BoCC3) UK Biodiversity Action Plan: priority species
Long-term trend:	UK, England: rapid decline
Population size:	52,800 territories in 2000 (1988-91 Atlas estimate updated using CBC/BBS trend: BiE04, APEP2)
Migrant status:	Resident
Nesting habitat:	Cavity nester
Primary breeding habitat:	Woodland
Secondary breeding habitat:	
Breeding diet:	Animal
Winter diet:	Animal

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. Numbers have shown widespread moderate decline across Europe since 1980 (PECBMS 2011a), and the European status of this species is no longer considered "secure" (BirdLife International 2004).

CBC/BBS UK 1966–2010
Marsh Tit



Smoothed population index, relative to an arbitrary 100 in the year given, with 85% confidence limits in green

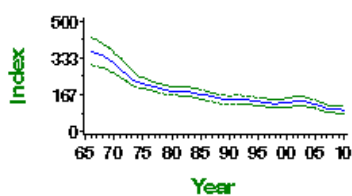
Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS UK	42	1967-2009	95	-72	-80	-62	>50	
	25	1984-2009	120	-43	-57	-27	>25	
	10	1999-2009	165	-22	-34	-10		
	5	2004-2009	169	-24	-35	-13		
CBC/BBS England	42	1967-2009	87	-71	-79	-60	>50	
	25	1984-2009	110	-43	-56	-25	>25	
	10	1999-2009	148	-21	-33	-3		
	5	2004-2009	151	-22	-32	-7		
BBS UK	14	1995-2009	144	-21	-34	-10		
	10	1999-2009	154	-24	-35	-12		
	5	2004-2009	163	-23	-33	-11		
BBS England	14	1995-2009	130	-24	-36	-8		
	10	1999-2009	139	-22	-33	-9		
	5	2004-2009	148	-20	-31	-8		

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



CBC/BBS UK 1966–2010

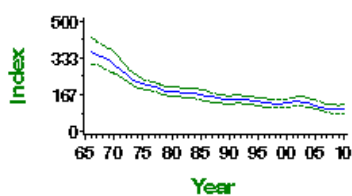
Marsh Tit



CBC/BBS UK graph

CBC/BBS England 1966–2010

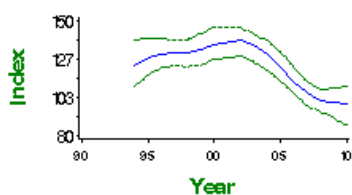
Marsh Tit



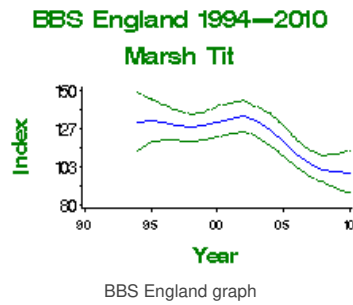
CBC/BBS England graph

BBS UK 1994–2010

Marsh Tit

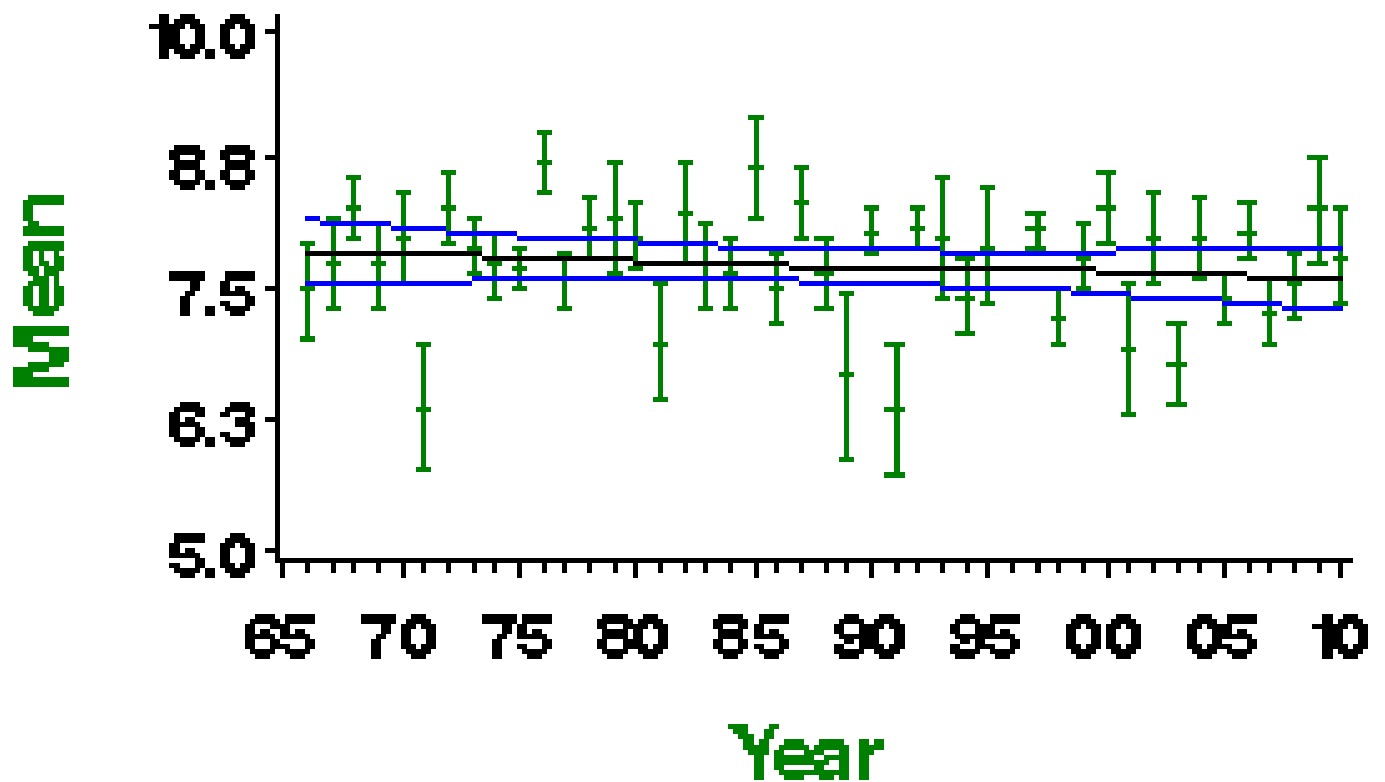


BBS UK graph



Demographic trends

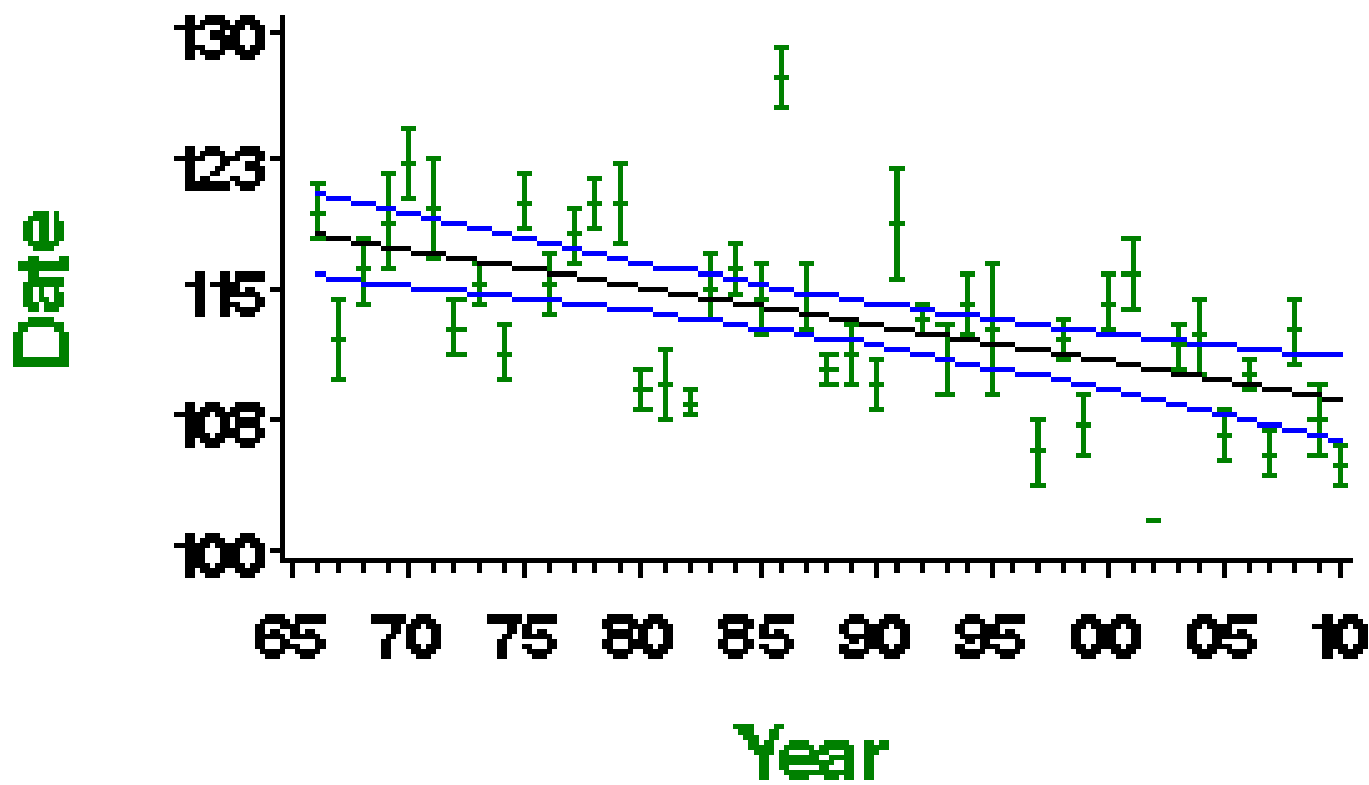
Fledglings per breeding attempt 1966–2010 Marsh Tit



Mean number of fledglings produced per nest - green bars represent standard error and black line shows long-term trend

Laying date 1966—2010

Marsh Tit



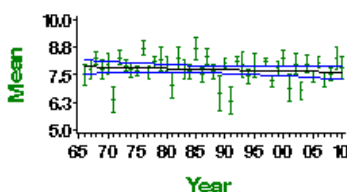
More on demographic trends

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Fledglings per breeding attempt	41	1968-2009	11	None					
Clutch size	41	1968-2009	14	None					Small sample
Brood size	41	1968-2009	24	None					Small sample
Nest failure rate at egg stage	41	1968-2009	21	Curvilinear	0.96% nests/day	0.29% nests/day	-69.8%		Small sample
Nest failure rate at chick stage	41	1968-2009	20	None					Small sample
Laying date	41	1968-2009	14	Linear decline	Apr 28	Apr 19	-9 days		Small sample

For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).

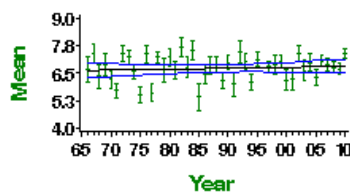
Clutch size 1966—2010

Marsh Tit



Brood size 1966–2010

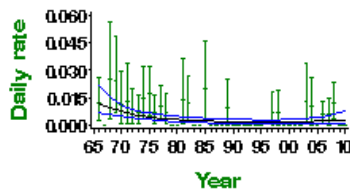
Marsh Tit



Mean number of chicks per nest - green bars represent standard error and black line shows long-term trend

Egg stage nest failure rate

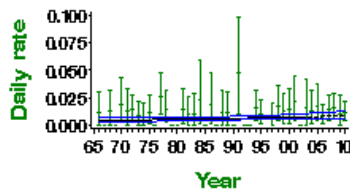
Marsh Tit



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Chick stage nest failure rate

Marsh Tit



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Causes of change

There is good evidence that changes in the habitat quality of woodlands, namely a loss of understorey, have been responsible for the decline in Marsh Tits. Analysis of the BTO's ring-recovery archive provides evidence that there has been a significant negative trend in annual survival rates during the period of decline, although this is based on a small sample size.

Change factor	Primary driver	Secondary driver
Demographic	Reduced survival	
Ecological	Changes in woodland	

Further information on causes of change

Analysis of the BTO's ring-recovery archive provides evidence that there has been a significant negative trend in annual survival rates during the period of decline, although this is based on a small sample size. The absence of any reduction in breeding performance as the population declined supports a reduction in annual survival as the demographic mechanism (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 (see above).

One hypothesis relating to the causes of decline is that changes in woodland understorey have reduced habitat quality, due to increased browsing by deer (Perrins 2003, Fuller et al. 2005). Carpenter (2008) and Carpenter et al. (2010) conducted a detailed study providing good evidence that Marsh Tits were more likely to locate their territories in sections of woodland with more understorey cover. Carpenter found that birds in territories with more understorey raised more and heavier young than did birds in territories with less understorey, although this was based on only one year of data. The same study reported that understorey and low canopy sections were also important during winter while Hinsley et al. (2007) provide further evidence that this was important, showing that that Marsh Tits were selecting the understorey and habitat lower down in the woodland canopy. Another field study conducted by Broughton et al. (2006), however, did not find any difference in the amount of shrub layer in Marsh Tit territories compared to pseudo-territories, although this was from just one site and the authors noted that the understorey there was unusually healthy and complete, perhaps explaining this result.

A reduction in habitat quality through fragmentation is another possible factor that has contributed to declines, although there has been little fragmentation of woodland in a gross sense in recent years. Nevertheless, Hinsley et al. (1995) found that Marsh Tits need a minimum wood size of 0.5 ha and it's possible that habitat deterioration has reduced effective habitat patch size.

Another hypothesis concerning causes of decline relates to competition and nest predation. Marsh Tit is subdominant to both Great Tit and Blue Tit but Siriwardena (2006) found no evidence for population effects of the Marsh Tit being outcompeted for natural nest cavities. Similarly, the same study found no evidence that avian nest

predation is a major factor in the long-term decline as Marsh Tit abundance was not significantly related to abundance in the previous year of any of the nest predators considered (Siriwardena 2006). Amar et al. (2006) found no association between population change and grey squirrel abundance and adding to this, Smart et al. (2007) conducted an initial analysis and showed that Marsh Tit declines were also unlikely to be caused by predation by grey squirrel, as presence and abundance of Marsh Tit was positively related to squirrel density.

Species references

Amar, A., Hewson, C.M., Thewlis, R.M., Smith, K.W., Fuller, R.J., Lindsell, J.A., Conway, G., Butler, S. & Macdonald, M. (2006) What's happening to our woodland birds? Long-term changes in the populations of woodland birds. BTO Research Report 169. RSPB Research Report 19, Thetford.

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Carpenter, J. (2008) An investigation of causes of population decline in the Marsh Tit *Poecile palustris* in Britain. DPhil Thesis, University of Oxford.

Carpenter, J., Smart, J., Amar, A., Gosler, A., Hinsley, S. & Charman, E. (2010) National-scale analyses of habitat associations of Marsh Tits *Poecile palustris* and Blue Tits *Cyanistes caeruleus*: two species with opposing population trends in Britain. *Bird Study* 57: 31-43.

Fuller, R., Noble, D., Smith, K. & Vanhinsbergh, D. (2005) Recent declines in populations of woodland birds in Britain: a review of possible causes. *British Birds* 98: 116-143.

Hinsley, S., Carpenter, J., Broughton, R., Bellamy, P., Rothery, P., Amar, A., Hewson, C. & Gosler, A. (2007) Habitat selection by Marsh Tits *Poecile palustris* in the UK. *Ibis* 149: 224-233.

Hinsley, S.A., Bellamy, P.E., Newton, I. & Sparks, T.H. (1995) Habitat and landscape features influencing the presence of individual bird species in woodland fragments. *Journal of Avian Biology* 26: 94-104.

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Perrins, C. (2003) The status of Marsh and Willow Tits in the UK. *British Birds* 96: 418-426.

Siriwardena, G. (2006) Avian nest predation, competition and the decline of British Marsh Tits *Parus palustris*. *Ibis* 148: 255-265.

Smart, J., Taylor, E., Amar, A., Smith, K., Bierman, S., Carpenter, J., Grice, P., Currie, F., Smithers, R., Fuller, R. & Hewson, C. (2007) Habitat associations of woodland birds: implications for woodland management for declining species. RSPB, Sandy.

This report should be cited as: Baillie, S.R., Marchant, J.H., Leech, D.I., Renwick, A.R., Eglington, S.M., Joys, A.C., Noble, D.G., Barimore, C., Conway, G.J., Downie, I.S., Risely, K. & Robinson, R.A. (2012). BirdTrends 2011. BTO Research Report No. 609. BTO, Thetford. <https://www.bto.org/birdtrends>

Woodlark

Lullula arborea

Key facts

Conservation listings:	Europe: SPEC category 2 (depleted) (BiE04) UK: amber (European status, long-term UK range contraction, localised UK breeding) (BoCC3) UK Biodiversity Action Plan: click here , priority species
Long-term trend:	UK: increase
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 <i>et al.</i> 2009)

Status summary

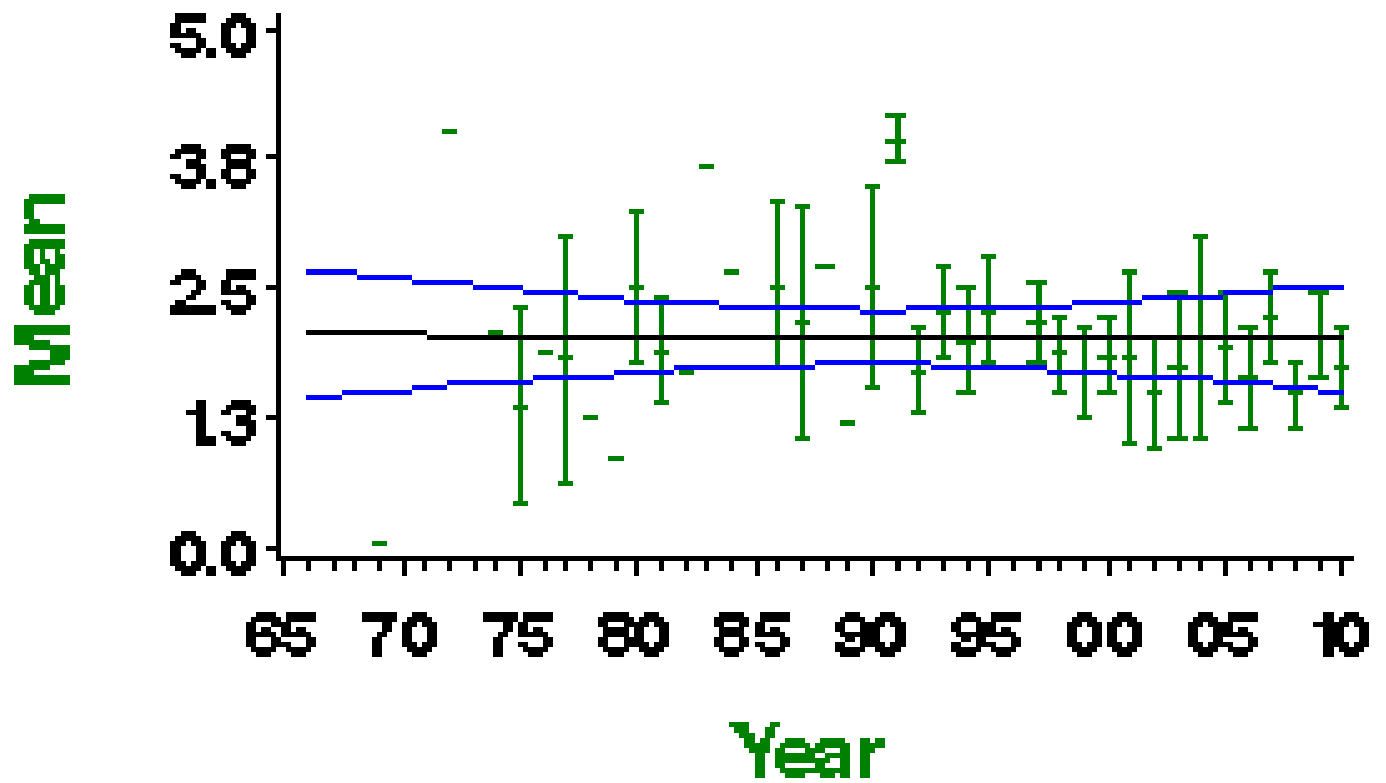
This species is too rare and restricted in range for population changes to be monitored annually by BTO volunteer surveys. A 62% reduction occurred in the number of 10-km squares occupied between 1968-72 and 1988-91; the species had ceased to breed in Wales and in several southern English counties over 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, clickConway *et al.* 2009; also 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 moderate increase across Europe since 1980 (PECBMS 2011a).

Population changes in detail

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

Demographic trends

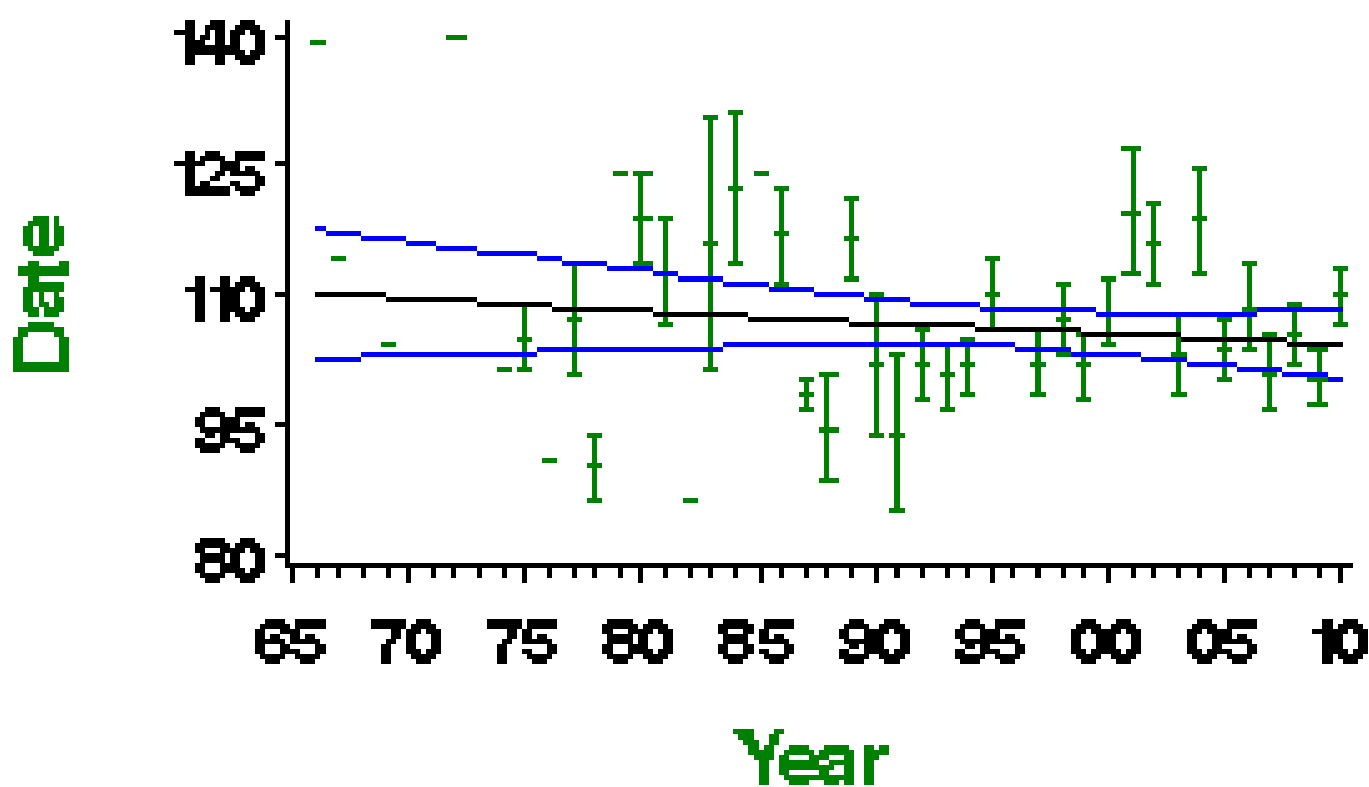
Fledglings per breeding attempt 1966–2010 Woodlark



Mean number of fledglings produced per nest - green bars represent standard error and black line shows long-term trend

Laying date 1966—2010

Woodlark



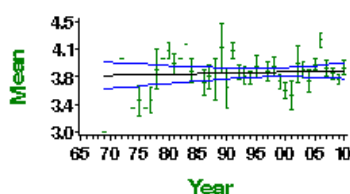
More on demographic trends

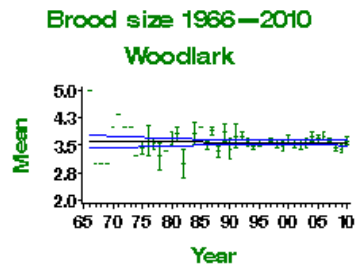
Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Fledglings per breeding attempt	41	1968-2009	12	None					
Clutch size	41	1968-2009	19	None					Small sample
Brood size	41	1968-2009	30	None					
Nest failure rate at egg stage	41	1968-2009	21	Curvilinear	6.24% nests/day	2.47% nests/day	-60.4%		Small sample
Nest failure rate at chick stage	41	1968-2009	31	None					
Laying date	41	1968-2009	21	None			0 days		Small sample

For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).

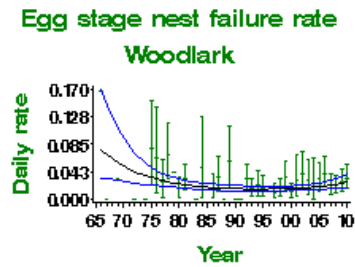
Clutch size 1966—2010

Woodlark

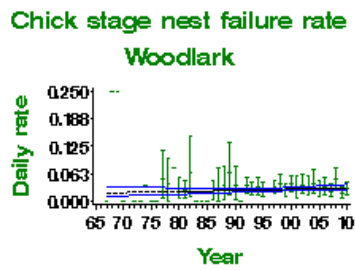




Mean number of chicks per nest - green bars represent standard error and black line shows long-term trend



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

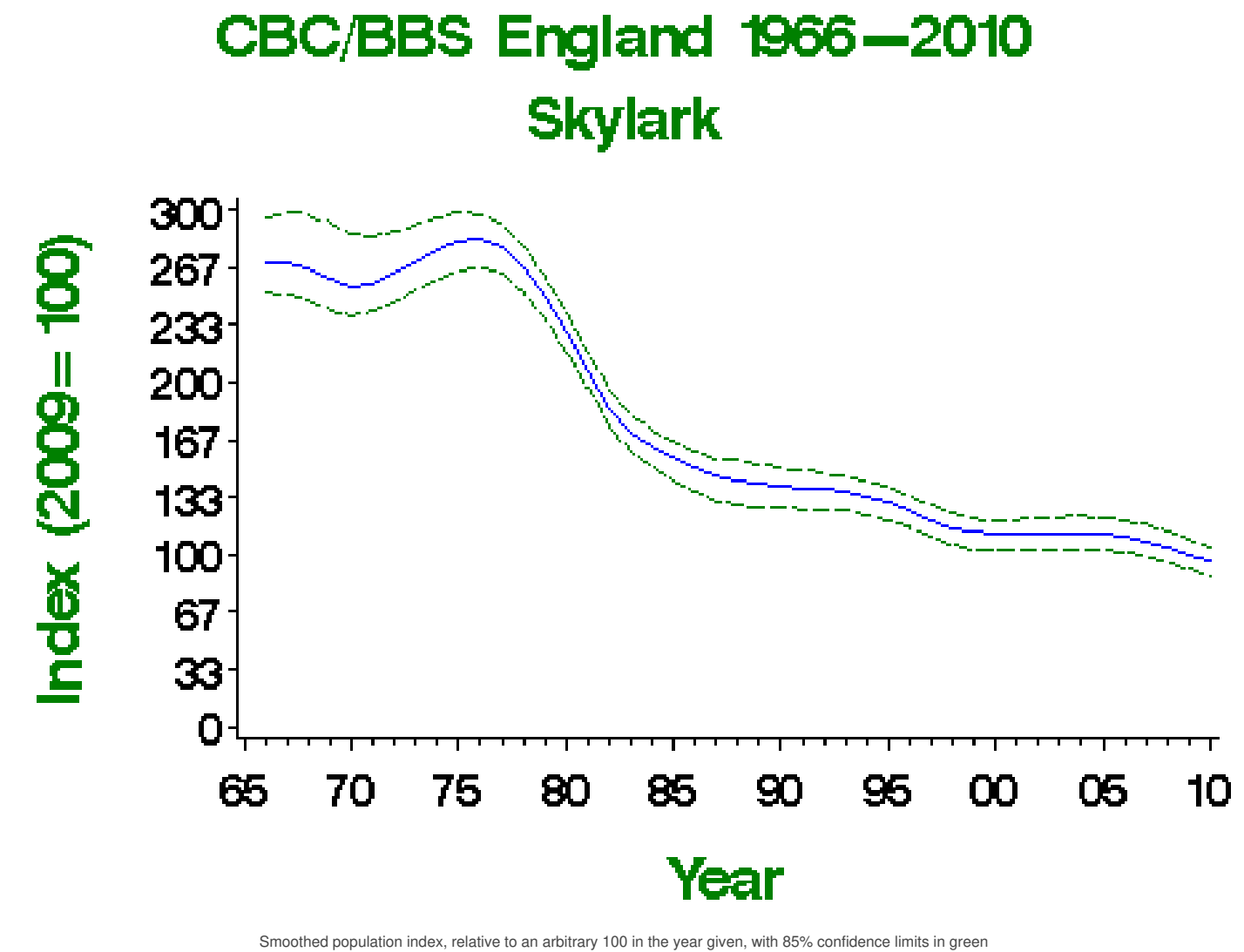
Key facts

Conservation listings:	Europe: SPEC category 3 (depleted) (BiE04) UK: red (species level, race arvensis); amber (race scotica, >20% of European breeders) (BoCC3) UK Biodiversity Action Plan: click here , priority species
Long-term trend:	England: rapid decline
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 <i>et al.</i> 2000)

Migrant status:	Resident
Nesting habitat:	Ground nester
Primary breeding habitat:	Farmland
Secondary breeding habitat:	
Breeding diet:	Animal
Winter diet:	Animal

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, except in Scotland where breeding numbers have been stable. Numbers have shown widespread moderate decrease across Europe since 1980 (PECBMS 2011a).



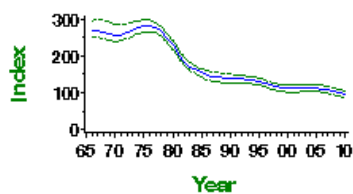
Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS England	42	1967-2009	553	-63	-69	-58	>50	
	25	1984-2009	849	-39	-45	-28	>25	
	10	1999-2009	1459	-11	-14	-7		
	5	2004-2009	1630	-11	-14	-8		
BBS UK	14	1995-2009	1659	-15	-21	-8		
	10	1999-2009	1758	-7	-13	-1		
	5	2004-2009	1947	-7	-11	-3		
BBS England	14	1995-2009	1316	-23	-26	-19		
	10	1999-2009	1406	-11	-14	-7		
	5	2004-2009	1566	-10	-13	-7		
BBS Scotland	14	1995-2009	204	5	-14	23		
	10	1999-2009	201	8	-8	22		
	5	2004-2009	224	2	-8	9		
BBS Wales	14	1995-2009	103	-20	-38	-4		
	10	1999-2009	113	-22	-40	-6		
	5	2004-2009	119	-18	-32	-4		
BBS N.Ireland	14	1995-2009	35	-36	-47	-29	>25	
	10	1999-2009	36	-47	-60	-42	>25	
	5	2004-2009	36	-27	-38	-20	>25	

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



CBC/BBS England 1966–2010

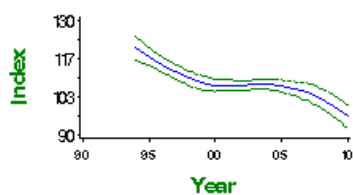
Skylark



CBC/BBS England graph

BBS UK 1994–2010

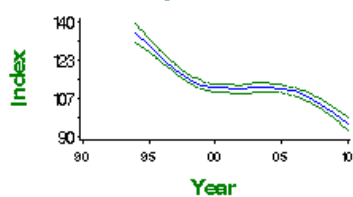
Skylark



BBS UK graph

BBS England 1994–2010

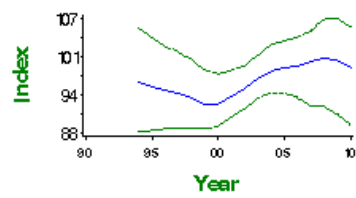
Skylark



BBS England graph

BBS Scotland 1994—2010

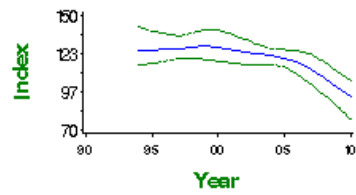
Skylark



BBS Scotland graph

BBS Wales 1994—2010

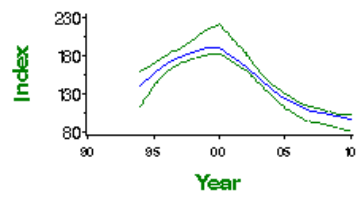
Skylark



BBS Wales graph

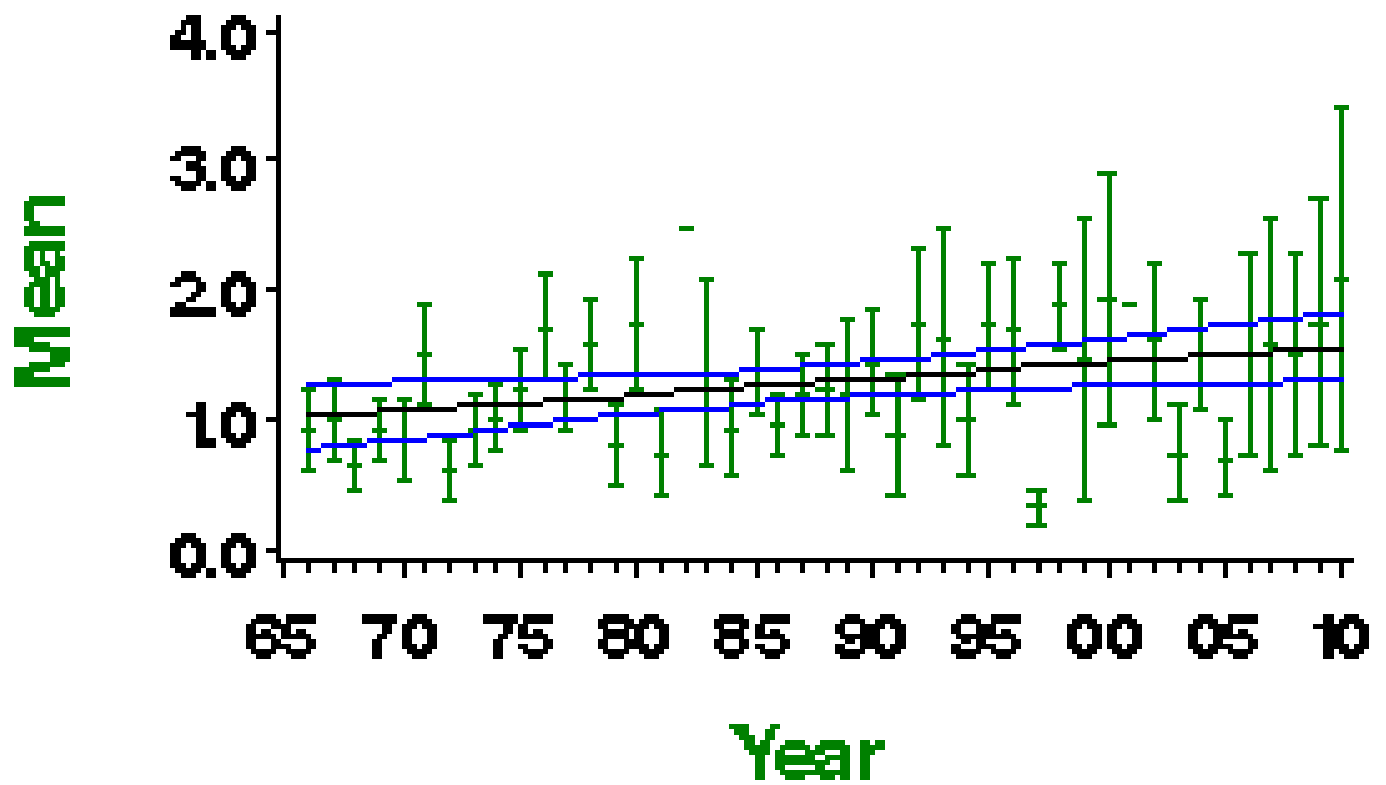
BBS N. Ireland 1994—2010

Skylark



BBS N.Ireland graph

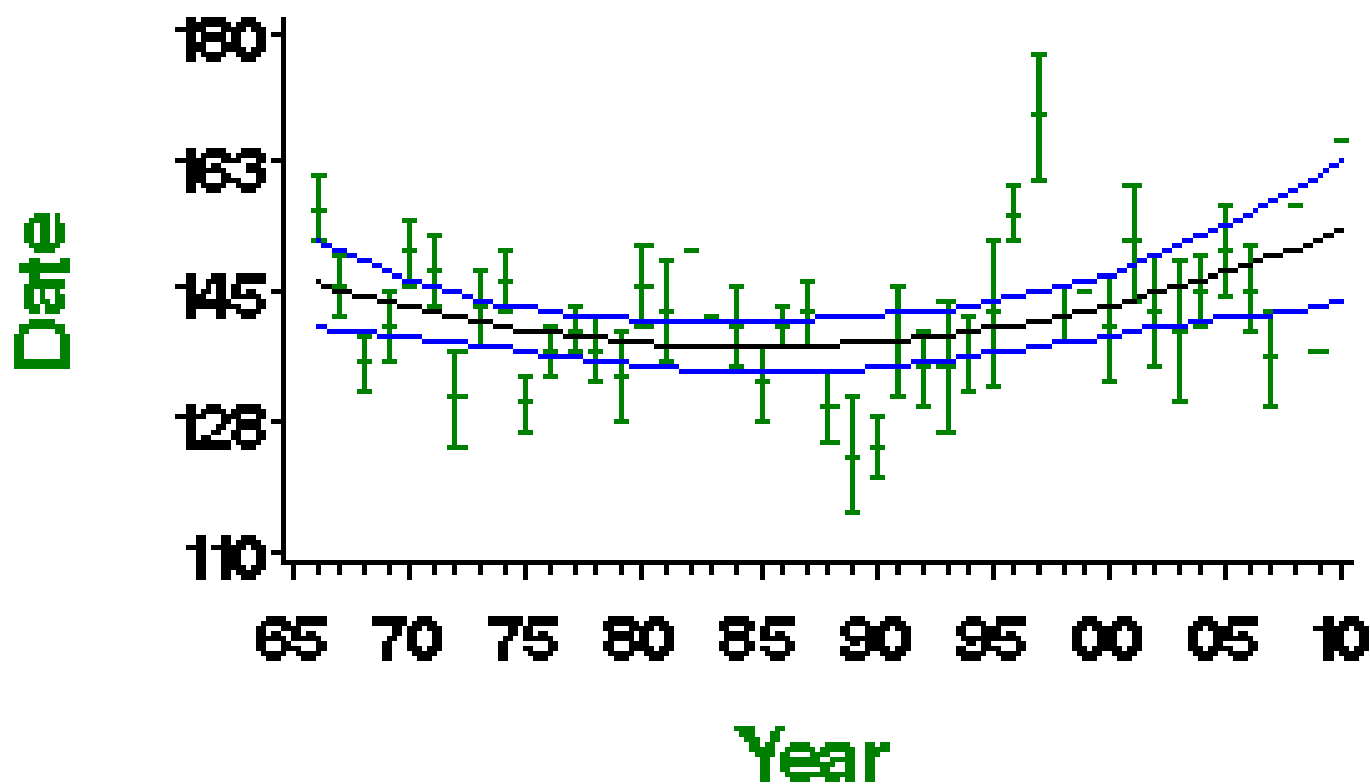
Fledglings per breeding attempt 1966 – 2010 Skylark



Mean number of fledglings produced per nest - green bars represent standard error and black line shows long-term trend

Laying date 1966—2010

Skylark



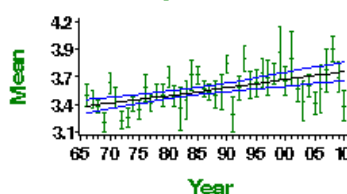
More on demographic trends

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Fledglings per breeding attempt	41	1968-2009	23	Linear increase	1.05 fledglings	1.55 fledglings	48.1%		
Clutch size	41	1968-2009	36	Linear increase	3.37 eggs	3.70 eggs	9.6%		
Brood size	41	1968-2009	65	Curvilinear	3.11 chicks	3.31 chicks	6.4%		
Nest failure rate at egg stage	41	1968-2009	45	None					
Nest failure rate at chick stage	41	1968-2009	53	Linear decline	4.74% nests/day	3.19% nests/day	-32.7%		
Laying date	41	1968-2009	19	Curvilinear	May 25	Jun 1	7 days		Small sample

For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).

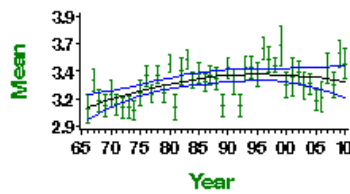
Clutch size 1966—2010

Skylark



Brood size 1966—2010

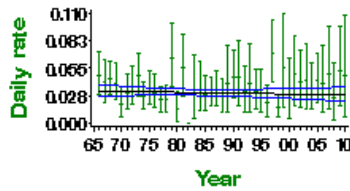
Skylark



Mean number of chicks per nest - green bars represent standard error and black line shows long-term trend

Egg stage nest failure rate

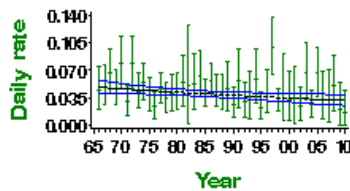
Skylark



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Chick stage nest failure rate

Skylark



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Causes of change

There is good evidence to indicate that the most likely cause of declines in Skylark is agricultural intensification, specifically the change from spring to autumn sowing of cereals, which reduces the number of breeding attempts possible and may also reduce overwinter survival due to loss of winter stubbles.

Change factor	Primary driver	Secondary driver
Demographic	Reduced breeding success	
Ecological	Agricultural intensification	

Further information on causes of change

Demographic trends presented here show that there has been a general increase in the number of fledglings per breeding attempt, because clutch size and brood size have increased while the daily failure rate of nests at the chick stage has gone down. Chamberlain & Crick (1999) and Siriwardena et al. (2000b) found that breeding success per nesting attempt increased during the steepest period of decline, suggesting that these demographic changes have not contributed to the causes of population decline. The available data do not allow tests for effects of survival. Conversely, it is easy to test for effects on breeding success, especially locally and with respect to contemporary as opposed to historical land use. This creates a big imbalance in the amounts of evidence available.

Agricultural intensification has been put forward as the ultimate cause of Skylark declines. The relevant changes in agriculture have been decreases in preferred crops (spring cereals and cereal stubble) and an increase in unfavourable habitats (winter cereals, oilseed rape and intensively managed or grazed grass) (Chamberlain & Siriwardena 2000). There is good evidence that the most likely cause of the decline is the change from spring to autumn sowing of cereals. This practice restricts opportunities for late-season nesting attempts, because the crop is by then too tall. Chamberlain et al. (2000a) used habitat data from CBC surveys to show that the occurrence of autumn-sown, winter cereals increased from 33% to 78% between 1965 and 1995. Evans et al. (1995) and Wilson et al. (1997) all found that Skylarks deserted areas of autumn-sown crops as soon as the sward reached a critical height, which occurred before the end of the breeding season. Jenny (1990), Chamberlain et al. (1999, 2000a, 2000b) and Donald & Vickery (2000) all recorded low and seasonally declining densities of Skylarks in cereals and suggested that this was at least partly due to the effects of changing vegetation structure. As well as preventing nesting, crop development also influences the positioning of the nests that are produced and hence their productivity: as the crop develops the birds are forced to nest closer to tramlines with a consequent increase in nest predation rate (Donald & Vickery 2000, Morris & Gilroy 2008). Analyses by Chamberlain & Crick (1999) provided detailed evidence from both regional and habitat-based analyses that the greatest declines in Skylark numbers were associated with agricultural habitat, although their evidence suggests that different patterns of decline were unlikely to be due to differences in breeding success per attempt between habitats. However, Siriwardena et al. (2001) showed that the population trend can be explained by national changes in crop areas, together with a cold winter in 1981/82.

There is also some evidence that the increase in autumn sowing may depress overwinter survival by reducing the area of stubbles (Wilsore et al. 1997, Donald & Vickery 2000, 2001). Donald & Vickery (2001) used data from BTO and RSPB studies to show that, in winter, cereal stubbles were strongly selected by Skylarks, probably owing to

the presence of spilt grain and regenerating weeds, and go on to state that the area of stubbles has declined greatly in recent years. Gillings et al. (2005) identified better population performance in areas with extensive winter stubble, presumably because overwinter survival is relatively high. Note, however, that definitive evidence about Skylark survival rates and what may have influenced them is not available because the species is rarely ringed and ring-recovery sample sizes are extremely small.

Use of pesticides and associated declines as declines in weed populations and weed-seed abundance have been suggested as another factor in the decline of Skylarks (Wilson 2001). Wilson et al. (1997) found higher densities of Skylarks in organic systems. Chamberlain & Crick (1999) suggest that the use of toxic pesticides mediated through effects on food supplies may be responsible for declines in invertebrate food, due to non-target insects being killed by insecticide and insect food-plants being killed by herbicide. However, since this would in theory affect breeding success, it doesn't seem to have been a problem. Donald et al. (2001) state that, although recent agricultural changes have affected diet and possibly body condition of nestlings, these effects are unlikely to have been an important factor in recent population declines. There may also be implications for overwinter survival, as herbicides reduce weeds, and hence seeds for the winter, making stubbles and uncropped land less valuable as a food resource. However, the increases in pesticide use have happened at the same time as the switch to autumn sowing, so is hard to detect this as a specific effect.

There is some evidence to suggest that high densities of raptors may reduce the abundance of local Skylark populations (Amaet al. 2008). Chamberlain & Crick (1999) state that recovery of Sparrowhawk numbers has been most evident in the most intensively farmed areas, and that this is correlated with the declines in Skylark numbers across habitats and regions. However, this apparent link cannot be taken as evidence of a causal relationship as there have been many other broad-scale changes in the countryside that are at least as well correlated with Skylark changes. They state that it is doubtful whether predation alone could account for the decreases in Skylark numbers.

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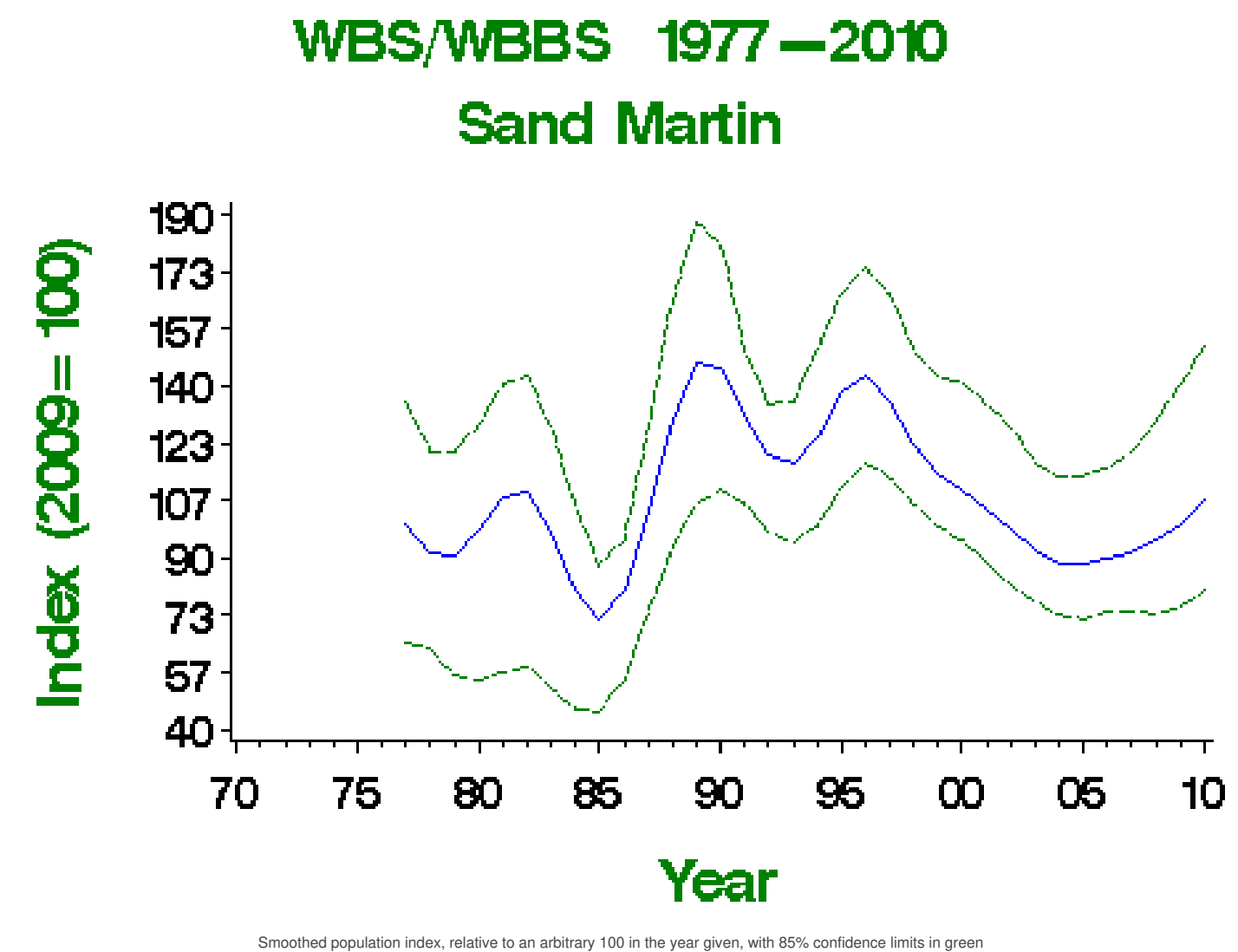
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Key facts

Conservation listings:	Europe: SPEC category 3 (depleted) (BiE04) UK: amber (European status) (BoCC3)
Long-term trend:	UK: fluctuating, with no long-term trend
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 (Szep 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).



Population changes in detail

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
WBS/WBBS waterways	31	1978-2009	44	9	-31	148		
	25	1984-2009	50	24	-24	218		

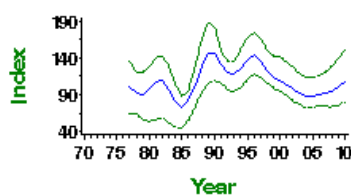
Source	Period (yrs)	1999-2009 Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
	5	2004-2009	97	13	-13	56		
BBS UK	14	1995-2009	123	33	-13	137		
	10	1999-2009	133	32	-1	75		
	5	2004-2009	149	25	-9	51		
BBS England	14	1995-2009	80	4	-31	32		
	10	1999-2009	87	-12	-37	8		
	5	2004-2009	95	-4	-23	5		

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



WBS/WBBS 1977—2010

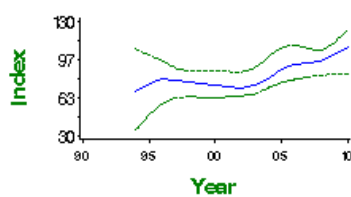
Sand Martin



WBS/WBBS waterways graph

BBS UK 1994—2010

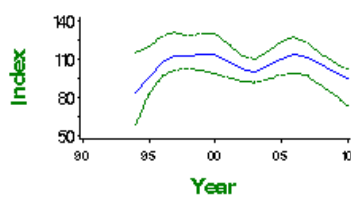
Sand Martin



BBS UK graph

BBS England 1994—2010

Sand Martin



BBS England graph

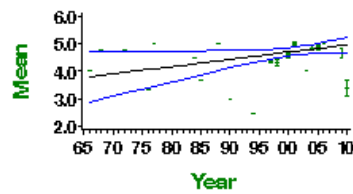
Demographic trends

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Fledglings per breeding attempt	41	1968-2009	19	None					
Clutch size	41	1968-2009	31	Linear increase	3.86 eggs	4.93 eggs	27.8%		
Brood size	41	1968-2009	46	Curvilinear	3.12 chicks	2.54 chicks	-18.8%		
Nest failure rate at egg stage	41	1968-2009	26	Linear decline	1.46% nests/day	0.00% nests/day	-100.0%		Small sample
Nest failure rate at chick stage	41	1968-2009	49	Linear decline	1.82% nests/day	0.05% nests/day	-97.3%		
Laying date	41	1968-2009	30	None			0 days		

For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).

Clutch size 1966—2010

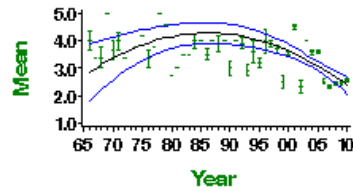
Sand Martin



Mean number of eggs per nest - green bars represent standard error and black line shows long-term trend

Brood size 1966—2010

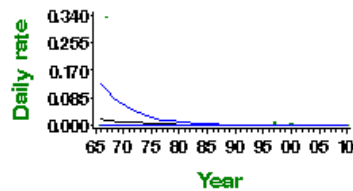
Sand Martin



Mean number of chicks per nest - green bars represent standard error and black line shows long-term trend

Egg stage nest failure rate

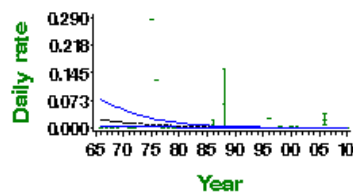
Sand Martin



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Chick stage nest failure rate

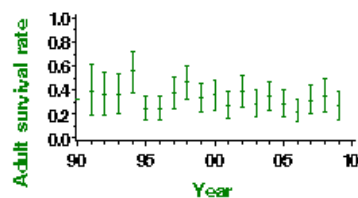
Sand Martin



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

RAS survival 1990—2009

Sand Martin



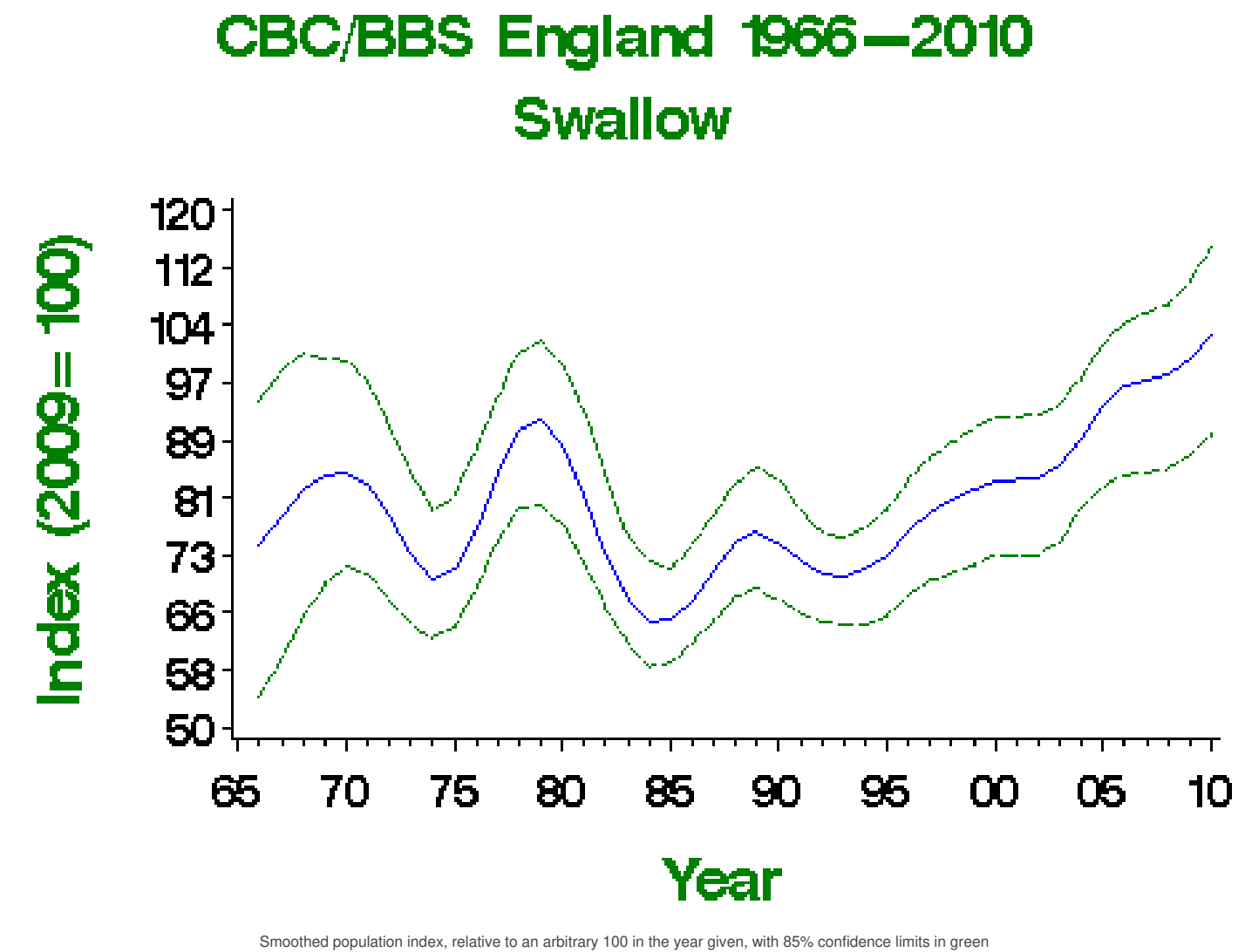
Proportion of adult birds surviving to following year - error bars represent 95% confidence limits

Key facts

Conservation listings:	Europe: SPEC category 3 (depleted) (BiE04) UK: amber (European status) (BoCC3)
Long-term trend:	England: possible shallow increase
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).

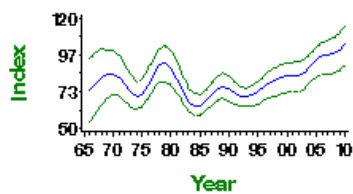


Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS England	42	1967-2009	552	27	-11	88		
	25	1984-2009	885	55	25	86		
	10	1999-2009	1601	21	14	31		
	5	2004-2009	1819	12	6	18		
BBS UK	14	1995-2009	1853	34	27	43		
	10	1999-2009	2039	17	11	24		
	5	2004-2009	2299	7	2	11		
BBS England	14	1995-2009	1425	33	24	43		
	10	1999-2009	1564	21	12	29		
	5	2004-2009	1774	11	6	16		
BBS Scotland	14	1995-2009	164	49	29	79		
	10	1999-2009	174	32	13	52		
	5	2004-2009	199	16	6	32		
BBS Wales	14	1995-2009	169	25	5	44		
	10	1999-2009	192	-4	-15	9		
	5	2004-2009	207	-14	-23	-3		
BBS N.Ireland	14	1995-2009	83	13	-8	48		
	10	1999-2009	96	-11	-24	-2		
	5	2004-2009	103	-14	-21	-6		

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.

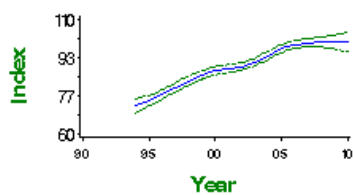


CBC/BBS England 1966–2010 Swallow



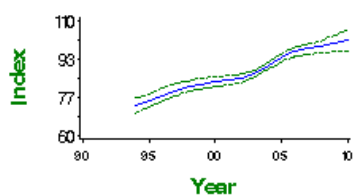
CBC/BBS England graph

BBS UK 1994–2010 Swallow



BBS UK graph

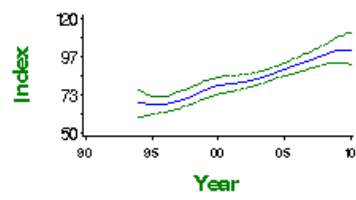
BBS England 1994–2010 Swallow



BBS England graph

BBS Scotland 1994—2010

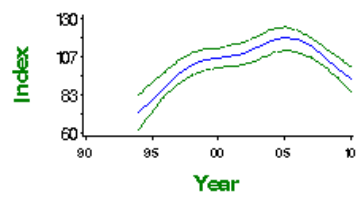
Swallow



BBS Scotland graph

BBS Wales 1994—2010

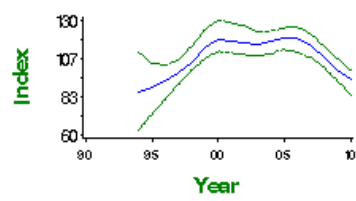
Swallow



BBS Wales graph

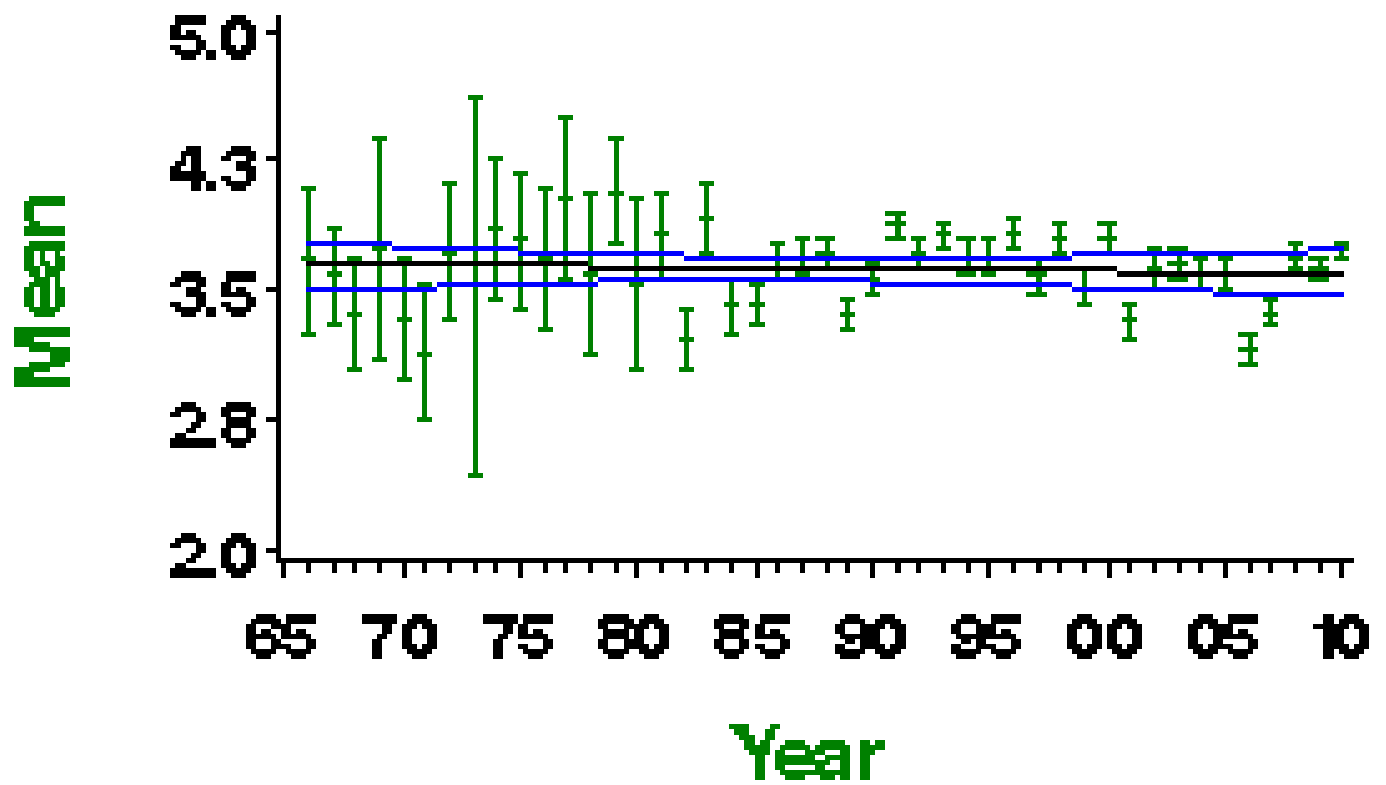
BBS N. Ireland 1994—2010

Swallow



BBS N.Ireland graph

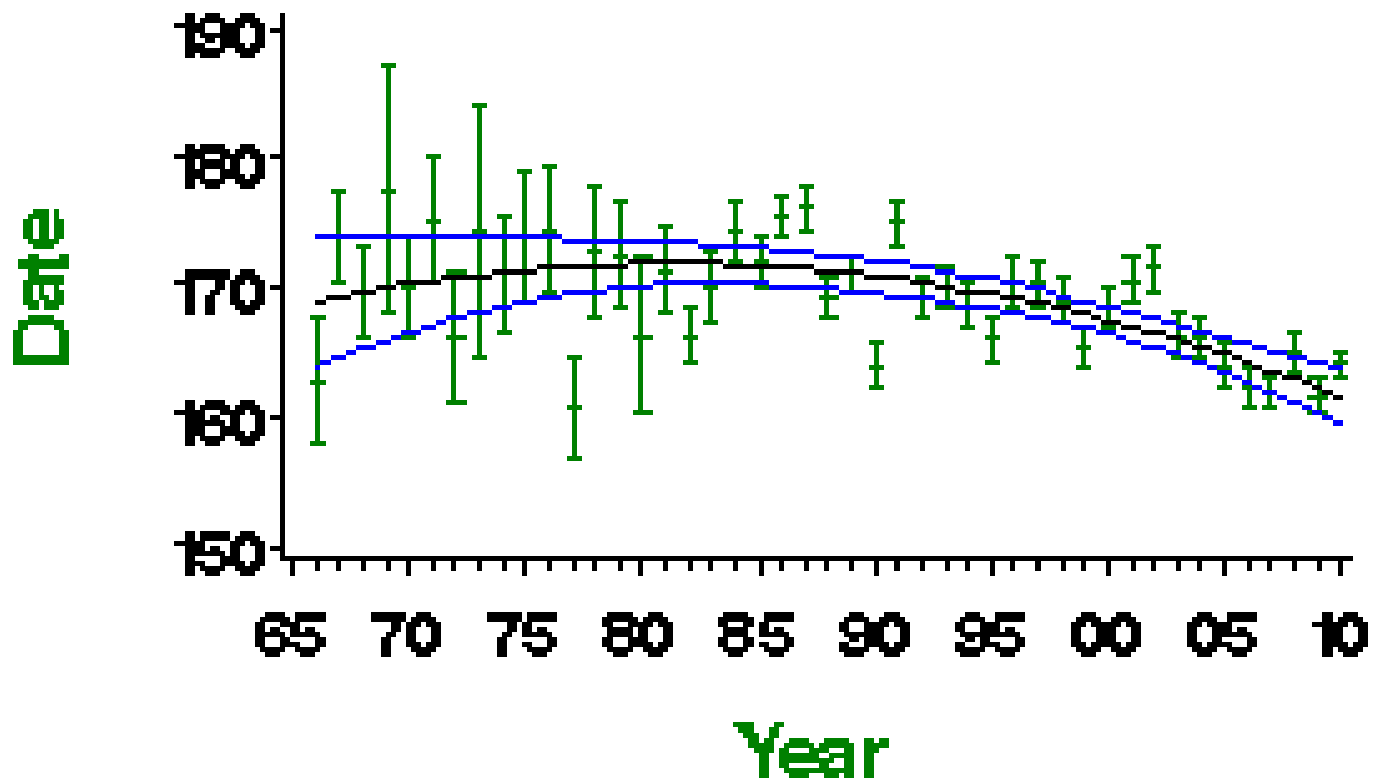
Fledglings per breeding attempt 1966–2010 Swallow



Mean number of fledglings produced per nest - green bars represent standard error and black line shows long-term trend

Laying date 1966—2010

Swallow



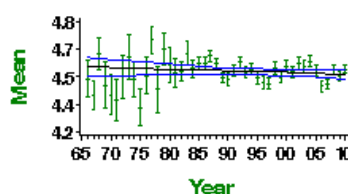
More on demographic trends

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Fledglings per breeding attempt	41	1968-2009	359	None					
Clutch size	41	1968-2009	432	None					
Brood size	41	1968-2009	751	Curvilinear	4.10 chicks	4.15 chicks	1.3%		
Nest failure rate at egg stage	41	1968-2009	532	None					
Nest failure rate at chick stage	41	1968-2009	462	Linear increase	0.28% nests/day	0.46% nests/day	64.3%		
Laying date	41	1968-2009	191	Curvilinear	Jun 19	Jun 11	-8 days		

For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).

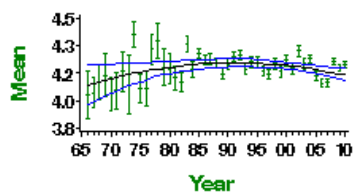
Clutch size 1966—2010

Swallow



Brood size 1966—2010

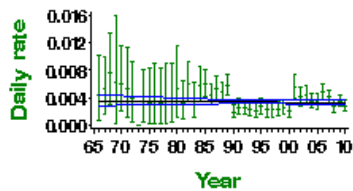
Swallow



Mean number of chicks per nest - green bars represent standard error and black line shows long-term trend

Egg stage nest failure rate

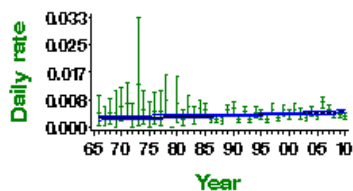
Swallow



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Chick stage nest failure rate

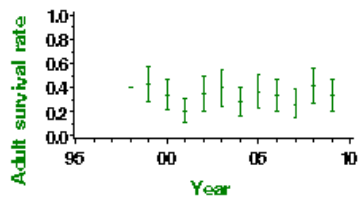
Swallow



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

RAS survival 1998—2009

Swallow



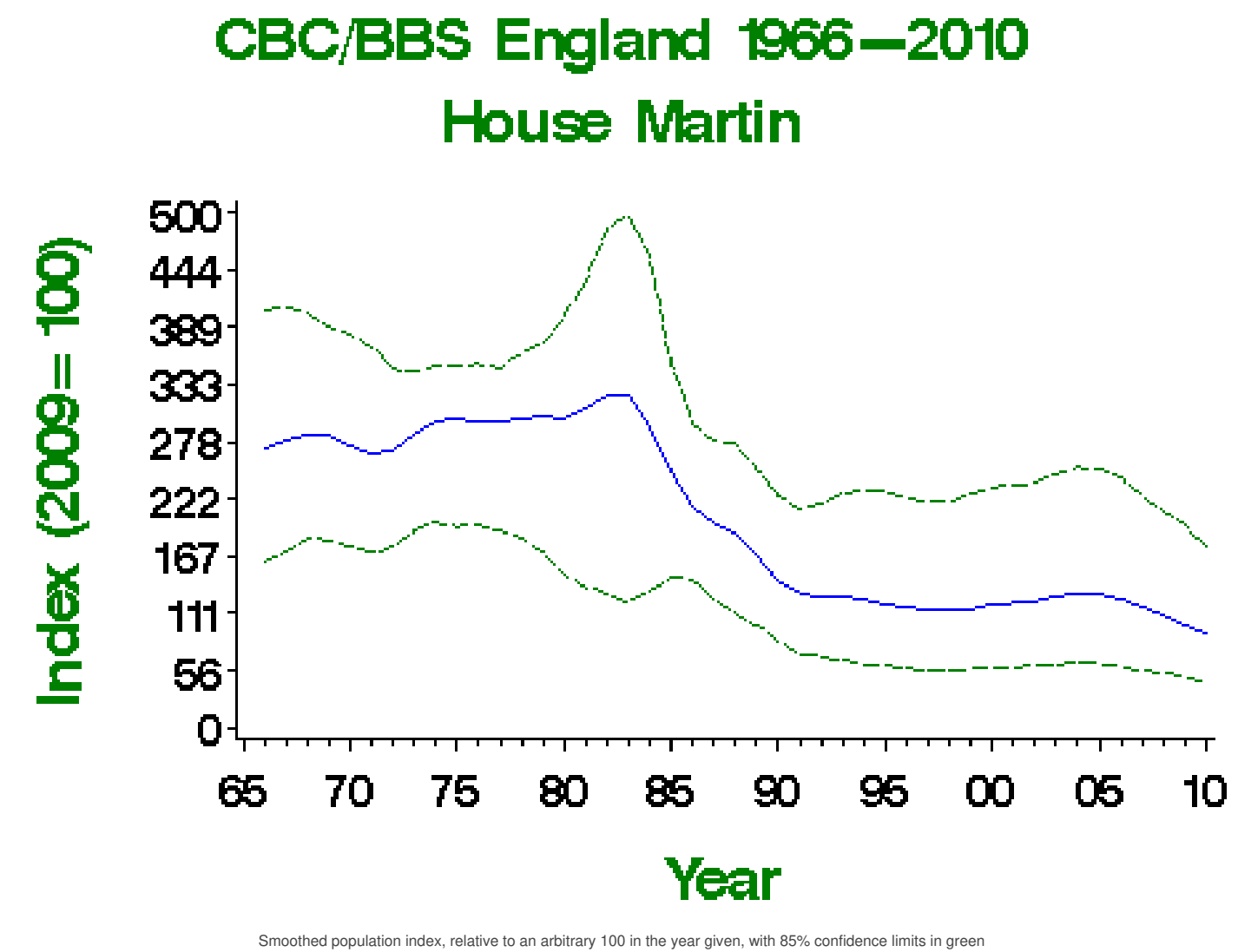
Proportion of adult birds surviving to following year - error bars represent 95% confidence limits

Key facts

Conservation listings:	Europe: SPEC category 3 (declining) (BiE04) UK: amber (25-50% population decline) (BoCC3)
Long-term trend:	England: probable rapid decline
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's first decade or so showed an increase. 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 listed as of European concern following declines elsewhere in Europe (BirdLife International 2004). There has been widespread moderate decrease across Europe since 1980 (PECBMS 2011a). 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).



Population changes in detail

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS England	42	1967-2009	268	-64	-89	23		Small CBC sample
	25	1984-2009	437	-66	-90	52		Small CBC sample
	10	1999-2009	792	-14	-22	-7		

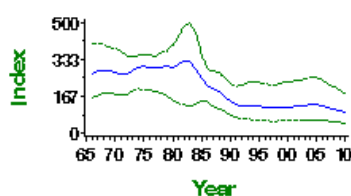
Source	Period (yrs)	Years	Plots	Change (%)	Lower limit	Upper limit	Alert	Comment
BBS UK	5	2004-2009	874	-24	-29	-18		
	10	1999-2009	999	-15	-22	-8		
	5	2004-2009	1095	-19	-24	-13		
BBS England	14	1995-2009	723	-15	-23	-6		
	10	1999-2009	781	-13	-21	-6		
	5	2004-2009	862	-22	-27	-16		
BBS Scotland	14	1995-2009	59	114	46	190		
	10	1999-2009	67	-10	-39	22		
	5	2004-2009	77	3	-16	31		
BBS Wales	14	1995-2009	87	-2	-22	17		
	10	1999-2009	96	-30	-44	-13	>25	
	5	2004-2009	95	-24	-36	-6		
BBS N.Ireland	14	1995-2009	40	40	-12	119		
	10	1999-2009	48	-7	-36	28		
	5	2004-2009	54	-13	-35	9		

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



CBC/BBS England 1966—2010

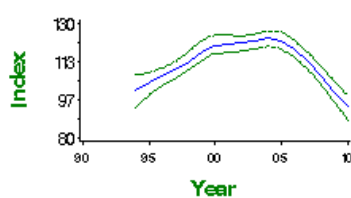
House Martin



CBC/BBS England graph

BBS UK 1994—2010

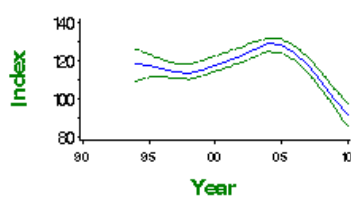
House Martin



BBS UK graph

BBS England 1994—2010

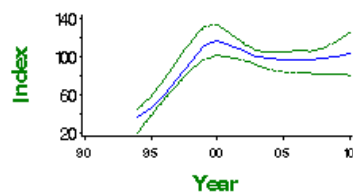
House Martin



BBS England graph

BBS Scotland 1994—2010

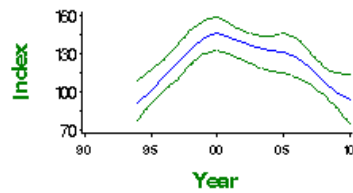
House Martin



BBS Scotland graph

BBS Wales 1994—2010

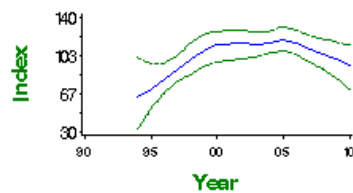
House Martin



BBS Wales graph

BBS N. Ireland 1994—2010

House Martin



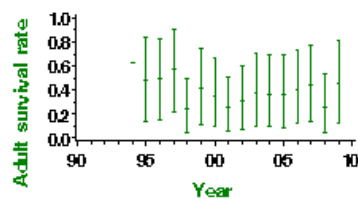
BBS N.Ireland graph

Demographic trends

Productivity and survival trends for this species are not currently produced by BTO

RAS survival 1994—2009

House Martin



Proportion of adult birds surviving to following year - error bars represent 95% confidence limits

Key facts

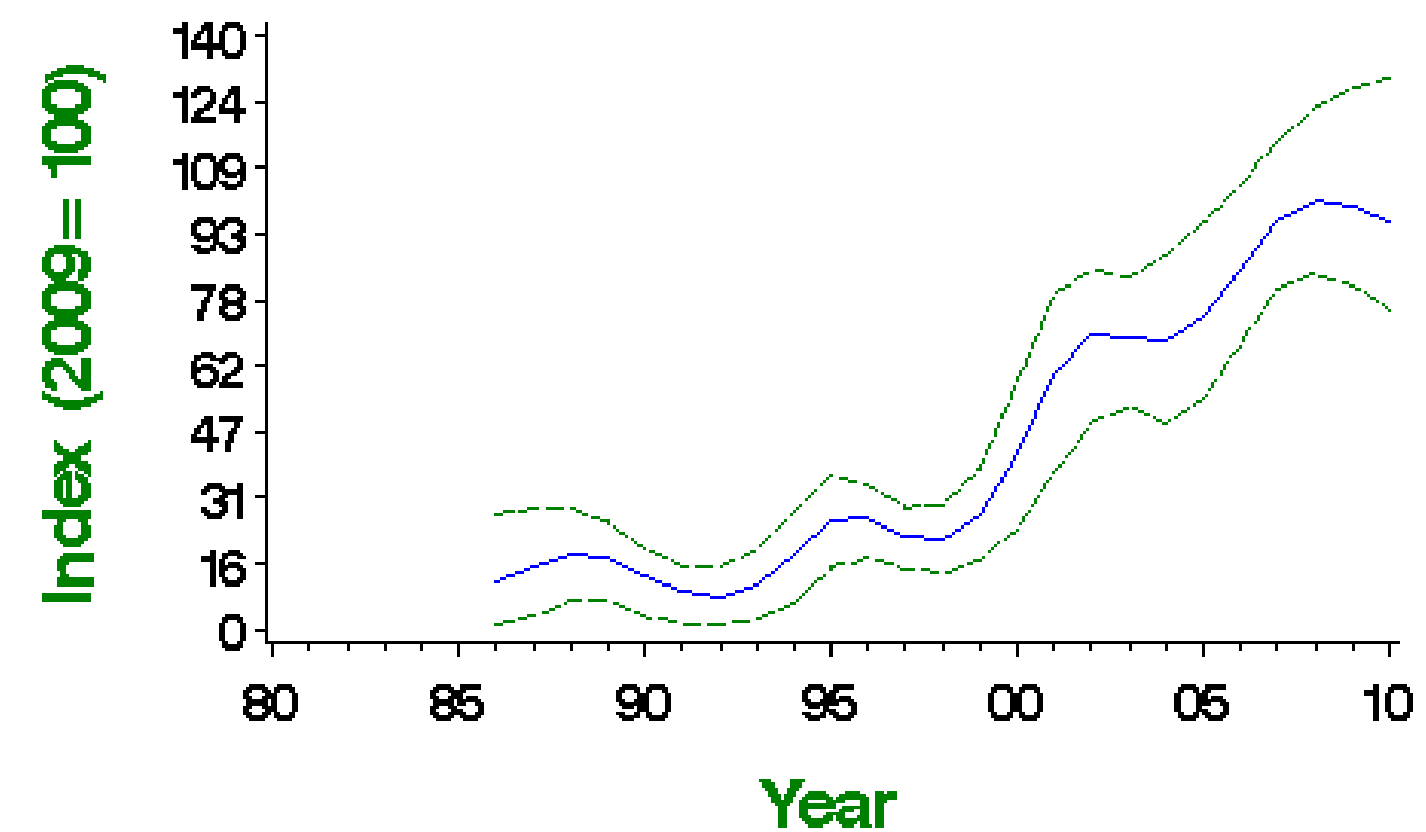
Conservation listings:	Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe) (BiE04) UK: green (BoCC3)
Long-term trend:	England, Wales: increase
Population size:	534 pairs in 1997-2001 (RBBP data: BiE04); mean of 645 pairs in 1998-2002 (RBBP data: APEP06); at 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 Holling & RBBP 2011b. Numbers and breeding range increased spectacularly during the first 12 years of colonisation, 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 during 1986-2009, increase and range expansion 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 shown a remarkably steep rate of increase across Europe since 1990, but no longer-term trend is available (PECBMS 2011a).

CES adult abundance 1986–2010

Cetti' s Warbler



Smoothed population index, relative to an arbitrary 100 in the year given, with 85% confidence limits in green

Population changes in detail

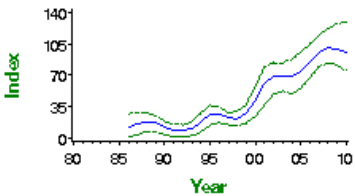
Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CES adults	10	1999-2009	12	267	119	882		Small sample
	5	2004-2009	14	47	4	124		Small sample

CES juveniles	10	1999-2009	13	267	141	1299		Small sample
Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
	5	2004-2009	16	72	21	174		Small sample

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.

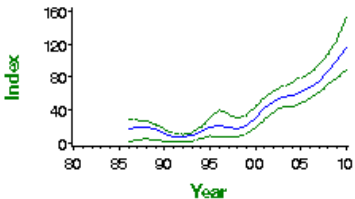


CES adult abundance 1986–2010
Cetti's Warbler



CES adults graph

CES juvenile abundance 1986–2010
Cetti's Warbler



CES juveniles graph

Demographic trends

Productivity and survival trends for this species are not currently produced by BTO

This report should be cited as: Baillie, S.R., Marchant, J.H., Leech, D.I., Renwick, A.R., Eglington, S.M., Joys, A.C., Noble, D.G., Barimore, C., Conway, G.J., Downie, I.S., Risely, K. & Robinson, R.A. (2012). BirdTrends 2011. BTO Research Report No. 609. BTO, Thetford. <https://www.bto.org/birdtrends>

Key facts

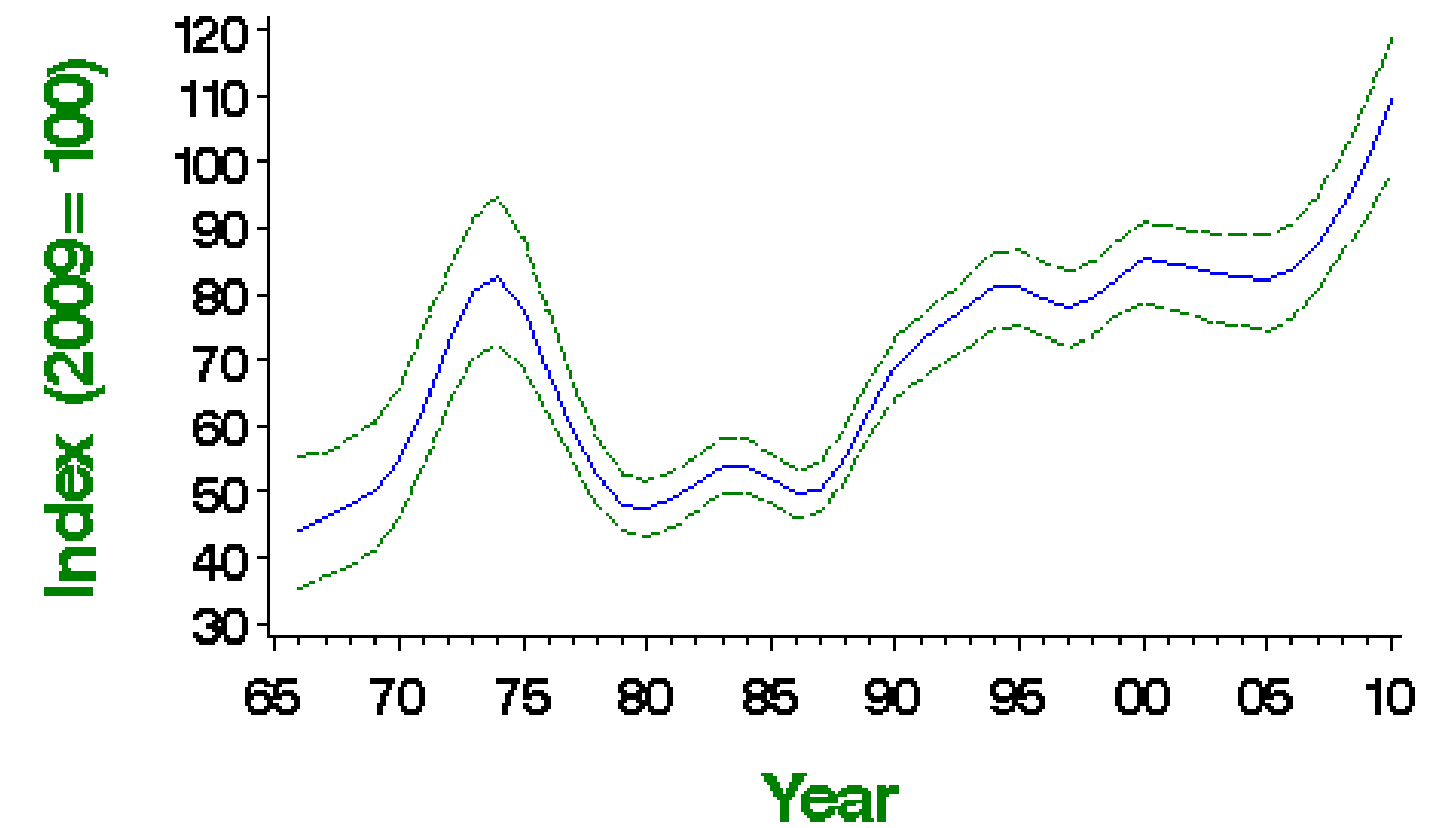
Conservation listings:	Europe: no SPEC category (not concentrated in Europe, conservation status favourable) (BiE04) UK: green (species level); amber (race <i>rosaceus</i> , >20% of European breeders) (BoCC3)
Long-term trend:	England: rapid increase
Population size:	273,000 territories in 2000 (1988-91 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).

CBC/BBS England 1966–2010

Long–tailed Tit



Smoothed population index, relative to an arbitrary 100 in the year given, with 85% confidence limits in green

Population changes in detail

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS England	42	1967-2009	362	117	60	191		
	25	1984-2009	536	86	60	121		
	10	1999-2009	904	21	12	29		
	5	2004-2009	1015	21	15	29		

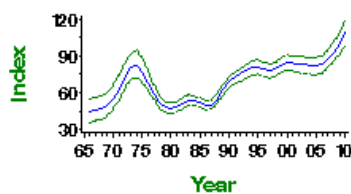
CES adults Source	Period (yrs)	1984-2009 Years	Birds (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
	10	1999-2009	94	4	-9	18		
	5	2004-2009	92	6	-4	16		
BBS UK	14	1995-2009	883	24	17	34		
	10	1999-2009	1000	16	8	24		
	5	2004-2009	1146	20	13	27		
BBS England	14	1995-2009	776	21	12	32		
	10	1999-2009	877	21	13	29		
	5	2004-2009	1009	21	16	28		
BBS Scotland	10	1999-2009	32	0	-41	39		
	5	2004-2009	39	14	-21	69		
BBS Wales	14	1995-2009	58	21	-9	57		
	10	1999-2009	65	11	-15	44		
	5	2004-2009	69	33	6	66		

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



CBC/BBS England 1966–2010

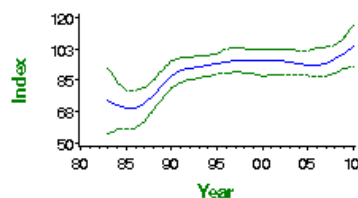
Long-tailed Tit



CBC/BBS England graph

CES adult abundance 1983–2010

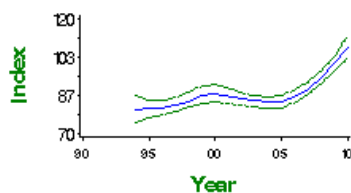
Long-tailed Tit



CES adults graph

BBS UK 1994–2010

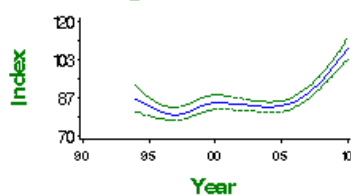
Long-tailed Tit



BBS UK graph

BBS England 1994–2010

Long-tailed Tit



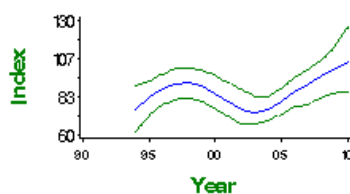
BBS England graph



BBS Scotland graph

BBS Wales 1994–2010

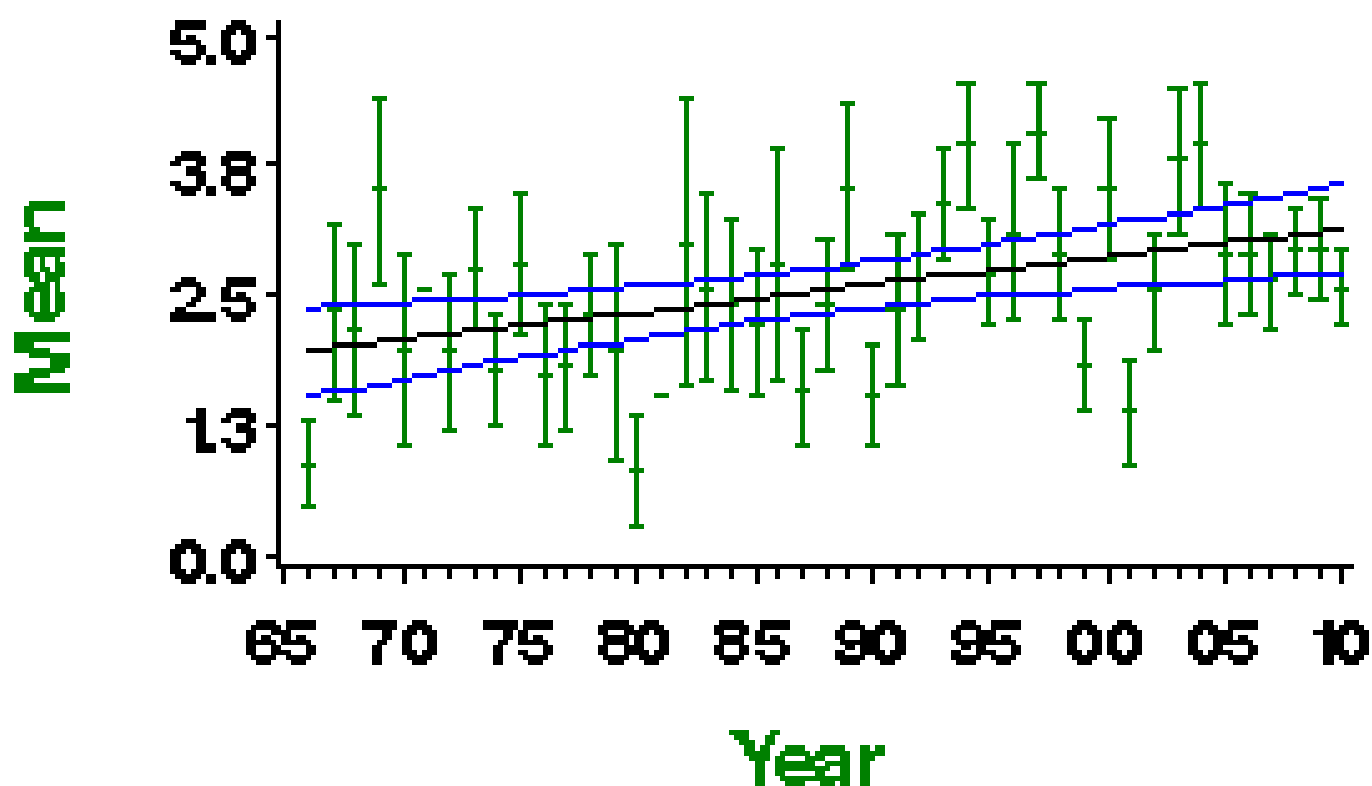
Long-tailed Tit



BBS Wales graph

Demographic trends

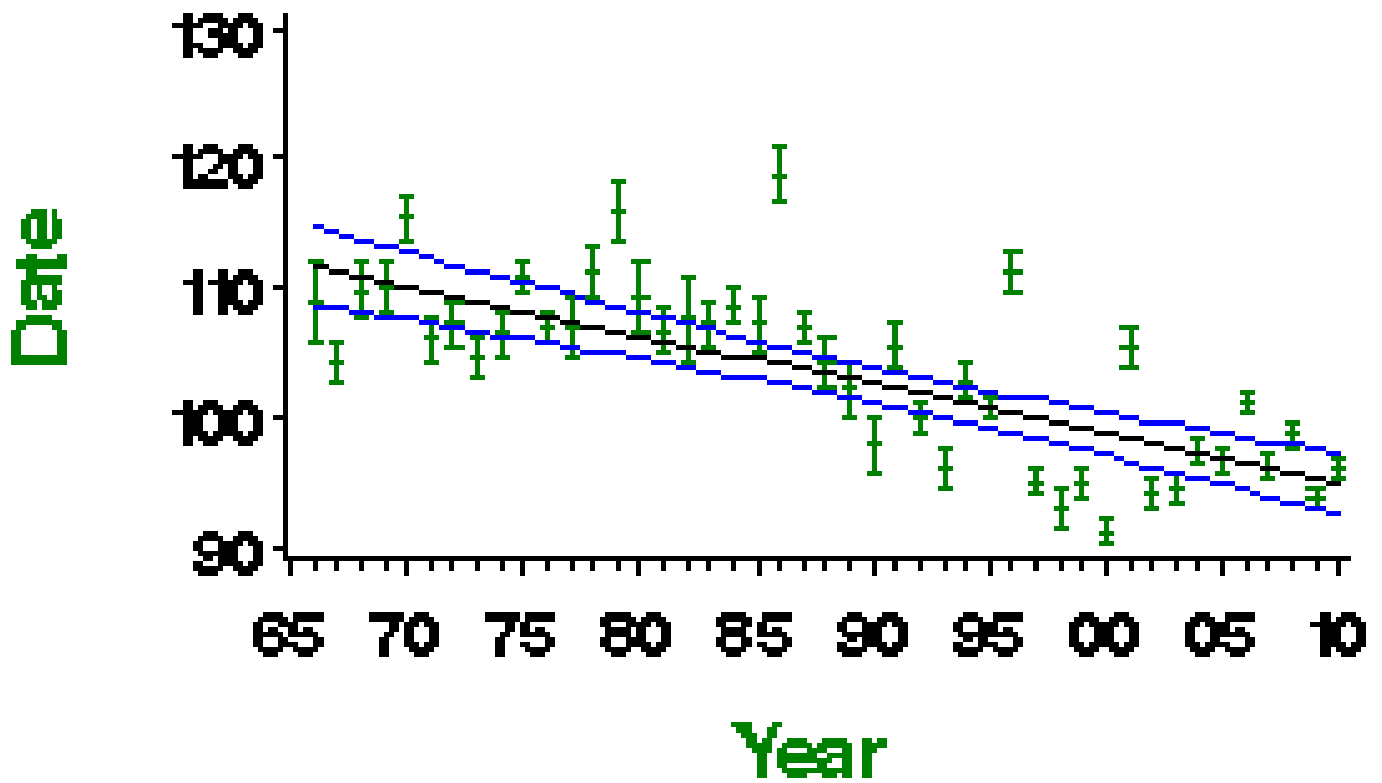
Fledglings per breeding attempt 1966–2010 Long-tailed Tit



Mean number of fledglings produced per nest - green bars represent standard error and black line shows long-term trend

Laying date 1966–2010

Long-tailed Tit



Mean laying date in Julian days (1st April = Day 90) - green bars represent standard error and black line shows long-term trend

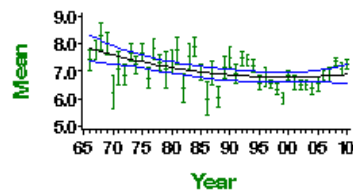
More on demographic trends

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Fledglings per breeding attempt	41	1968-2009	21	Linear increase	2.01 fledglings	3.12 fledglings	55.2%		
Clutch size	41	1968-2009	39	Curvilinear	7.72 eggs	6.88 eggs	-10.9%		
Brood size	41	1968-2009	31	Curvilinear	6.67 chicks	6.30 chicks	-5.6%		
Nest failure rate at egg stage	41	1968-2009	56	Linear decline	3.40% nests/day	0.79% nests/day	-76.8%		
Nest failure rate at chick stage	41	1968-2009	39	Linear increase	0.78% nests/day	1.76% nests/day	125.6%		
Laying date	41	1968-2009	50	Linear decline	Apr 21	Apr 5	-16 days		
Juvenile to Adult ratio (CES)	25	1984-2009	86	Smoothed trend	100 Index value	100 Index value	0%		
Juvenile to Adult ratio (CES)	10	1999-2009	102	Smoothed trend	104 Index value	100 Index value	-4%		
Juvenile to Adult ratio (CES)	5	2004-2009	99	Smoothed trend	82 Index value	100 Index value	22%		

For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).

Clutch size 1966–2010

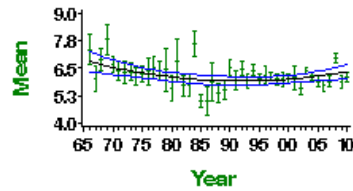
Long-tailed Tit



Mean number of eggs per nest - green bars represent standard error and black line shows long-term trend

Brood size 1966–2010

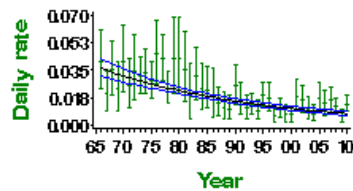
Long-tailed Tit



Mean number of chicks per nest - green bars represent standard error and black line shows long-term trend

Egg stage nest failure rate

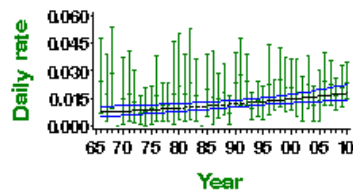
Long-tailed Tit



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Chick stage nest failure rate

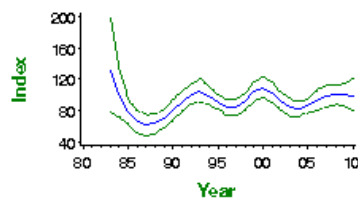
Long-tailed Tit



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

OES productivity 1983–2010

Long-tailed Tit



Smoothed long-term trend in ratio of juvenile:adult birds caught - green lines indicate 85% confidence limits

Key facts

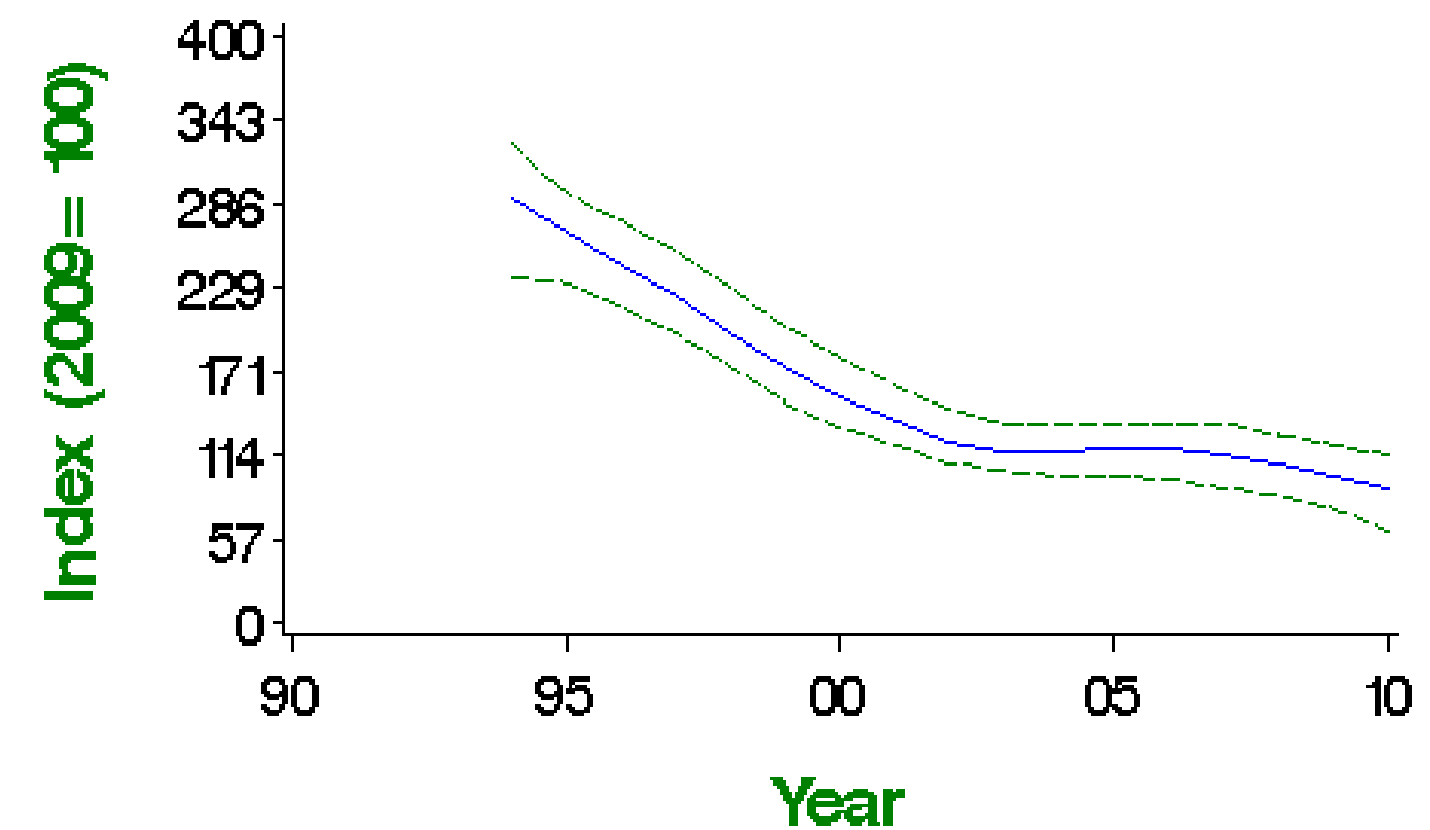
Conservation listings:	Europe: SPEC category 2 (declining) (BiE04) UK: red (breeding decline, European status) (BoCC3) UK Biodiversity Action Plan: priority species
Long-term trend:	UK: decline
Population size:	17,200 (15,830-18,570) males in 1984-85 (Bibby 1989: APEP06); 9,000-10,500 pairs in 2000 (updated using BBS trend: BiE04)
Migrant status:	Long-distance migrant
Nesting habitat:	Above-ground nester
Primary breeding habitat:	Woodland
Secondary breeding habitat:	
Breeding diet:	Animal
Winter diet:	Animal

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). The species' breeding range varied little between the two atlas periods (Gibbonset 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; the continued decline has now warranted a further shift to the red list. 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 2011a).

BBS UK 1994–2010

Wood Warbler

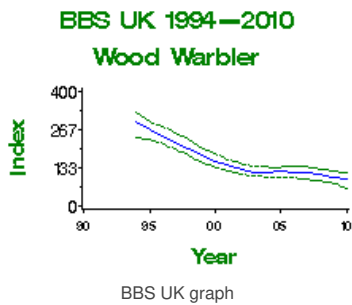


Smoothed population index, relative to an arbitrary 100 in the year given, with 85% confidence limits in green

Population changes in detail

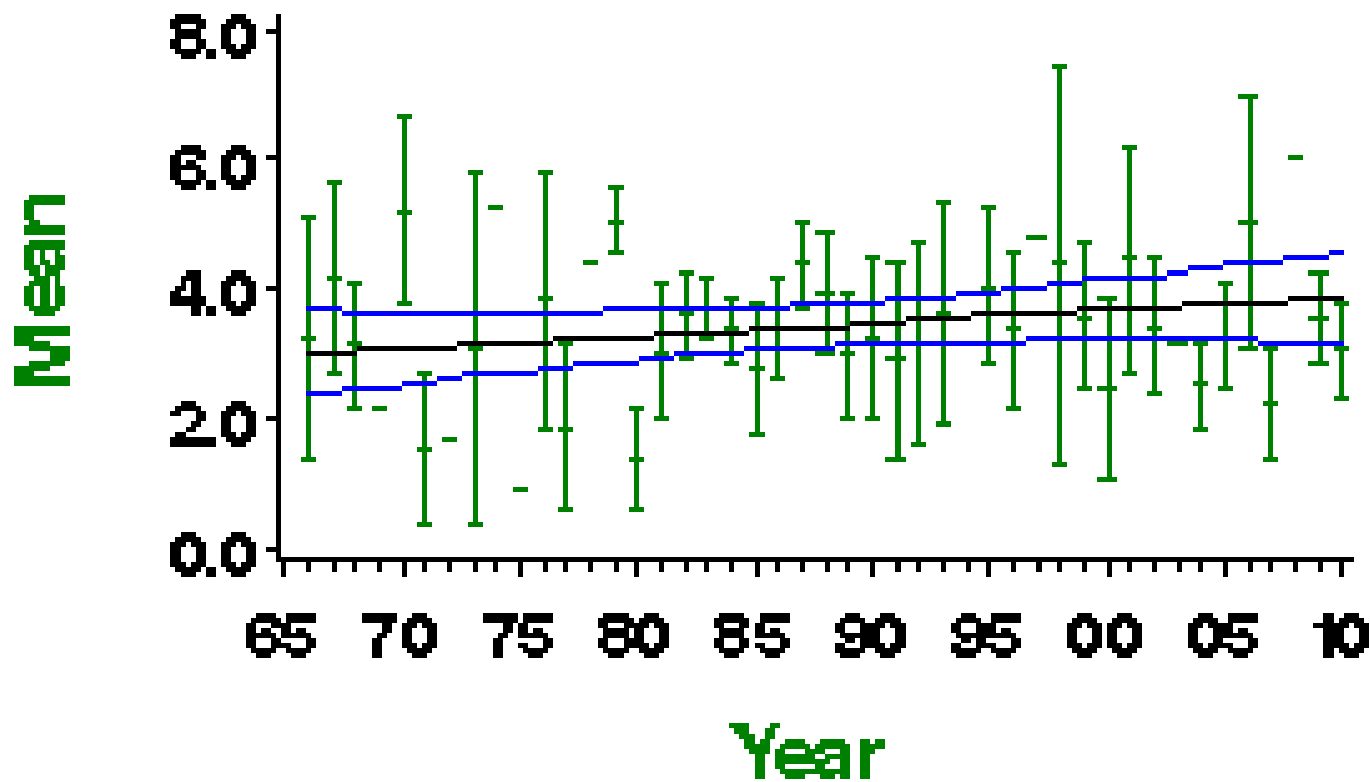
Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
BBS UK	14	1995-2009	54	-62	-73	-46	>50	
	10	1999-2009	52	-43	-61	-21	>25	
	5	2004-2009	55	-15	-37	9		

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See here for more information.



Demographic trends

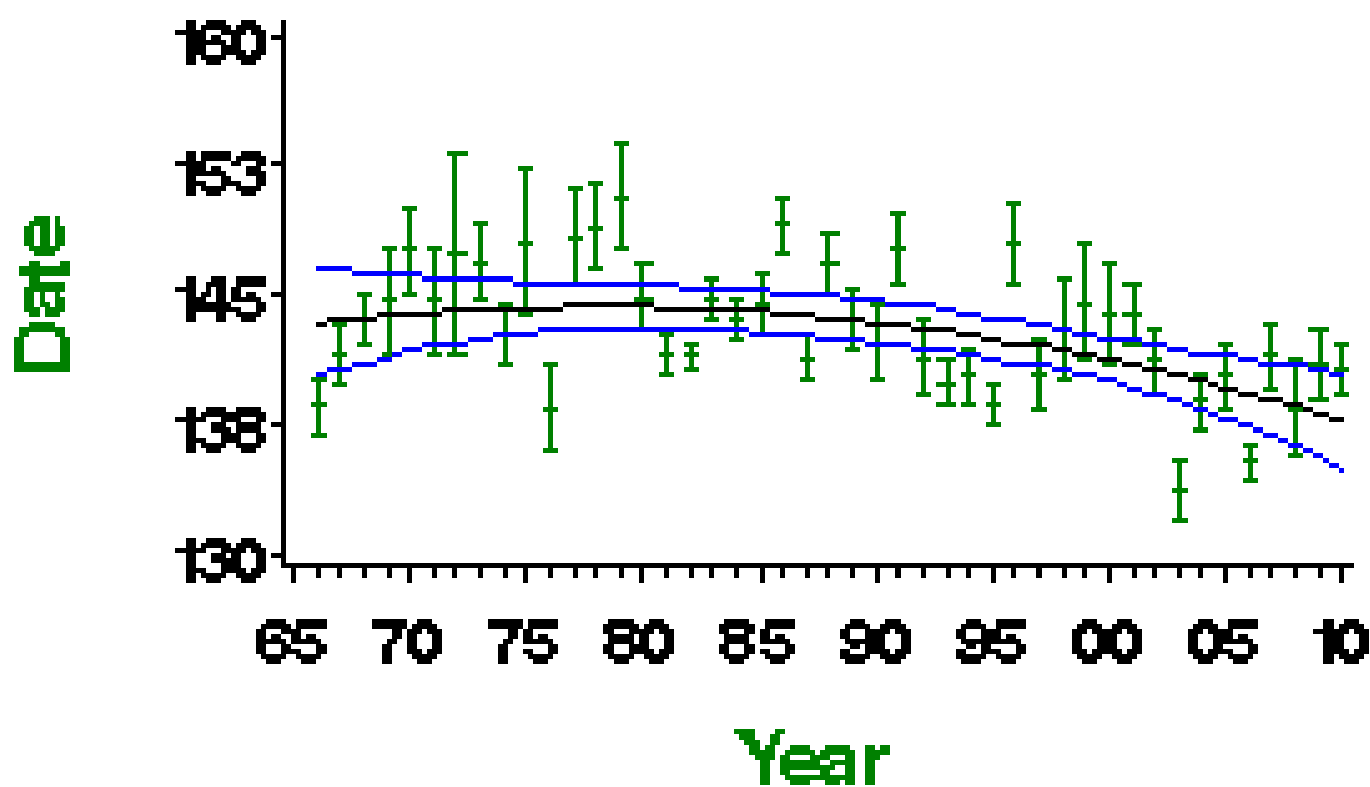
Fledglings per breeding attempt 1966–2010 Wood Warbler



Mean number of fledglings produced per nest - green bars represent standard error and black line shows long-term trend

Laying date 1966—2010

Wood Warbler



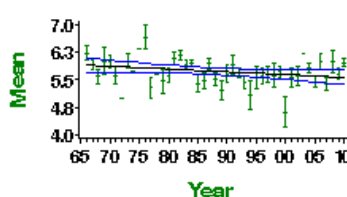
More on demographic trends

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Fledglings per breeding attempt	41	1968-2009	11	None					
Clutch size	41	1968-2009	17	None					Small sample
Brood size	41	1968-2009	37	None					
Nest failure rate at egg stage	41	1968-2009	21	Linear decline	2.06% nests/day	0.58% nests/day	-71.8%		Small sample
Nest failure rate at chick stage	41	1968-2009	28	None					Small sample
Laying date	41	1968-2009	32	Curvilinear	May 24	May 18	-6 days		

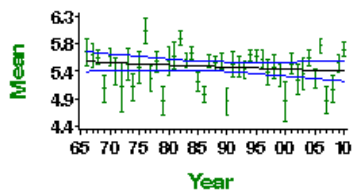
For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).

Clutch size 1966—2010

Wood Warbler

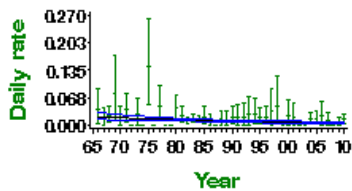


Brood size 1966–2010
Wood Warbler



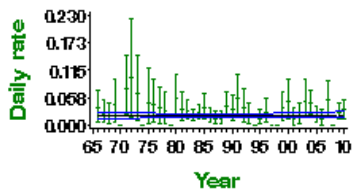
Mean number of chicks per nest - green bars represent standard error and black line shows long-term trend

Egg stage nest failure rate
Wood Warbler



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Chick stage nest failure rate
Wood Warbler



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Causes of change

There is little evidence explaining either the demographic or ecological drivers of the decline in this species and the causes are largely unknown.

Change factor	Primary driver	Secondary driver
Demographic	Unknown	
Ecological	Unknown	

Further information on causes of change

There is little evidence regarding any demographic causes of the decline of this species. Nest success has apparently improved considerably at the egg stage (see above), although nest record samples are small. There has been no trend in the number of fledglings per breeding attempt.

Bibby (1989) stated that soils, climate, competition or predator numbers have probably had an effect on Wood Warbler numbers but provided no evidence to substantiate this. Smart et al. (2007) state that the loss of oak trees, the decrease in canopy cover, and the large increases in understorey cover could have been particularly detrimental for Wood Warbler, but again, direct evidence to validate this is largely lacking. Smart et al. (2007) and Amar et al. (2006) did find that Wood Warblers have tended to decrease more in woods with fewer dead limbs on trees and at sites surrounded by more woodland, which suggests that changes in dead wood could be important or that dead limbs could be a surrogate for other changes in habitat, although Smart et al. (2007) found an overall increase in the amount of dead wood, which should have been beneficial for this species.

Studies in Poland have reported that varying predation rates were a main factor responsible for variation in production between years and habitats (Wesolowski 1985), where an average of over 70% of nests were lost and predators were responsible for over 80% of the losses. Wesolowski & Maziarz (2009) provided further evidence relating to this, finding that both Wood Warbler numbers and ratios of their change were significantly negatively correlated with rodent numbers. However, the authors state that, since Wood Warblers simply don't settle in areas with high rodent outbreaks, the changes probably reflect changes in distribution rather than overall trends. This species is a long-distance migrant and therefore changes outside the breeding grounds cannot be ruled out.

Species references

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Marchant, J.H., Hudson, R., Carter, S.P. & Whittington, P.A. (1990) *Population Trends in British Breeding Birds*. BTO, Tring.

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Smart, J., Taylor, E., Amar, A., Smith, K., Bierman, S., Carpenter, J., Grice, P., Currie, F., Smithers, R., Fuller, R. & Hewson, C. (2007) Habitat associations of woodland birds: implications for woodland management for declining species. RSPB, Sandy.

Wesolowski, T. & Maziarz, M. (2009) Changes in breeding phenology and performance of Wood Warblers *Phylloscopus sibilatrix* in a primeval forest: a thirty-year perspective. *Acta Ornithologica* 44: 69-80.

Wesolowski, T. (1985) The breeding ecology of the Wood Warbler *Phylloscopus sibilatrix* in primeval forest. *Ornis Scandinavica* 16: 49-60.

This report should be cited as: Baillie, S.R., Marchant, J.H., Leech, D.I., Renwick, A.R., Eglinton, S.M., Joys, A.C., Noble, D.G., Barimore, C., Conway, G.J., Downie, I.S., Risely, K. & Robinson, R.A. (2012). *BirdTrends 2011*. BTO Research Report No. 609. BTO, Thetford. <https://www.bto.org/birdtrends>

Key facts

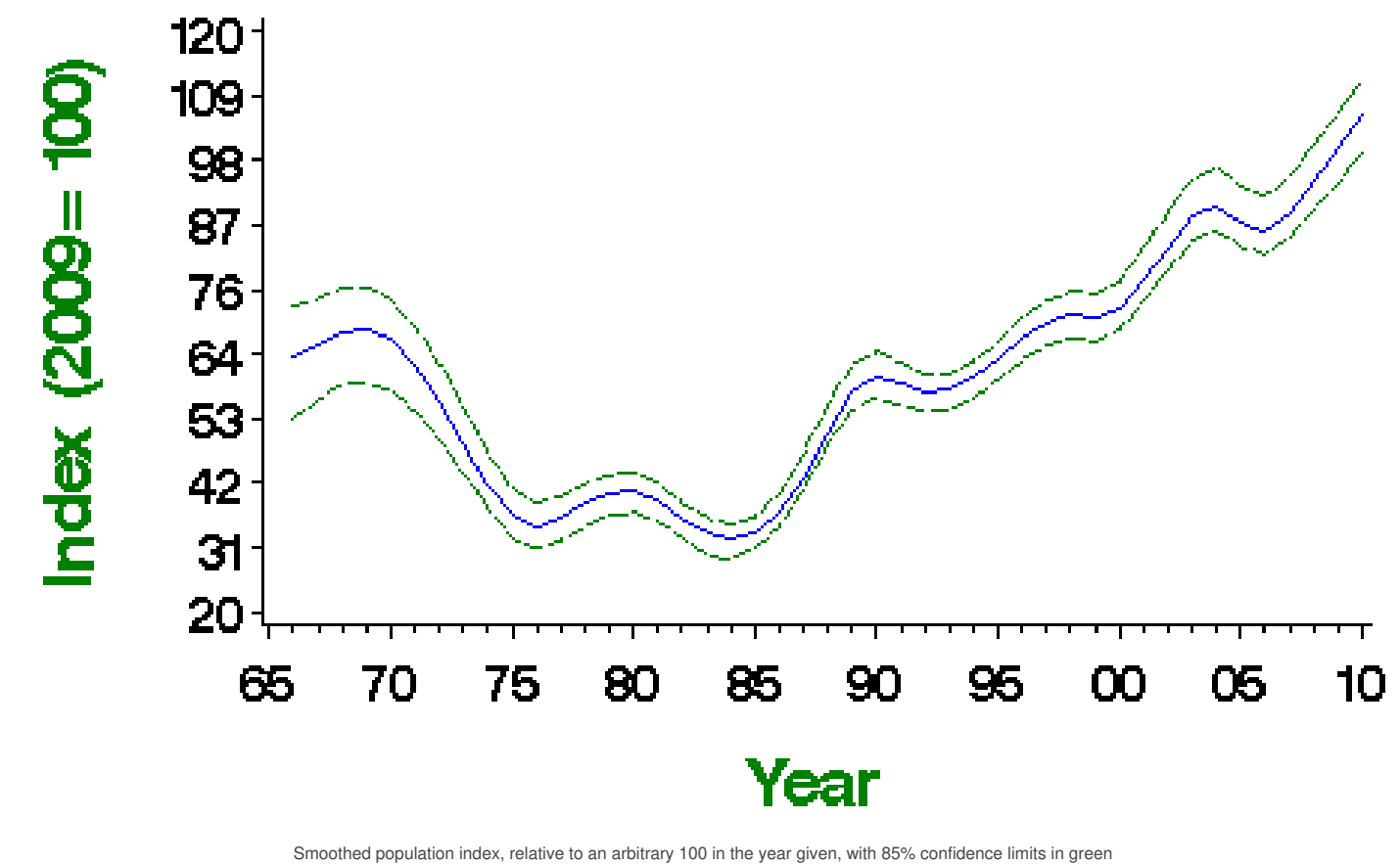
Conservation listings:	Europe: no SPEC category (not concentrated in Europe, conservation status favourable) (BiE04) UK: green (BoCC3)
Long-term trend:	UK, England: moderate increase
Population size:	807,000 territories in 2000 (1988-91 Atlas estimate updated using CBC/BBS trend: BiE04, APEP06)

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 (PECBMS 2011a).

CBC/BBS UK 1966–2010

Chiffchaff



Population changes in detail

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS UK	42	1967-2009	575	51	22	90		
	25	1984-2009	883	206	172	260		
	10	1999-2009	1561	41	35	48		
	5	2004-2009	1777	11	7	13		
CBC/BBS England	42	1967-2009	490	57	30	107		
	25	1984-2009	750	210	168	265		

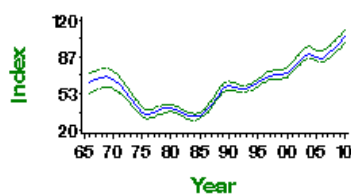
Source	Period (yrs)	1999-2009 Years	Points (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
	5	2004-2009	1494	9	5	12		
CES adults	25	1984-2009	72	161	77	331		
	10	1999-2009	88	48	27	79		
	5	2004-2009	91	-14	-20	-6		
CES juveniles	25	1984-2009	82	147	73	331		
	10	1999-2009	97	62	38	99		
	5	2004-2009	95	3	-8	17		
BBS UK	14	1995-2009	1360	52	45	61		
	10	1999-2009	1534	40	33	45		
	5	2004-2009	1777	13	8	15		
BBS England	14	1995-2009	1142	53	46	62		
	10	1999-2009	1283	40	33	44		
	5	2004-2009	1482	11	7	13		
BBS Scotland	14	1995-2009	42	274	161	540		
	10	1999-2009	51	96	27	187		
	5	2004-2009	66	22	-3	55		
BBS Wales	14	1995-2009	132	31	12	52		
	10	1999-2009	149	41	25	57		
	5	2004-2009	167	15	5	23		
BBS N.Ireland	14	1995-2009	30	11	-23	37		
	10	1999-2009	32	18	-17	51		
	5	2004-2009	37	51	13	95		

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



CBC/BBS UK 1966–2010

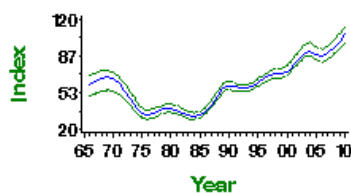
Chiffchaff



CBC/BBS UK graph

CBC/BBS England 1966–2010

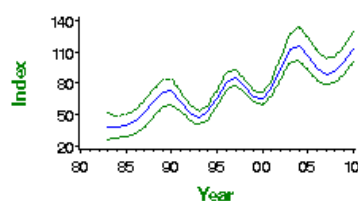
Chiffchaff



CBC/BBS England graph

CES adult abundance 1983–2010

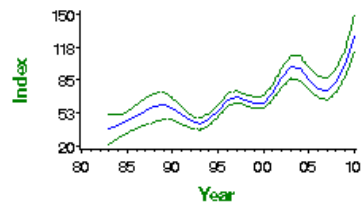
Chiffchaff



CES adults graph

CES juvenile abundance 1983–2010

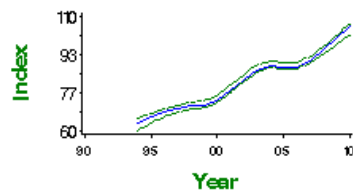
Chiffchaff



CES juveniles graph

BBS UK 1994–2010

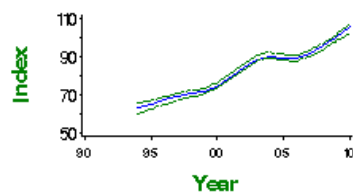
Chiffchaff



BBS UK graph

BBS England 1994–2010

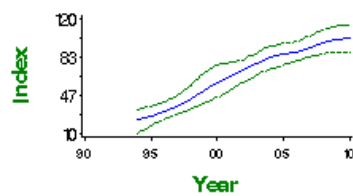
Chiffchaff



BBS England graph

BBS Scotland 1994–2010

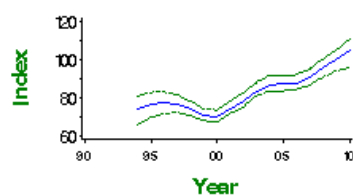
Chiffchaff



BBS Scotland graph

BBS Wales 1994–2010

Chiffchaff

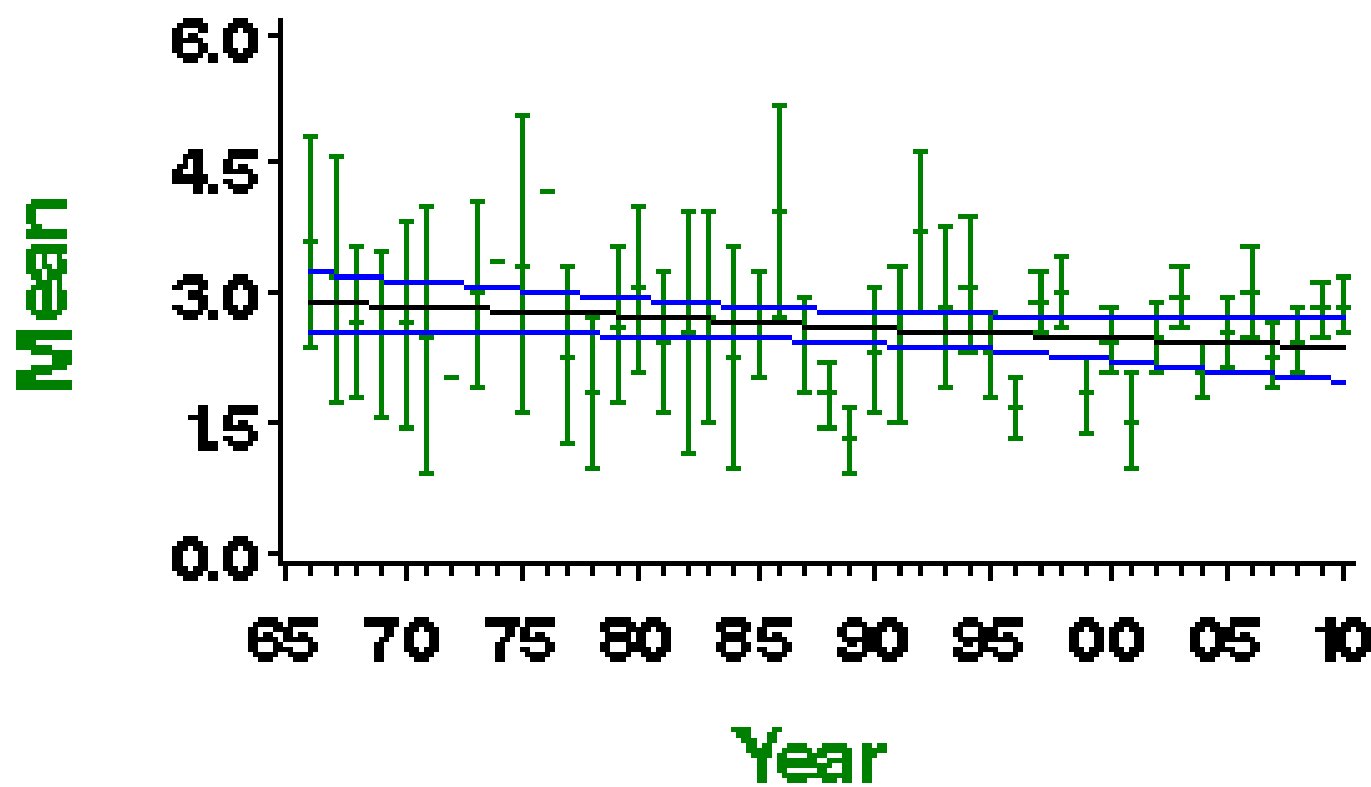


BBS Wales graph



BBS N.Ireland graph

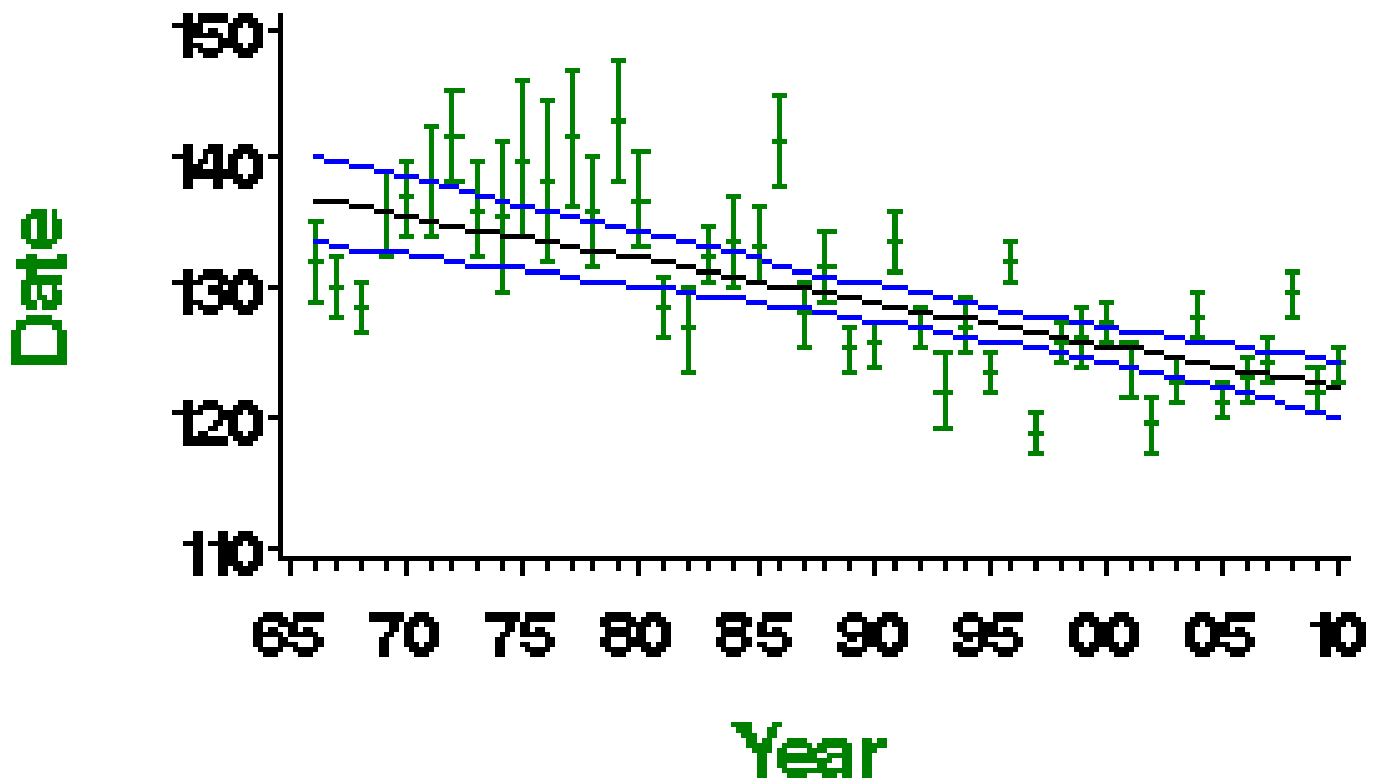
Fledglings per breeding attempt 1966–2010 Chiffchaff



Mean number of fledglings produced per nest - green bars represent standard error and black line shows long-term trend

Laying date 1966–2010

Chiffchaff



Mean laying date in Julian days (1st April = Day 90) - green bars represent standard error and black line shows long-term trend

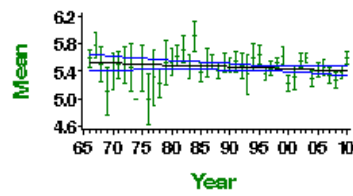
More on demographic trends

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Fledglings per breeding attempt	41	1968-2009	22	None					
Clutch size	41	1968-2009	35	None					
Brood size	41	1968-2009	39	Linear decline	5.14 chicks	4.67 chicks	-9.2%		
Nest failure rate at egg stage	41	1968-2009	45	None					
Nest failure rate at chick stage	41	1968-2009	39	None					
Laying date	41	1968-2009	52	Linear decline	May 16	May 3	-13 days		
Juvenile to Adult ratio (CES)	25	1984-2009	89	Smoothed trend	94 Index value	100 Index value	6%		
Juvenile to Adult ratio (CES)	10	1999-2009	104	Smoothed trend	110 Index value	100 Index value	-9%		
Juvenile to Adult ratio (CES)	5	2004-2009	102	Smoothed trend	82 Index value	100 Index value	21%		

For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).

Clutch size 1966—2010

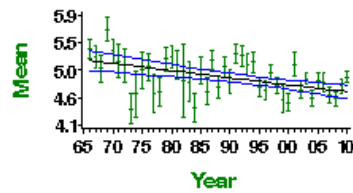
Chiffchaff



Mean number of eggs per nest - green bars represent standard error and black line shows long-term trend

Brood size 1966—2010

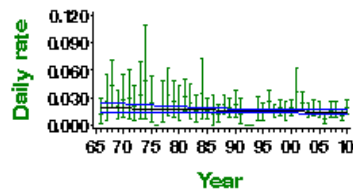
Chiffchaff



Mean number of chicks per nest - green bars represent standard error and black line shows long-term trend

Egg stage nest failure rate

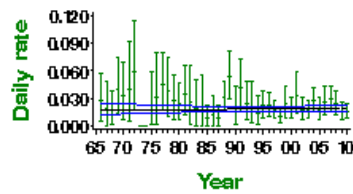
Chiffchaff



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Chick stage nest failure rate

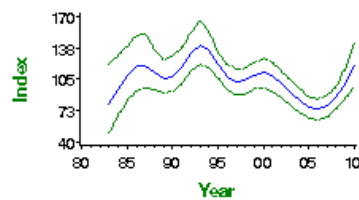
Chiffchaff



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

CES productivity 1983—2010

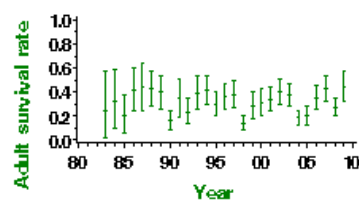
Chiffchaff



Smoothed long-term trend in ratio of juvenile:adult birds caught - green lines indicate 85% confidence limits

CES survival 1983—2009

Chiffchaff



Proportion of adult birds surviving to following year - green bars represent 95% confidence limits

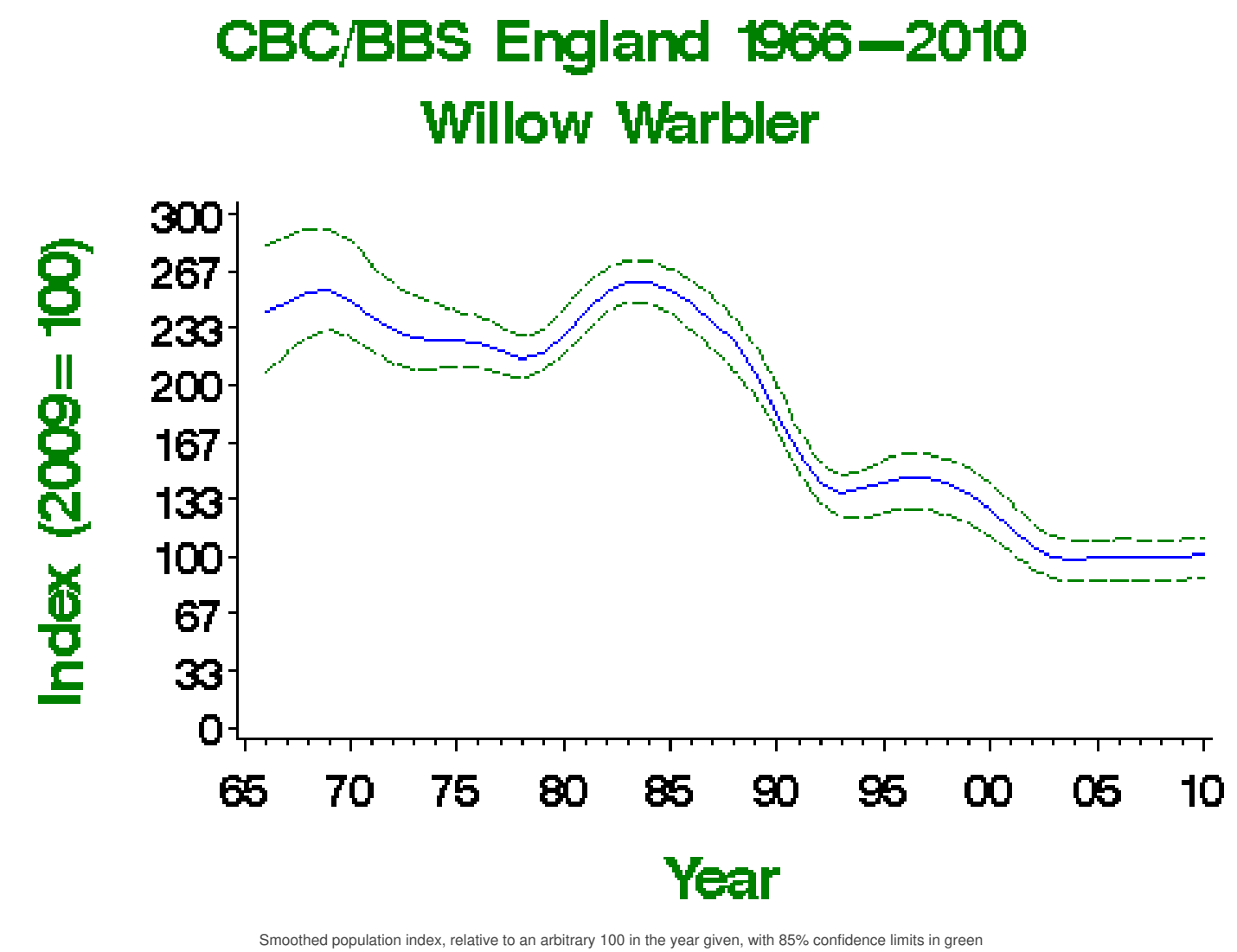
This report should be cited as: Baillie, S.R., Marchant, J.H., Leech, D.I., Renwick, A.R., Eglinton, S.M., Joys, A.C., Noble, D.G., Barimore, C., Conway, G.J., Downie, I.S., Risely, K. & Robinson, R.A. (2012). BirdTrends 2011. BTO Research Report No. 609. BTO, Thetford. <https://www.bto.org/birdtrends>

Key facts

Conservation listings:	Europe: no SPEC category (not concentrated in Europe, conservation status favourable) (BiE04) UK: amber (species level, 25-50% population decline; race trochilus, 25-50% population decline, European status) (BoCC3)
Long-term trend:	England: rapid decline
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 2011a).



Population changes in detail

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS England	42	1967-2009	450	-60	-71	-49	>50	
	25	1984-2009	642	-62	-68	-56	>50	

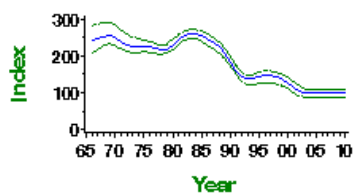
Source	Period (yrs)	1999-2009 Years	95% CIs (n)	Change (%)	Lower limit	Upper limit	>25 Alert	Comment
	5	2004-2009	1005	1	-3	6		
CES adults	25	1984-2009	89	-68	-75	-60	>50	
	10	1999-2009	91	-44	-52	-35	>25	
	5	2004-2009	86	-9	-19	4		
CES juveniles	25	1984-2009	92	-42	-63	-14	>25	
	10	1999-2009	98	-10	-30	8		
	5	2004-2009	93	14	-9	41		
BBS UK	14	1995-2009	1366	-5	-11	3		
	10	1999-2009	1413	-9	-13	-4		
	5	2004-2009	1530	13	9	18		
BBS England	14	1995-2009	900	-30	-37	-24	>25	
	10	1999-2009	908	-23	-29	-18		
	5	2004-2009	962	4	-1	9		
BBS Scotland	14	1995-2009	209	21	6	35		
	10	1999-2009	215	-4	-14	5		
	5	2004-2009	249	11	1	22		
BBS Wales	14	1995-2009	157	-10	-22	4		
	10	1999-2009	172	-4	-12	7		
	5	2004-2009	179	25	16	36		
BBS N.Ireland	14	1995-2009	77	84	41	113		
	10	1999-2009	88	17	2	37		
	5	2004-2009	94	43	33	61		

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



CBC/BBS England 1966—2010

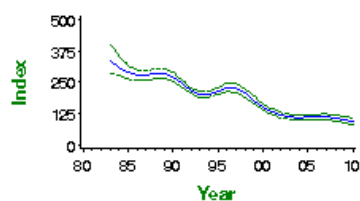
Willow Warbler



CBC/BBS England graph

CES adult abundance 1983—2010

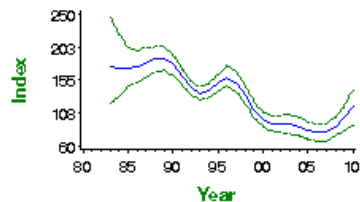
Willow Warbler



CES adults graph

CES juvenile abundance 1983—2010

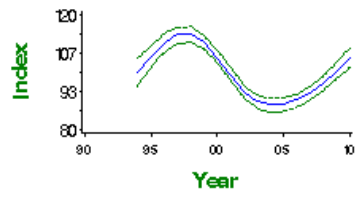
Willow Warbler



CES juveniles graph

BBS UK 1994—2010

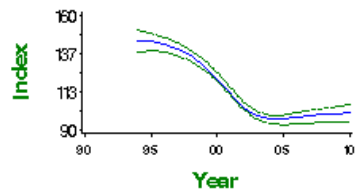
Willow Warbler



BBS UK graph

BBS England 1994—2010

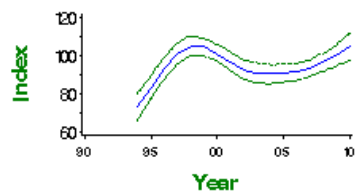
Willow Warbler



BBS England graph

BBS Scotland 1994—2010

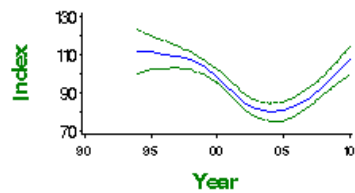
Willow Warbler



BBS Scotland graph

BBS Wales 1994—2010

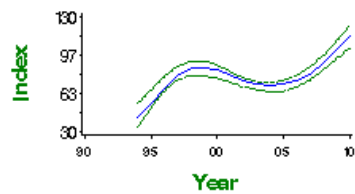
Willow Warbler



BBS Wales graph

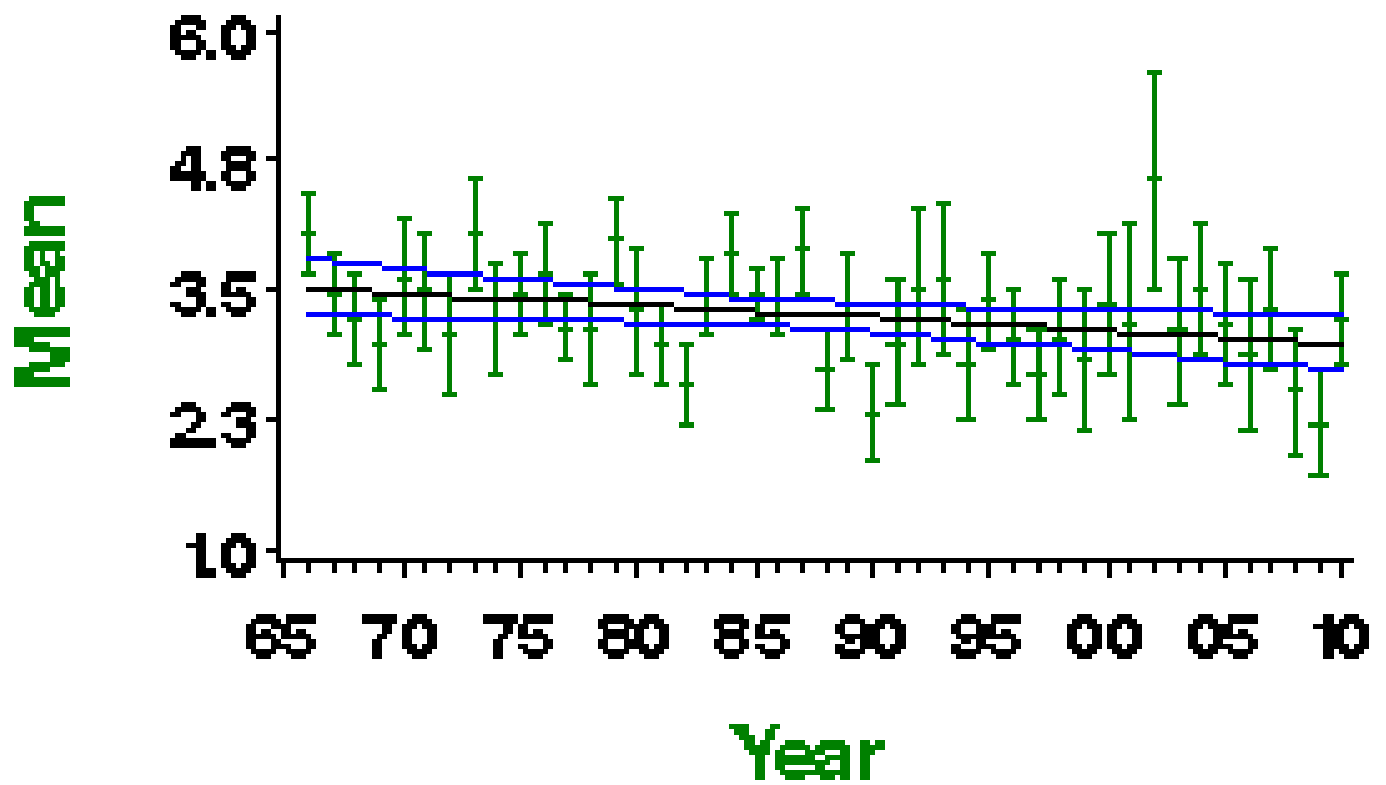
BBS N. Ireland 1994—2010

Willow Warbler



BBS N.Ireland graph

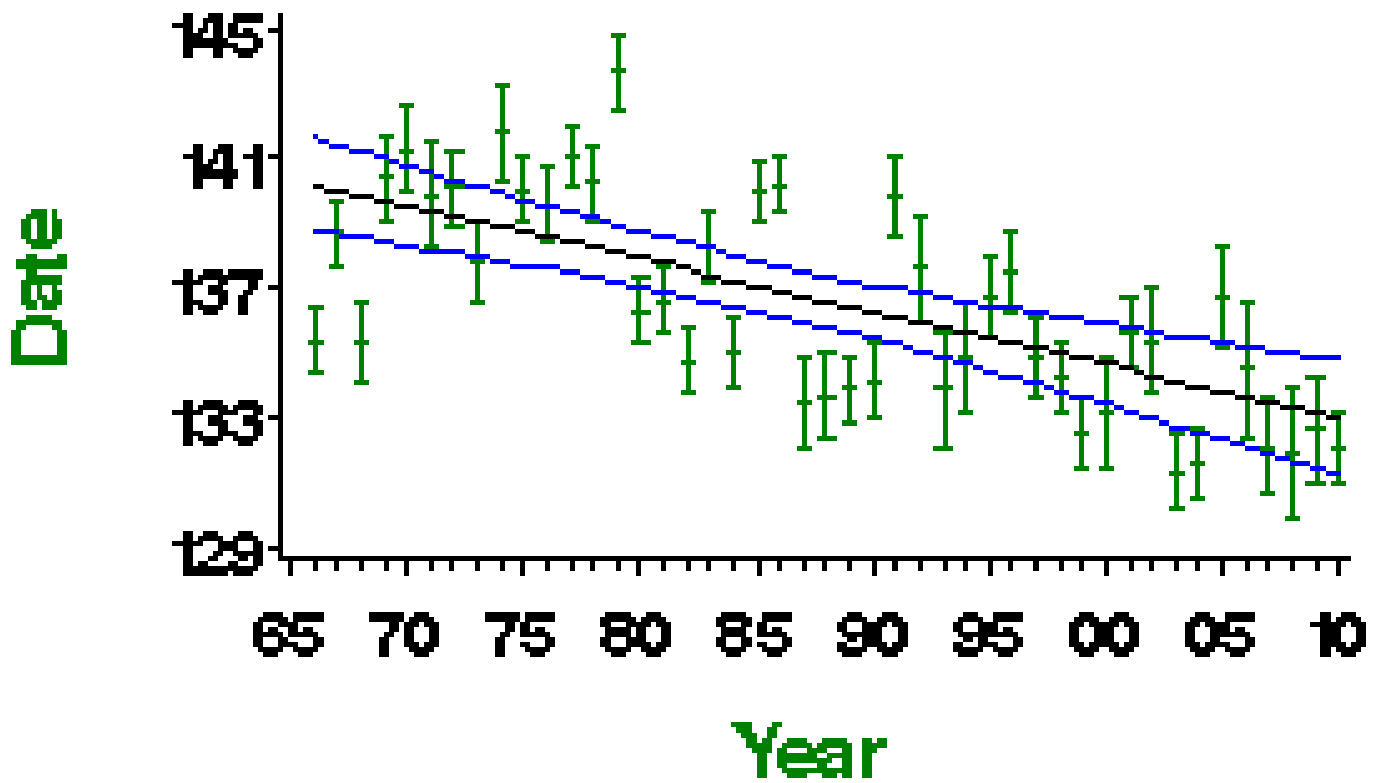
Fledglings per breeding attempt 1966—2010 Willow Warbler



Mean number of fledglings produced per nest - green bars represent standard error and black line shows long-term trend

Laying date 1966–2010

Willow Warbler



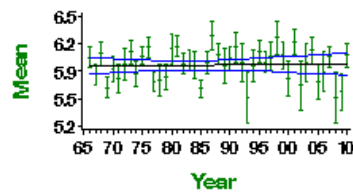
More on demographic trends

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Fledglings per breeding attempt	41	1968-2009	32	Linear decline	3.49 fledglings	3.01 fledglings	-14.0%		
Clutch size	41	1968-2009	48	None					
Brood size	41	1968-2009	135	None					
Nest failure rate at egg stage	41	1968-2009	66	Linear increase	0.94% nests/day	1.70% nests/day	80.9%		
Nest failure rate at chick stage	41	1968-2009	122	Linear increase	1.53% nests/day	2.02% nests/day	32.0%		
Laying date	41	1968-2009	83	Linear decline	May 20	May 13	-7 days		
Juvenile to Adult ratio (CES)	25	1984-2009	98	Smoothed trend	101 Index value	100 Index value	-1%		
Juvenile to Adult ratio (CES)	10	1999-2009	105	Smoothed trend	71 Index value	100 Index value	41%		
Juvenile to Adult ratio (CES)	5	2004-2009	99	Smoothed trend	77 Index value	100 Index value	29%		

For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).

Clutch size 1966—2010

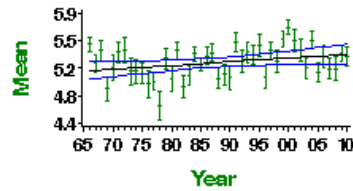
Willow Warbler



Mean number of eggs per nest - green bars represent standard error and black line shows long-term trend

Brood size 1966—2010

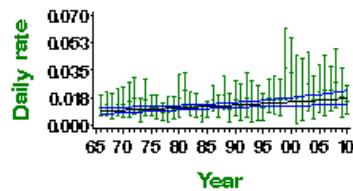
Willow Warbler



Mean number of chicks per nest - green bars represent standard error and black line shows long-term trend

Egg stage nest failure rate

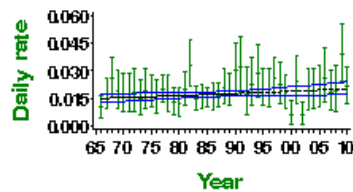
Willow Warbler



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Chick stage nest failure rate

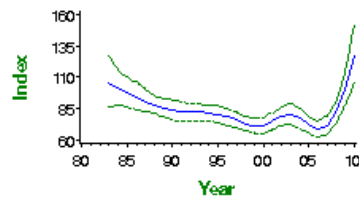
Willow Warbler



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

CES productivity 1983—2010

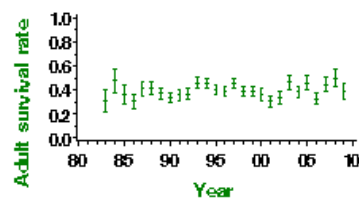
Willow Warbler



Smoothed long-term trend in ratio of juvenile:adult birds caught - green lines indicate 85% confidence limits

CES survival 1983—2009

Willow Warbler



Proportion of adult birds surviving to following year - green bars represent 95% confidence limits

This report should be cited as: Baillie, S.R., Marchant, J.H., Leech, D.I., Renwick, A.R., Eglinton, S.M., Joys, A.C., Noble, D.G., Barimore, C., Conway, G.J., Downie, I.S., Risely, K. & Robinson, R.A. (2012). BirdTrends 2011. BTO Research Report No. 609. BTO, Thetford. <https://www.bto.org/birdtrends>

Key facts

Conservation listings:	Europe: no SPEC category (concentrated in Europe, conservation status favourable) (BiE04) UK: green (BoCC3)
Long-term trend:	UK, England: rapid increase
Population size:	932,000 territories in 2000 (1988-91 Atlas estimate updated using CBC/BBS trend: BiE04, APEP06)

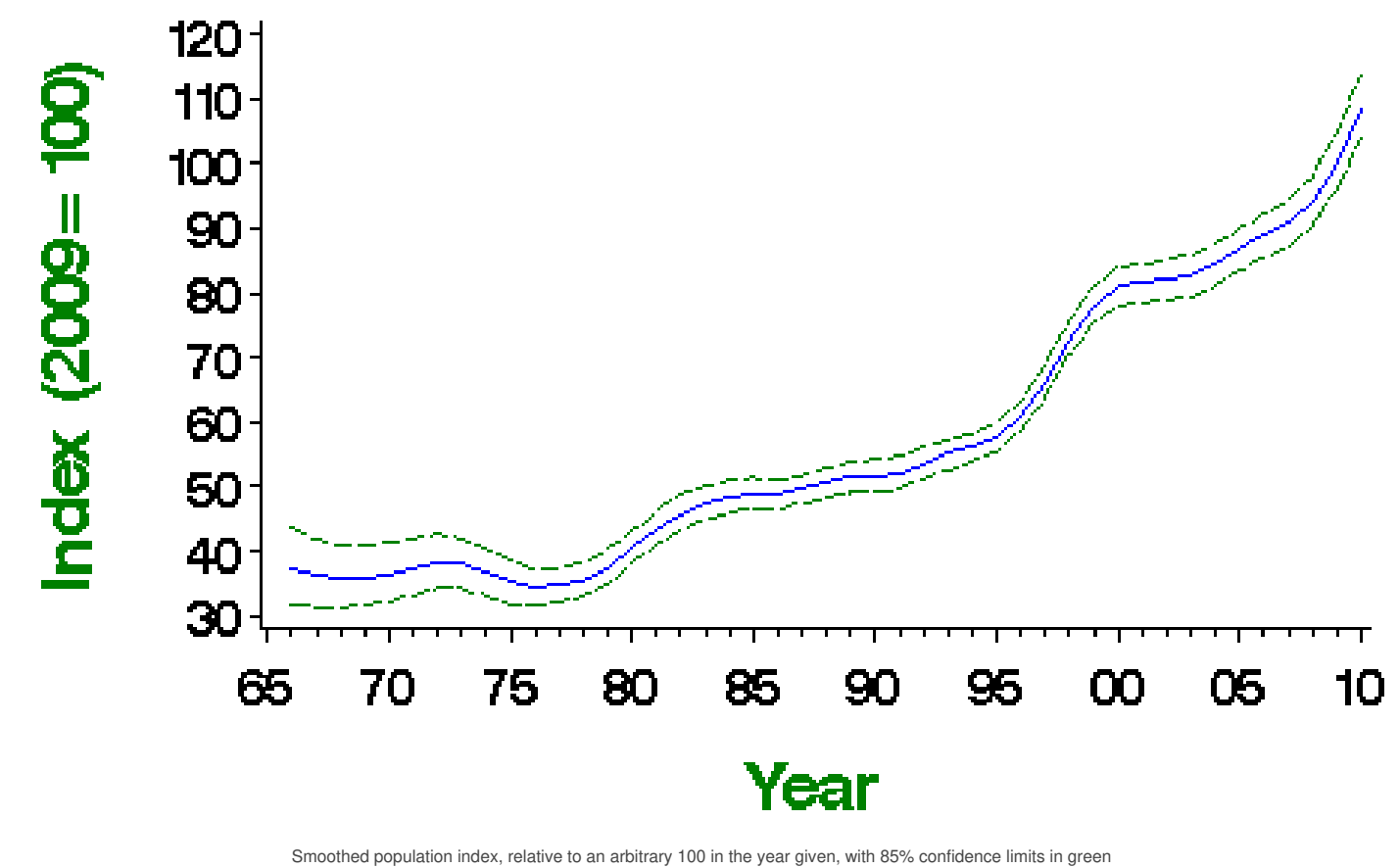
Migrant status:	Short-distance migrant
Nesting habitat:	Above-ground nester
Primary breeding habitat:	Woodland
Secondary breeding habitat:	
Breeding diet:	Animal
Winter diet:	Animal

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. A more rapid increase in Scotland is indicated by BBS. Numbers have shown widespread moderate increase across Europe since 1980 (PECBMS 2011a).

CBC/BBS UK 1966—2010

Blackcap

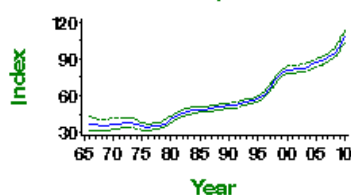


Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS UK	42	1967-2009	626	177	126	239		
	25	1984-2009	956	107	87	127		
	10	1999-2009	1671	28	23	33		
	5	2004-2009	1867	18	15	23		
CBC/BBS England	42	1967-2009	546	158	109	211		
	25	1984-2009	828	95	81	115		
	10	1999-2009	1431	22	18	27		
	5	2004-2009	1594	15	12	19		
CES adults	25	1984-2009	89	55	32	89		
	10	1999-2009	102	12	4	22		
	5	2004-2009	98	3	-3	10		
CES juveniles	25	1984-2009	92	15	-16	61		
	10	1999-2009	104	18	0	40		
	5	2004-2009	100	9	-3	24		
BBS UK	14	1995-2009	1451	73	65	85		
	10	1999-2009	1639	31	25	37		
	5	2004-2009	1867	18	15	23		
BBS England	14	1995-2009	1245	61	54	69		
	10	1999-2009	1396	25	20	30		
	5	2004-2009	1583	15	12	19		
BBS Scotland	14	1995-2009	51	209	114	338		
	10	1999-2009	61	66	24	113		
	5	2004-2009	78	35	7	67		
BBS Wales	14	1995-2009	115	74	47	109		
	10	1999-2009	131	30	14	51		
	5	2004-2009	142	19	7	33		

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.

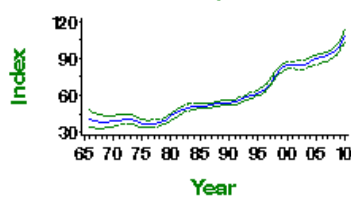


CBC/BBS UK 1966–2010 Blackcap



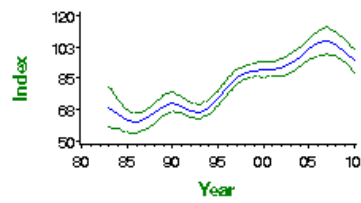
CBC/BBS UK graph

CBC/BBS England 1966–2010 Blackcap



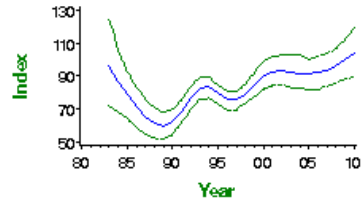
CBC/BBS England graph

CES adult abundance 1983–2010
Blackcap



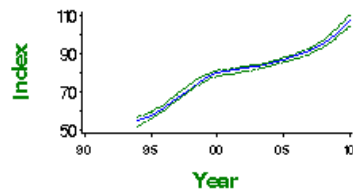
CES adults graph

CES juvenile abundance 1983–2010
Blackcap



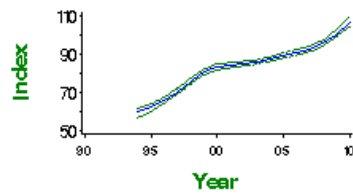
CES juveniles graph

BBS UK 1994–2010
Blackcap



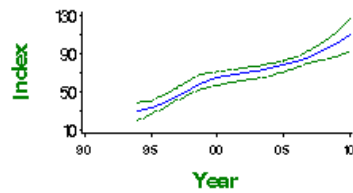
BBS UK graph

BBS England 1994–2010
Blackcap



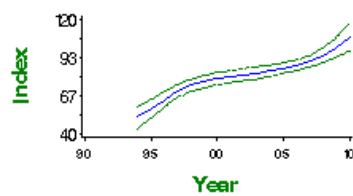
BBS England graph

BBS Scotland 1994–2010
Blackcap



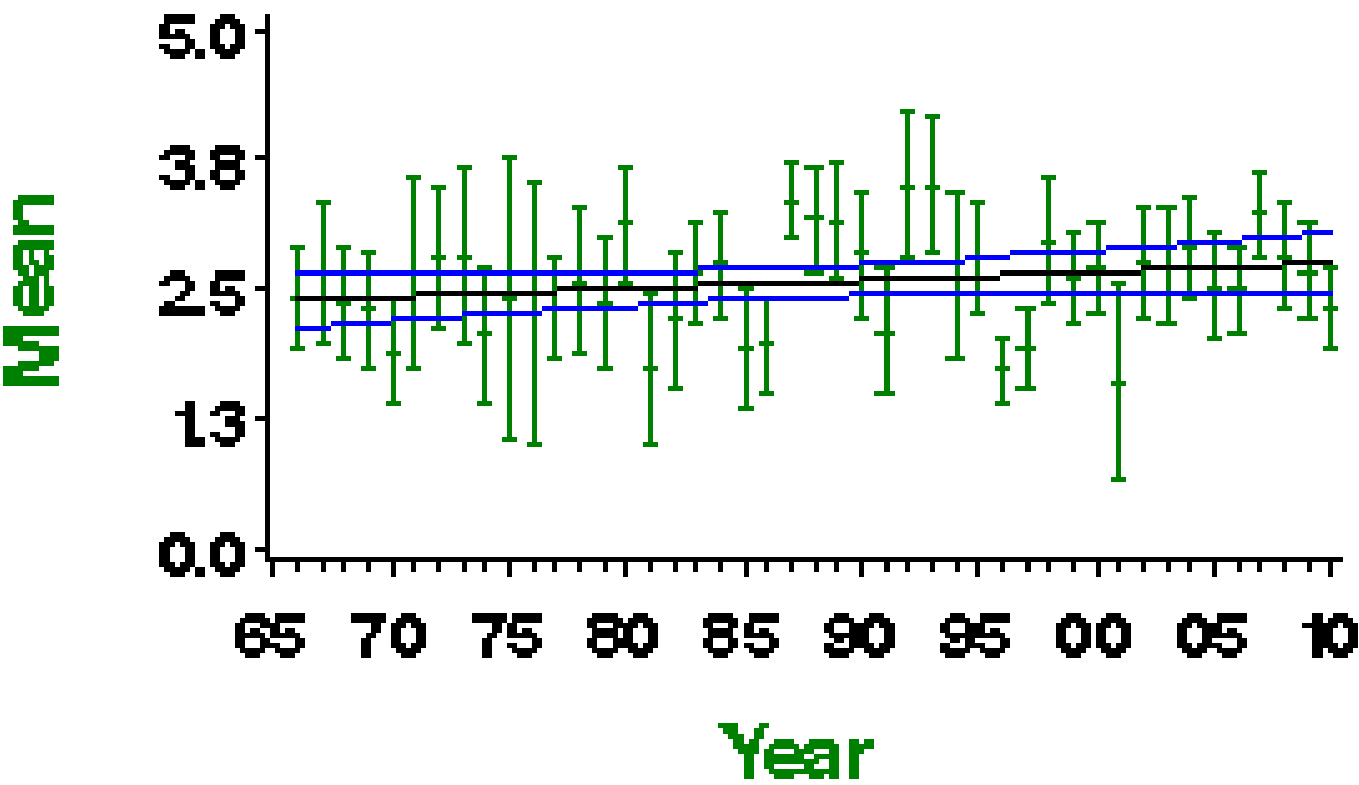
BBS Scotland graph

BBS Wales 1994–2010
Blackcap



BBS Wales graph

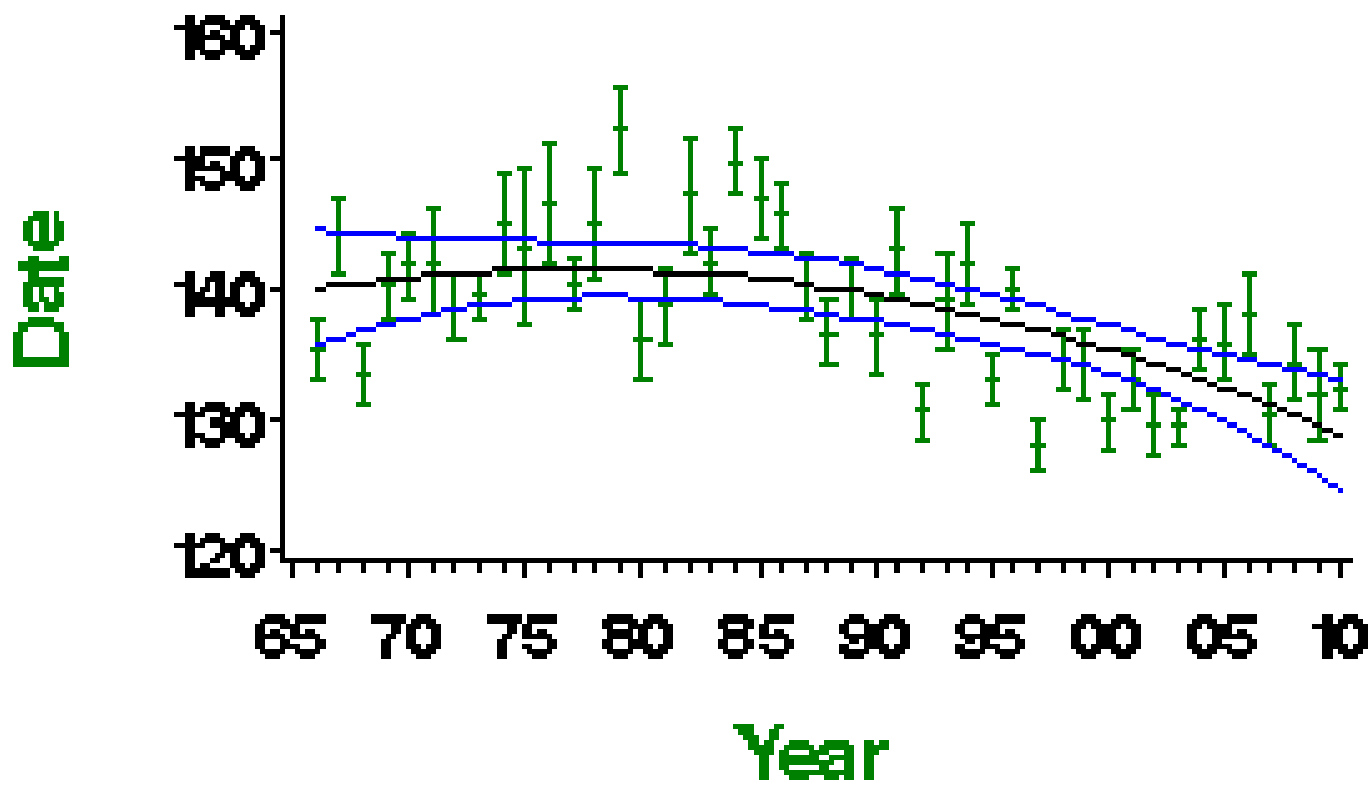
Fledglings per breeding attempt 1966 – 2010 Blackcap



Mean number of fledglings produced per nest - green bars represent standard error and black line shows long-term trend

Laying date 1966–2010

Blackcap



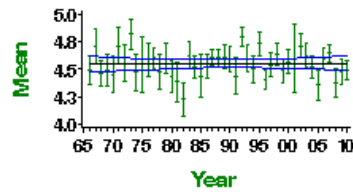
More on demographic trends

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Fledglings per breeding attempt	41	1968-2009	26	None					
Clutch size	41	1968-2009	37	None					
Brood size	41	1968-2009	44	None					
Nest failure rate at egg stage	41	1968-2009	48	Linear decline	2.22% nests/day	1.42% nests/day	-36.0%		
Nest failure rate at chick stage	41	1968-2009	37	None					
Laying date	41	1968-2009	39	Curvilinear	May 21	May 10	-11 days		
Juvenile to Adult ratio (CES)	25	1984-2009	97	Smoothed trend	119 Index value	100 Index value	-16%		
Juvenile to Adult ratio (CES)	10	1999-2009	110	Smoothed trend	87 Index value	100 Index value	15%		
Juvenile to Adult ratio (CES)	5	2004-2009	105	Smoothed trend	100 Index value	100 Index value	0%		

For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).

Clutch size 1966—2010

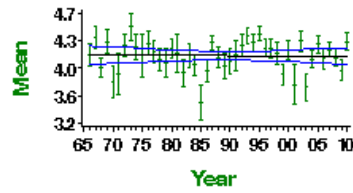
Blackcap



Mean number of eggs per nest - green bars represent standard error and black line shows long-term trend

Brood size 1966—2010

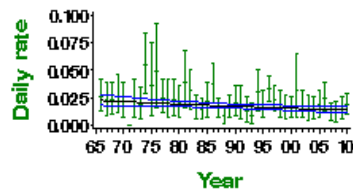
Blackcap



Mean number of chicks per nest - green bars represent standard error and black line shows long-term trend

Egg stage nest failure rate

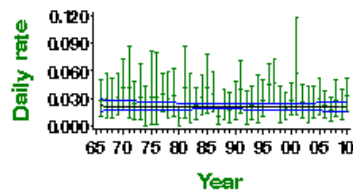
Blackcap



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Chick stage nest failure rate

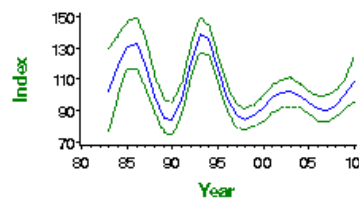
Blackcap



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

CES productivity 1983—2010

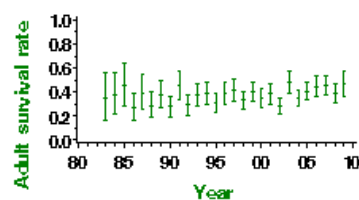
Blackcap



Smoothed long-term trend in ratio of juvenile:adult birds caught - green lines indicate 85% confidence limits

CES survival 1983—2009

Blackcap



Proportion of adult birds surviving to following year - green bars represent 95% confidence limits

Causes of change

The causes of the increase in this species remain unknown.

Change factor	Primary driver	Secondary driver
Demographic	Unknown	
Ecological	Unknown	

Further information on causes of change

There has been a decrease in daily failure rate of nests at the egg stage while productivity has fluctuated markedly according to CES, obscuring any long-term trend. Survival rates have been stable. Using data from France, Julliard (2004) found that population growth rate was under the additive influence of survival and recruitment.

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, Croxton et al. 2006). The more rapid increase in Scotland indicated by BBS suggests that climatic warming may be allowing this species to extend its range northwards (Hewson et al. 2007).

Species references

Crick, H.Q.P. & Sparks, T.H. (1999) Climate change related to egg-laying trends. *Nature* 399: 423-424.

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Hewson, C.M., Amar, A., Lindsell, J.A., Thewlis, R.M., Butler, S., Smith, K. & Fuller, R.J. (2007) Recent changes in bird populations in British broadleaved woodland. *Ibis* 149: 14-28.

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PECBMS (2011a) Population Trends of Common European Breeding Birds 2011. CSO, Prague. [Full text](#)

This report should be cited as: Baillie, S.R., Marchant, J.H., Leech, D.I., Renwick, A.R., Eglington, S.M., Joys, A.C., Noble, D.G., Barimore, C., Conway, G.J., Downie, I.S., Risely, K. & Robinson, R.A. (2012). BirdTrends 2011. BTO Research Report No. 609. BTO, Thetford. <https://www.bto.org/birdtrends>

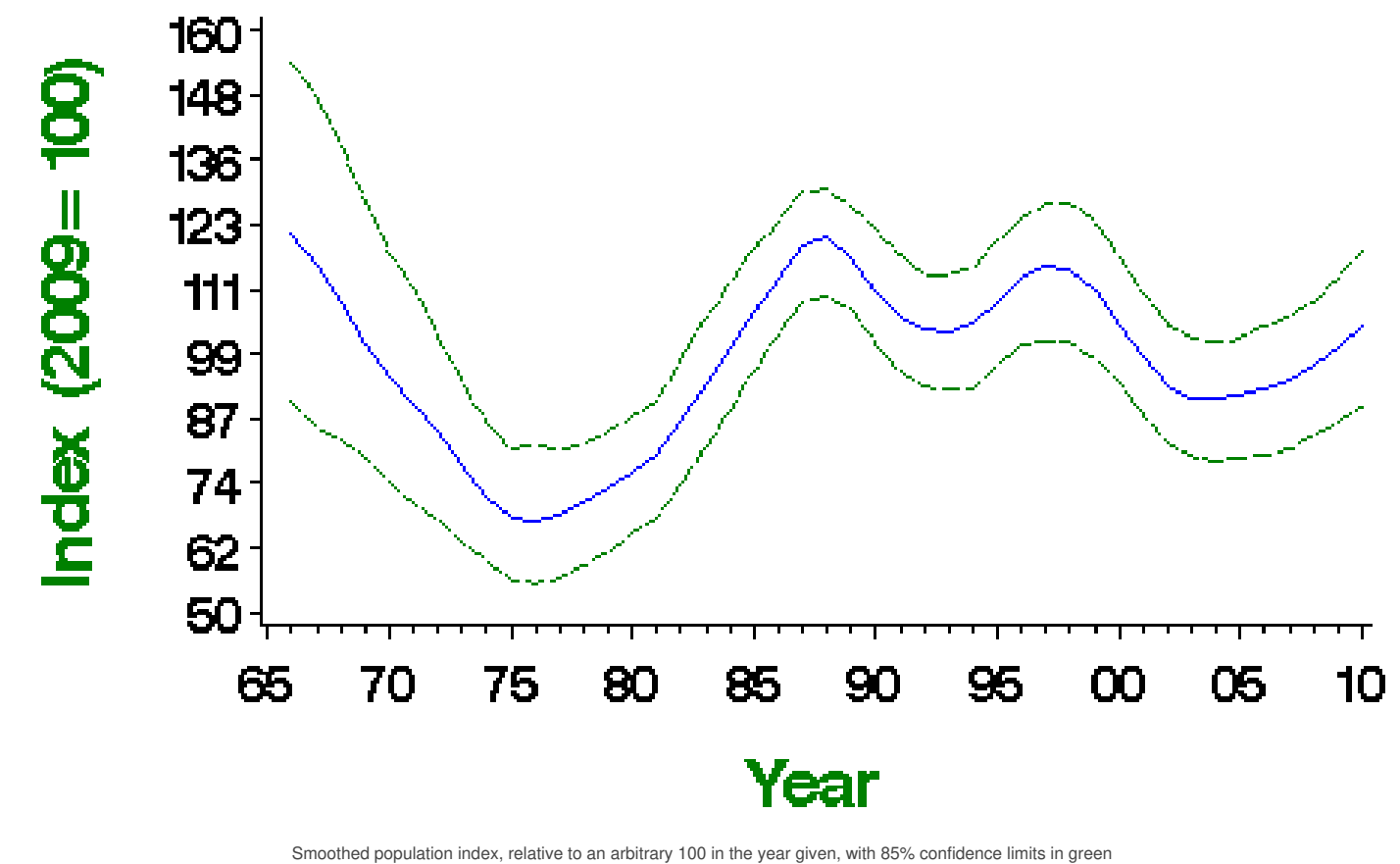
Key facts

Conservation listings:	Europe: no SPEC category (concentrated in Europe, conservation status favourable) (BiE04) UK: green (BoCC3)
Long-term trend:	UK, England: shallow decline
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 moderate decline across Europe since 1980 (PECBMS 2011a).

CBC/BBS UK 1966–2010
Garden Warbler



Smoothed population index, relative to an arbitrary 100 in the year given, with 85% confidence limits in green

Population changes in detail

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS UK	42	1967-2009	219	-13	-43	33		
	25	1984-2009	316	0	-22	24		
	10	1999-2009	474	-10	-19	0		
	5	2004-2009	496	11	0	20		
CBC/BBS England	42	1967-2009	185	-19	-45	25		

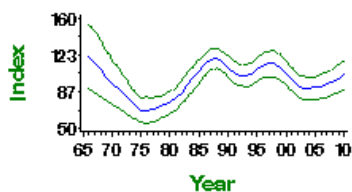
Source	25 Period (yrs)	1984-2009 Years	263 Plots	-11 Change (%)	-27 Lower limit	10 Upper limit	Alert	Comment
	5	2004-2009	406	7	-1	14		
CES adults	25	1984-2009	64	-12	-41	27		
	10	1999-2009	66	-14	-27	-1		
	5	2004-2009	63	8	-3	22		
CES juveniles	25	1984-2009	64	-28	-52	22		
	10	1999-2009	66	-7	-27	29		
	5	2004-2009	64	8	-14	35		
BBS UK	14	1995-2009	434	-10	-21	0		
	10	1999-2009	456	-8	-17	2		
	5	2004-2009	496	10	1	20		
BBS England	14	1995-2009	353	-17	-26	-6		
	10	1999-2009	370	-16	-24	-8		
	5	2004-2009	400	5	-3	14		
BBS Wales	14	1995-2009	56	-15	-37	15		
	10	1999-2009	59	-4	-25	17		
	5	2004-2009	61	21	-5	52		

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



CBC/BBS UK 1966—2010

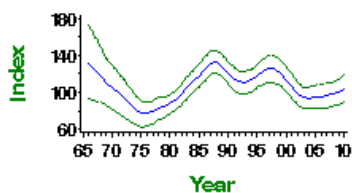
Garden Warbler



CBC/BBS UK graph

CBC/BBS England 1966—2010

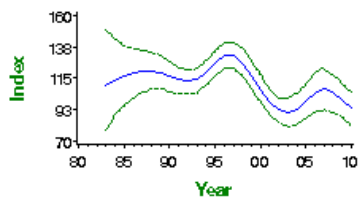
Garden Warbler



CBC/BBS England graph

CES adult abundance 1983—2010

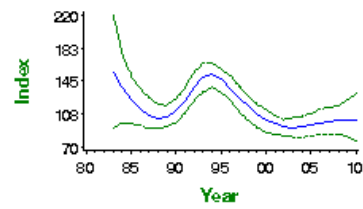
Garden Warbler



CES adults graph

CES juvenile abundance 1983—2010

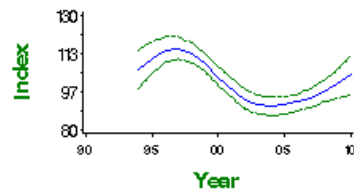
Garden Warbler



CES juveniles graph

BBS UK 1994—2010

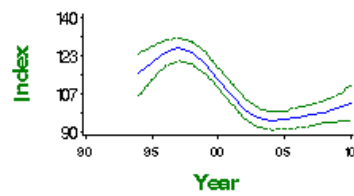
Garden Warbler



BBS UK graph

BBS England 1994—2010

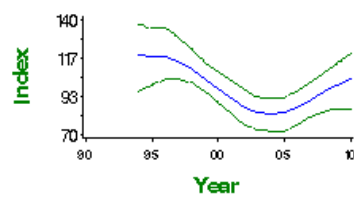
Garden Warbler



BBS England graph

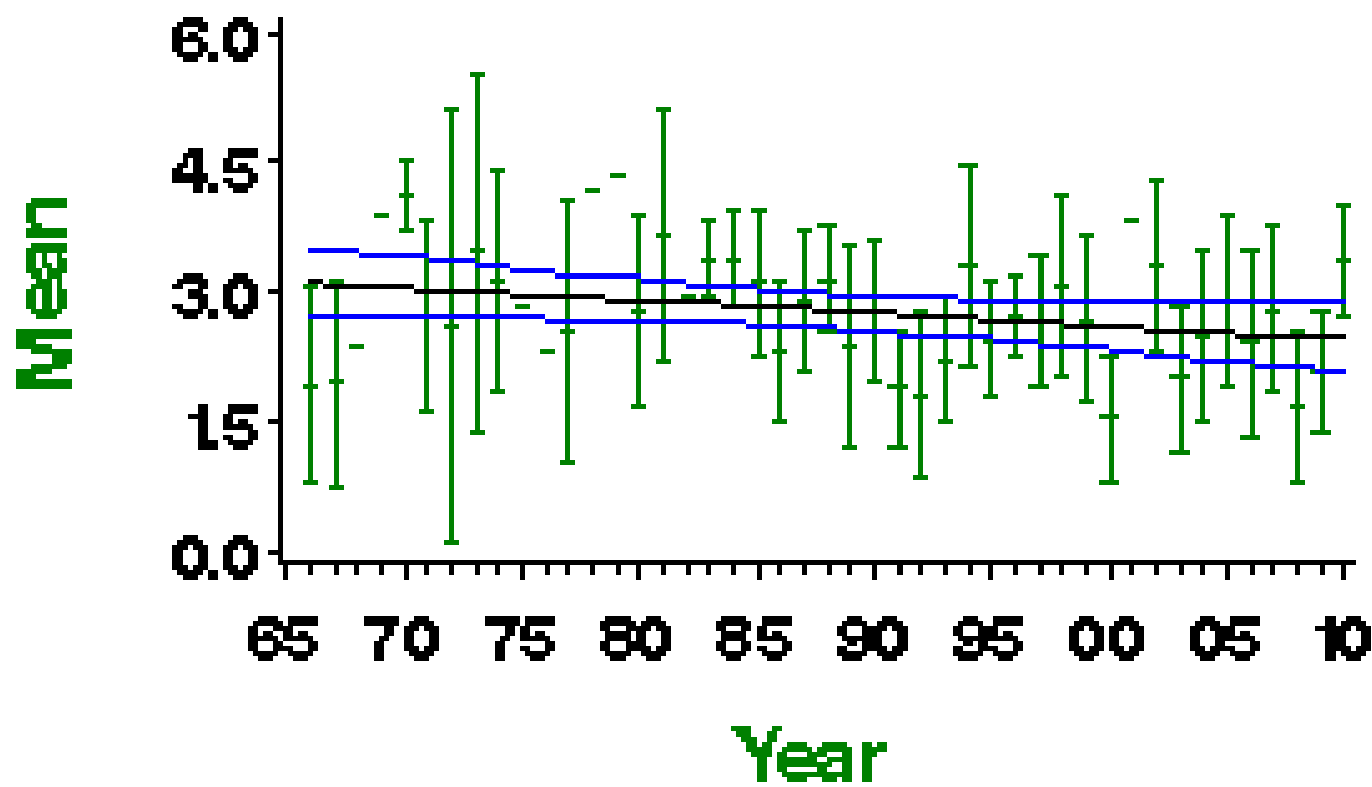
BBS Wales 1994—2010

Garden Warbler



BBS Wales graph

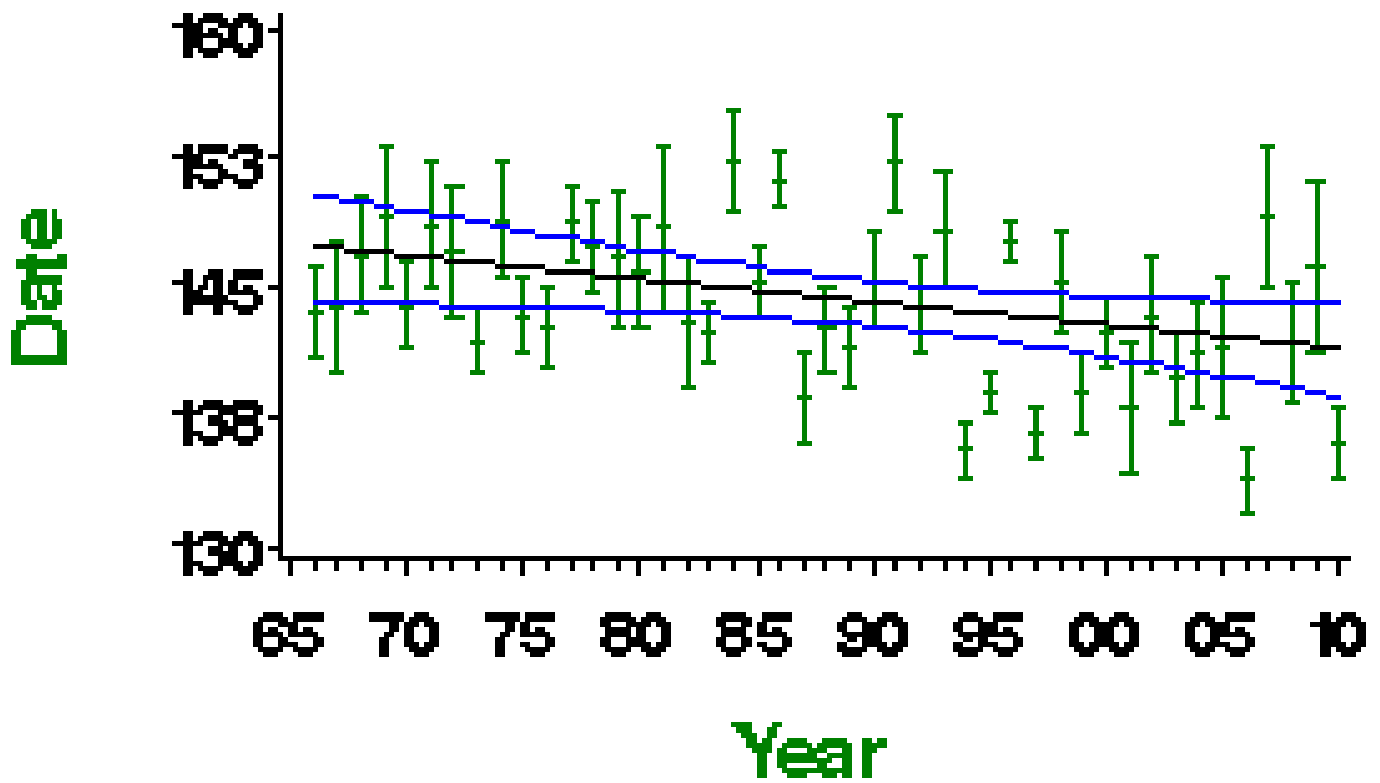
Fledglings per breeding attempt 1966–2010 Garden Warbler



Mean number of fledglings produced per nest - green bars represent standard error and black line shows long-term trend

Laying date 1966–2010

Garden Warbler



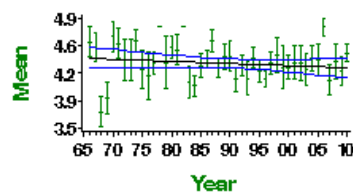
More on demographic trends

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Fledglings per breeding attempt	41	1968-2009	11	None					
Clutch size	41	1968-2009	16	None					Small sample
Brood size	41	1968-2009	25	None					Small sample
Nest failure rate at egg stage	41	1968-2009	22	None					Small sample
Nest failure rate at chick stage	41	1968-2009	19	Linear increase	1.03% nests/day	2.80% nests/day	171.8%		Small sample
Laying date	41	1968-2009	22	Linear decline	May 27	May 22	-5 days		Small sample
Juvenile to Adult ratio (CES)	25	1984-2009	78	Smoothed trend	163 Index value	100 Index value	-39%		
Juvenile to Adult ratio (CES)	10	1999-2009	81	Smoothed trend	81 Index value	100 Index value	23%		
Juvenile to Adult ratio (CES)	5	2004-2009	78	Smoothed trend	111 Index value	100 Index value	-10%		

For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).

Clutch size 1966—2010

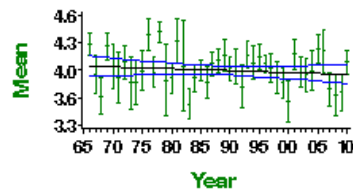
Garden Warbler



Mean number of eggs per nest - green bars represent standard error and black line shows long-term trend

Brood size 1966—2010

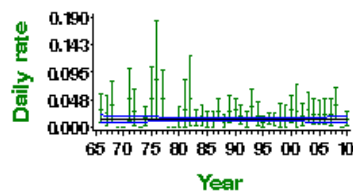
Garden Warbler



Mean number of chicks per nest - green bars represent standard error and black line shows long-term trend

Egg stage nest failure rate

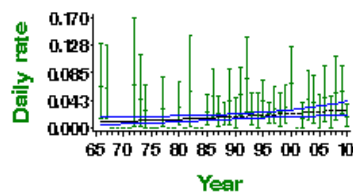
Garden Warbler



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Chick stage nest failure rate

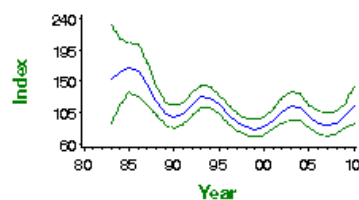
Garden Warbler



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

CES productivity 1983—2010

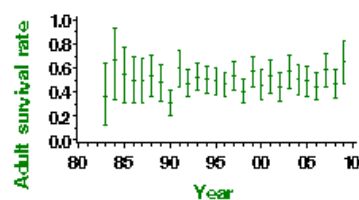
Garden Warbler



Smoothed long-term trend in ratio of juvenile:adult birds caught - green lines indicate 85% confidence limits

CES survival 1983—2009

Garden Warbler



Proportion of adult birds surviving to following year - green bars represent 95% confidence limits

This report should be cited as: Baillie, S.R., Marchant, J.H., Leech, D.I., Renwick, A.R., Eglinton, S.M., Joys, A.C., Noble, D.G., Barimore, C., Conway, G.J., Downie, I.S., Risely, K. & Robinson, R.A. (2012). BirdTrends 2011. BTO Research Report No. 609. BTO, Thetford. <https://www.bto.org/birdtrends>

Key facts

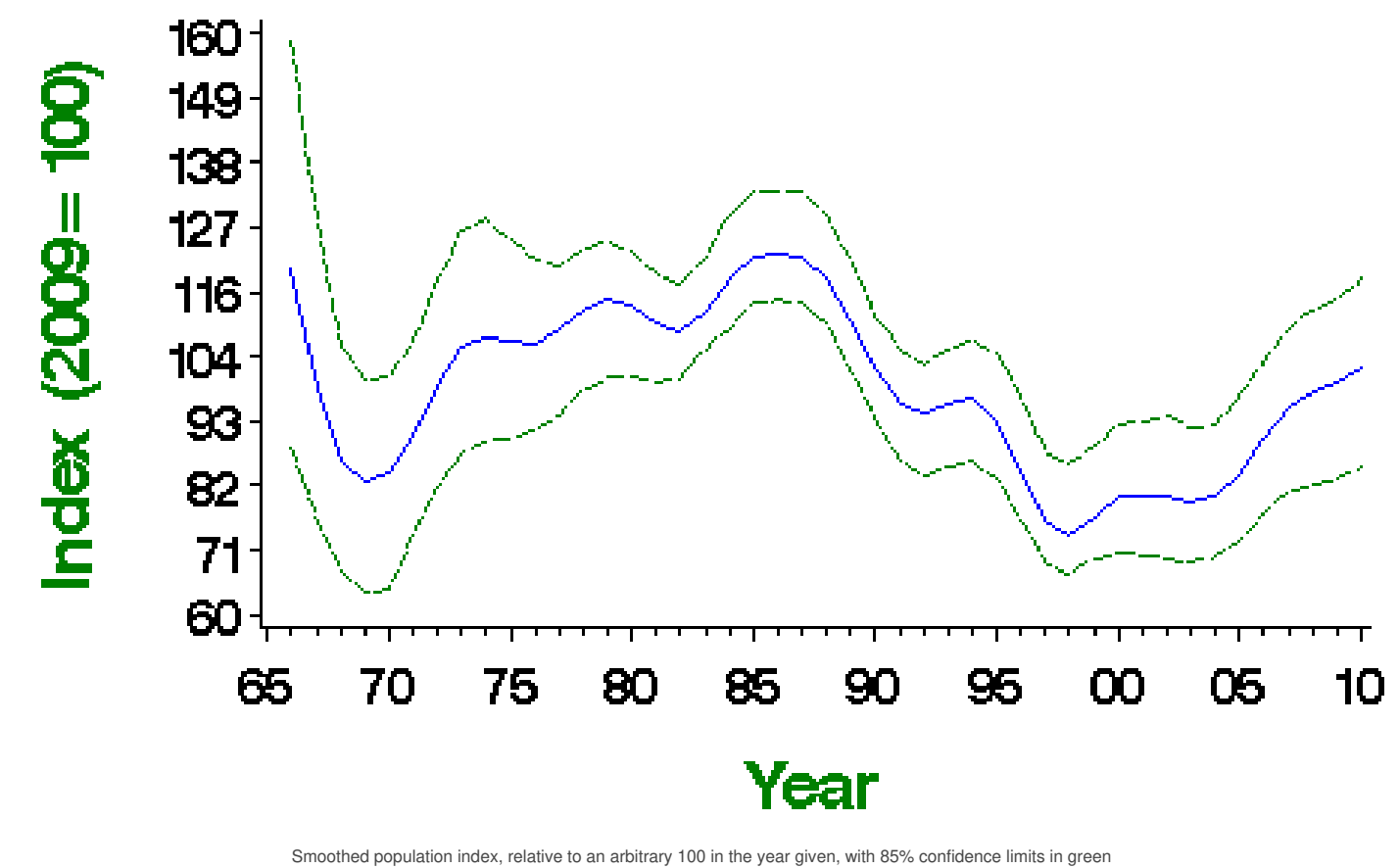
Conservation listings:	Europe: no SPEC category (not concentrated in Europe, conservation status favourable) (BiE04) UK: green (BoCC3)
Long-term trend:	UK, England: fluctuating, with no long-term trend
Population size:	64,000 territories in 2000 (1988-91 Atlas estimate updated using CBC/BBS trend: BiE04, 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 any decline (Fuller et al. 2005).

CBC/BBS UK 1966–2010

Lesser Whitethroat



Smoothed population index, relative to an arbitrary 100 in the year given, with 85% confidence limits in green

Population changes in detail

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS UK	42	1967-2009	134	1	-35	50		
	25	1984-2009	189	-15	-31	1		
	10	1999-2009	290	30	13	45		
	5	2004-2009	321	24	11	38		

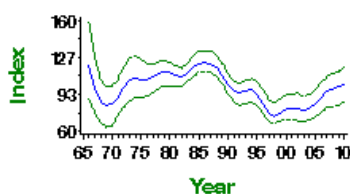
CBC/BBS England Source	42 Period (yrs)	1967-2009 Years 1984-2009	128 Plots (90)	-7 Change (%)	-37 Lower limit	26 Upper limit	Alert	Comment
	10	1999-2009	276	28	13	44		
	5	2004-2009	306	23	10	37		
CES adults	25	1984-2009	38	-66	-82	-51	>50	
	10	1999-2009	33	-28	-46	-10	>25	
	5	2004-2009	33	-34	-50	-20	>25	
CES juveniles	25	1984-2009	45	-50	-74	-9	>50	
	10	1999-2009	44	-16	-37	17		
	5	2004-2009	44	-10	-31	17		
BBS UK	14	1995-2009	255	3	-11	16		
	10	1999-2009	280	41	20	63		
	5	2004-2009	318	27	14	43		
BBS England	14	1995-2009	243	-2	-20	13		
	10	1999-2009	267	33	18	49		
	5	2004-2009	304	21	9	32		

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



CBC/BBS UK 1966—2010

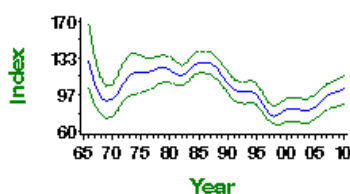
Lesser Whitethroat



CBC/BBS UK graph

CBC/BBS England 1966—2010

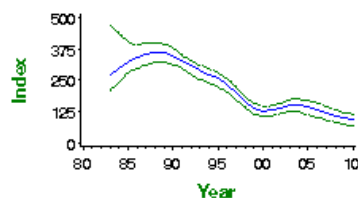
Lesser Whitethroat



CBC/BBS England graph

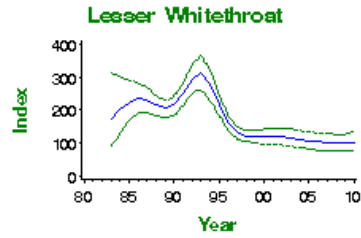
CES adult abundance 1983—2010

Lesser Whitethroat



CES adults graph

CES juvenile abundance 1983–2010



CES juveniles graph

BBS UK 1994–2010



BBS UK graph

BBS England 1994–2010



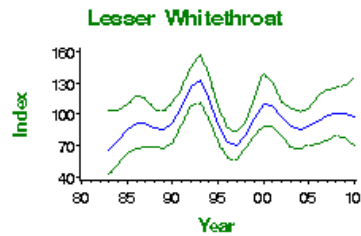
BBS England graph

Demographic trends

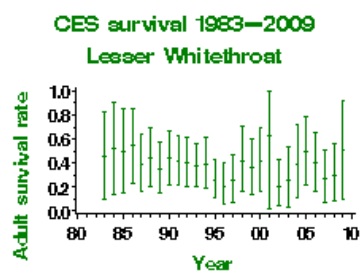
Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Juvenile to Adult ratio (CES)	25	1984-2009	54	Smoothed trend	75 Index value	100 Index value	33%		
Juvenile to Adult ratio (CES)	10	1999-2009	52	Smoothed trend	97 Index value	100 Index value	3%		
Juvenile to Adult ratio (CES)	5	2004-2009	51	Smoothed trend	85 Index value	100 Index value	18%		

For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).

CES productivity 1983–2010



Smoothed long-term trend in ratio of juvenile:adult birds caught - green lines indicate 85% confidence limits



Proportion of adult birds surviving to following year - green bars represent 95% confidence limits

This report should be cited as: Baillie, S.R., Marchant, J.H., Leech, D.I., Renwick, A.R., Eglinton, S.M., Joys, A.C., Noble, D.G., Barimore, C., Conway, G.J., Downie, I.S., Risely, K. & Robinson, R.A. (2012). BirdTrends 2011. BTO Research Report No. 609. BTO, Thetford. <https://www.bto.org/birdtrends>

Whitethroat

Sylvia communis

Key facts

Conservation listings:	Europe: no SPEC category (concentrated in Europe, conservation status favourable) (BiE04) UK: amber (25-50% decline, 1969-2006) (BoCC3)
Long-term trend:	UK, England: rapid decline, followed by increase
Population size:	945,000 territories in 2000 (1988-91 Atlas estimate updated using CBC/BBS trend: BiE04, APEP06)

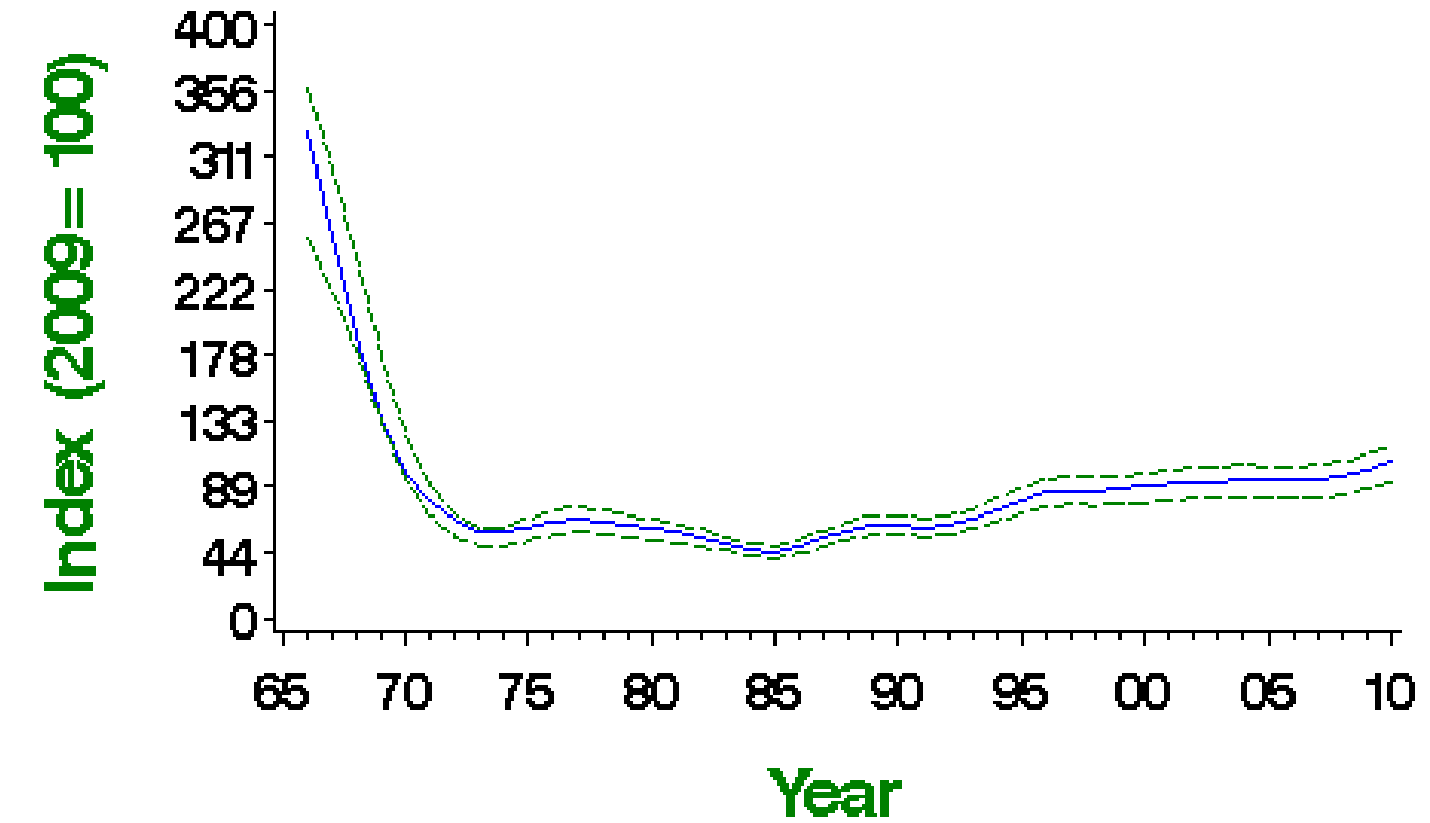
Migrant status:	Long-distance migrant
Nesting habitat:	Above-ground nester
Primary breeding habitat:	Farmland
Secondary breeding habitat:	
Breeding diet:	Animal
Winter diet:	Animal

Status summary

Whitethroat numbers 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 the population has sustained a consistent shallow recovery. Recovery of the UK population has been most apparent along linear waterways. A moderate increase has been detected widely across Europe since 1980 (PECBMS 2011a). 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).

CBC/BBS UK 1966–2010

Whitethroat



Smoothed population index, relative to an arbitrary 100 in the year given, with 85% confidence limits in green

Population changes in detail

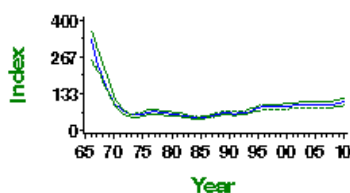
Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS UK	42	1967-2009	537	-61	-73	-49	>50	
	25	1984-2009	816	117	80	165		
	10	1999-2009	1414	15	9	21		
	5	2004-2009	1578	7	3	11		
CBC/BBS England	42	1967-2009	465	-62	-72	-51	>50	
	25	1984-2009	705	120	84	167		
	10	1999-2009	1216	14	9	20		
	5	2004-2009	1351	6	3	10		
WBS/WBBS waterways	34	1975-2009	77	126	3	304		
	25	1984-2009	95	299	177	504		
	10	1999-2009	161	15	2	29		
	5	2004-2009	165	-2	-11	7		
CES adults	25	1984-2009	60	-35	-52	-11	>25	
	10	1999-2009	68	5	-15	30		
	5	2004-2009	65	-16	-29	-5		
CES juveniles	25	1984-2009	66	17	-41	172		
	10	1999-2009	73	54	1	117		
	5	2004-2009	68	-5	-27	23		
BBS UK	14	1995-2009	1270	25	18	34		
	10	1999-2009	1385	16	11	22		
	5	2004-2009	1565	8	4	12		
BBS England	14	1995-2009	1098	23	16	30		
	10	1999-2009	1194	14	9	19		
	5	2004-2009	1346	7	4	10		
BBS Scotland	14	1995-2009	74	94	40	167		
	10	1999-2009	81	39	12	80		
	5	2004-2009	96	6	-7	25		
BBS Wales	14	1995-2009	79	-9	-25	8		
	10	1999-2009	89	-4	-18	12		
	5	2004-2009	98	26	11	51		

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



CBC/BBS UK 1966–2010

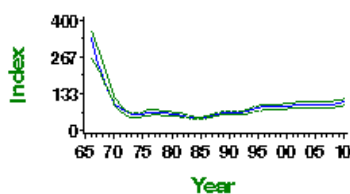
Whitethroat



CBC/BBS UK graph

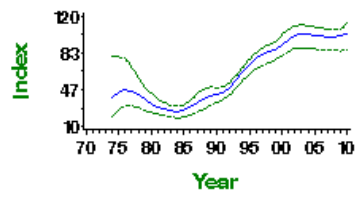
CBC/BBS England 1966–2010

Whitethroat



WBS/WBBS 1974–2010

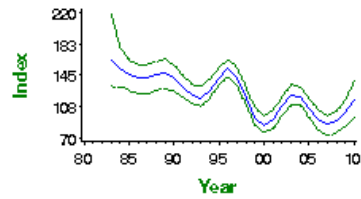
Whitethroat



WBS/WBBS waterways graph

CES adult abundance 1983–2010

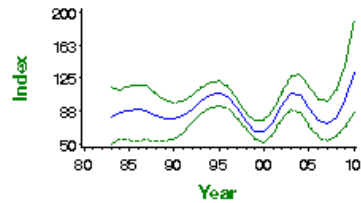
Whitethroat



CES adults graph

CES juvenile abundance 1983–2010

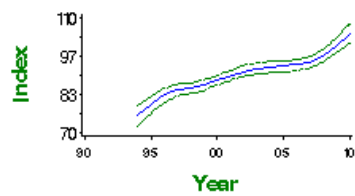
Whitethroat



CES juveniles graph

BBS UK 1994–2010

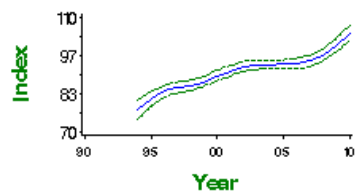
Whitethroat



BBS UK graph

BBS England 1994–2010

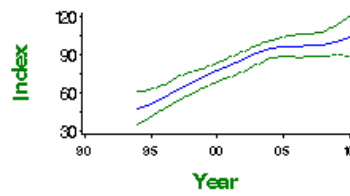
Whitethroat



BBS England graph

BBS Scotland 1994–2010

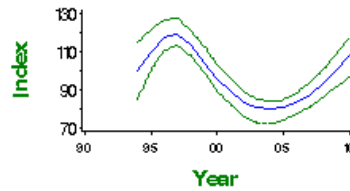
Whitethroat



BBS Scotland graph

BBS Wales 1994–2010

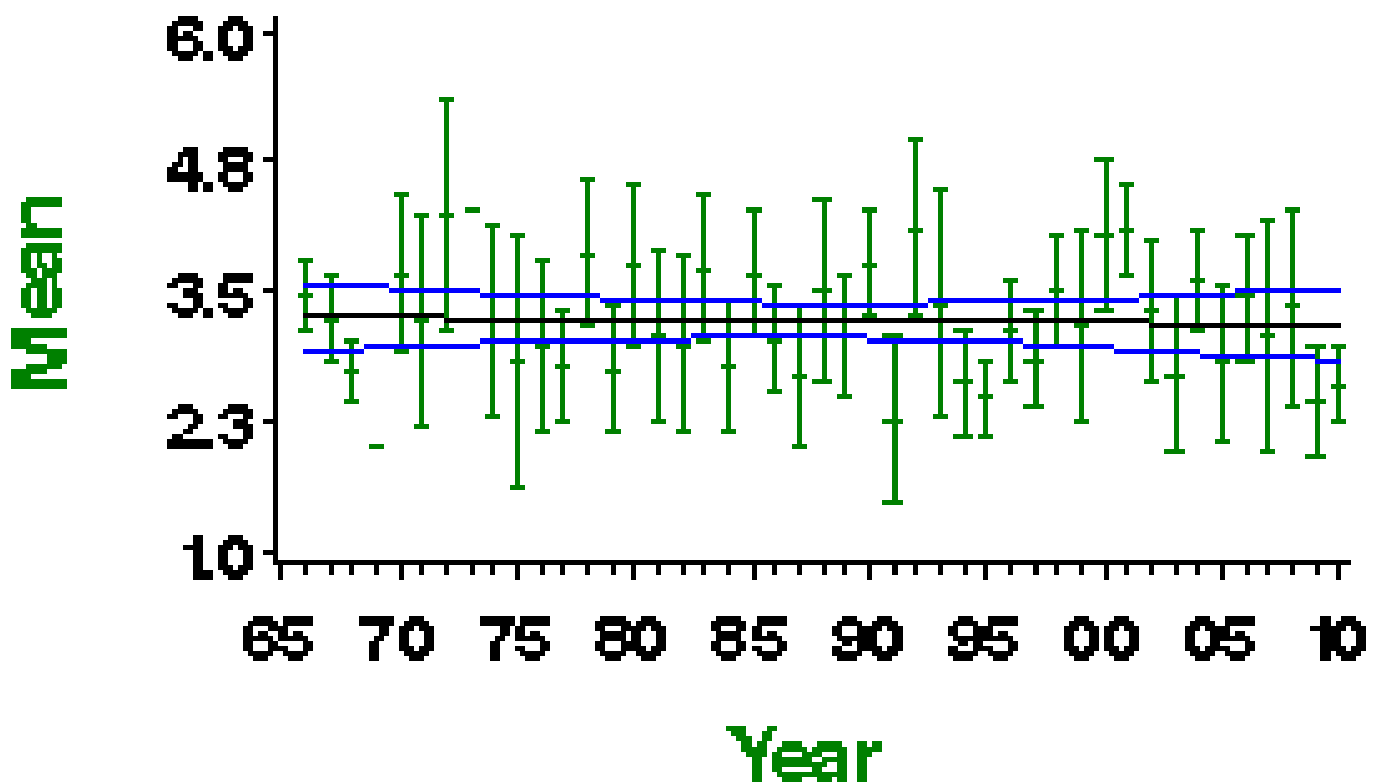
Whitethroat



BBS Wales graph

Demographic trends

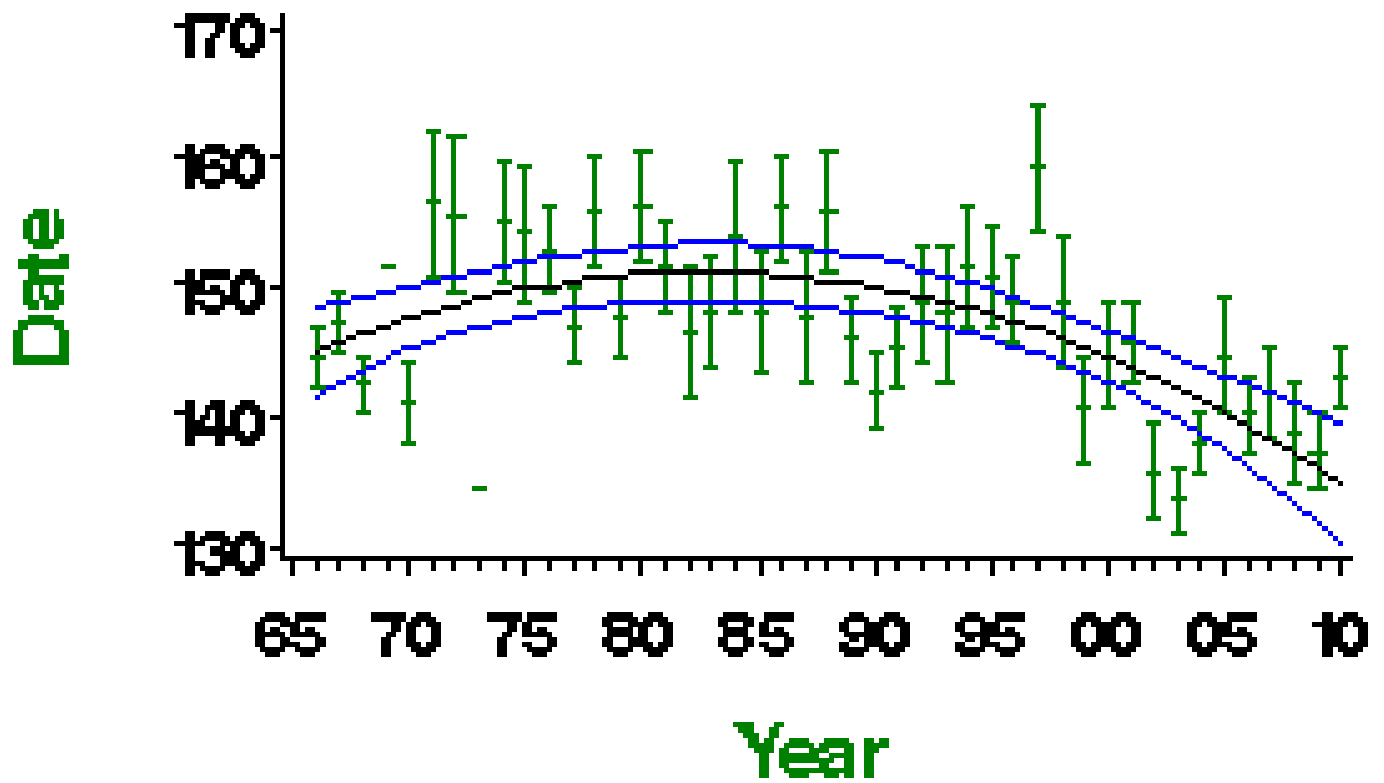
Fledglings per breeding attempt 1966–2010 Whitethroat



Mean number of fledglings produced per nest - green bars represent standard error and black line shows long-term trend

Laying date 1966–2010

Whitethroat



Mean laying date in Julian days (1st April = Day 90) - green bars represent standard error and black line shows long-term trend

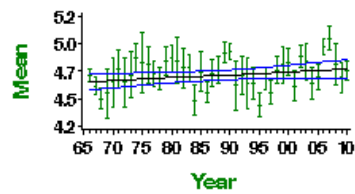
More on demographic trends

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Fledglings per breeding attempt	41	1968-2009	22	None					
Clutch size	41	1968-2009	29	None					Small sample
Brood size	41	1968-2009	64	None					
Nest failure rate at egg stage	41	1968-2009	41	None					
Nest failure rate at chick stage	41	1968-2009	48	None					
Laying date	41	1968-2009	19	Curvilinear	May 26	May 16	-10 days		Small sample
Juvenile to Adult ratio (CES)	25	1984-2009	75	Smoothed trend	76 Index value	100 Index value	32%		
Juvenile to Adult ratio (CES)	10	1999-2009	84	Smoothed trend	106 Index value	100 Index value	-5%		
Juvenile to Adult ratio (CES)	5	2004-2009	79	Smoothed trend	102 Index value	100 Index value	-2%		

For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).

Clutch size 1966—2010

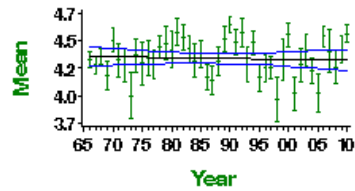
Whitethroat



Mean number of eggs per nest - green bars represent standard error and black line shows long-term trend

Brood size 1966—2010

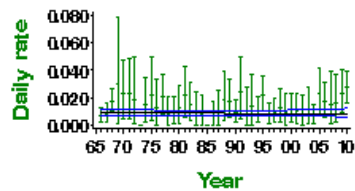
Whitethroat



Mean number of chicks per nest - green bars represent standard error and black line shows long-term trend

Egg stage nest failure rate

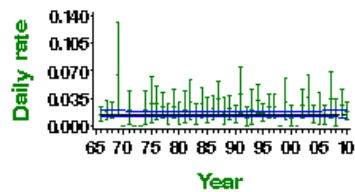
Whitethroat



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Chick stage nest failure rate

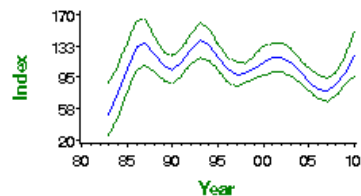
Whitethroat



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

CES productivity 1983—2010

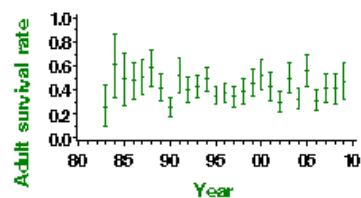
Whitethroat



Smoothed long-term trend in ratio of juvenile:adult birds caught - green lines indicate 85% confidence limits

CES survival 1983—2009

Whitethroat



Proportion of adult birds surviving to following year - green bars represent 95% confidence limits

Causes of change

There is good evidence that the major changes in the population of this species have been driven by conditions on its wintering grounds and so are related to overwinter survival.

Change factor	Primary driver	Secondary driver
Demographic	Decreased survival	
Ecological	Changes on wintering grounds	

Further information on causes of change

In a pioneering study, Winstanley et al. (1974) provided good evidence to link the 1969 crash to drought in the Whitethroat's wintering grounds in the western Sahel, just south of the Sahara Desert. Correspondingly, Baillie & Peach (1992) found that breeding performance was poorly correlated with population changes. They found that fluctuations in losses of adult birds were correlated with conditions on the wintering grounds, and were correlated with Sahel rainfall. Thus, the population appears to be limited by food resources on the wintering grounds, because rainfall in the dry Sahelian landscape promotes greater invertebrate abundance. There has been no long-term trend in the number of fledglings per breeding attempt (see above). Productivity, as measured by CES, rose during the 1980s and has since fluctuated and fallen back.

More recent work has provided good evidence that the density of Whitethroats wintering in the Sahel is correlated with the number and size of trees, and that the increase in overall density of trees was related to an increase in Whitethroats in the area (Stevens et al. 2010). Wilson & Cresswell (2006) found that Whitethroats were most common in areas with intermediate tree heights. They suggest that Whitethroats appear to be able to survive in extremely degraded habitats, yet may be vulnerable to the disappearance of *Salvadora* trees, the fruit of which assists pre-migratory fattening. This is likely to be a separate mechanism to the earlier rainfall mechanism contributing to the population decline and is probably linked to the more recent gradual increase.

Species references

Baillie, S.R. & Peach, W.J. (1992) Population limitation in Palaearctic-African migrant passerines. *Ibis* 134: 120-132.

Eaton, M.A., Brown, A.F., Noble, D.G., Musgrove, A.J., Hearn, R.D., Aebischer, N.J., Gibbons, D.W., Evans, A. & Gregory, R.D. (2009) Birds of Conservation Concern 3: the population status of birds in the United Kingdom, Channel Islands and Isle of Man. *British Birds* 102: 296-341. (BoCC3)

PECBMS (2011a) Population Trends of Common European Breeding Birds 2011. CSO, Prague. [Full text](#)

Stevens, M., Sheehan, D., Wilson, J., Buchanan, G. & Cresswell, W. (2010) Changes in Sahelian bird biodiversity and tree density over a five-year period in northern Nigeria. *Bird Study* 57: 156-174.

Wilson, J.M. & Cresswell, W. (2006) How robust are Palearctic migrants to habitat loss and degradation in the Sahel? *Ibis* 148: 789-800.

Winstanley, D., Spencer, R. & Williamson, K. (1974) Where have all the Whitethroats gone? *Bird Study* 21: 1-14.

This report should be cited as: Baillie, S.R., Marchant, J.H., Leech, D.I., Renwick, A.R., Eglinton, S.M., Joys, A.C., Noble, D.G., Barimore, C., Conway, G.J., Downie, I.S., Risely, K. & Robinson, R.A. (2012). *BirdTrends 2011*. BTO Research Report No. 609. BTO, Thetford. <https://www.bto.org/birdtrends>

Grasshopper Warbler

Locustella naevia

Key facts

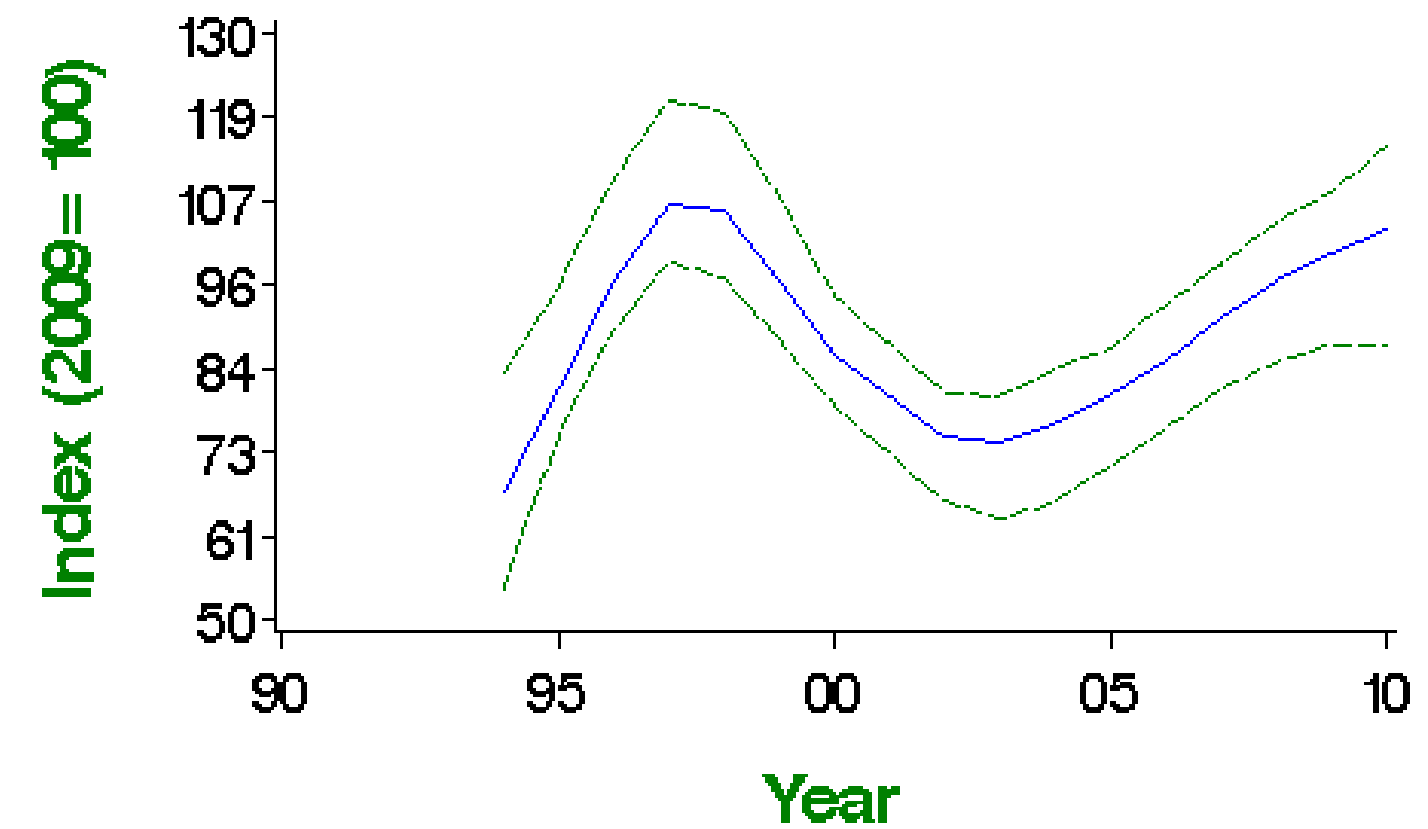
Conservation listings:	Europe: no SPEC category (concentrated in Europe, conservation status favourable) (BiE04) UK: red (>50% population decline) (BoCC3) UK Biodiversity Action Plan: priority species
Long-term trend:	UK: rapid decline
Population size:	11,750 pairs in 1990 (1988-91 Atlas: APEP06); 12,300 pairs in 2000 (updated using BBS trend: BiE04)
Migrant status:	Long-distance migrant
Nesting habitat:	Above-ground nester
Primary breeding habitat:	Wetland
Secondary breeding habitat:	
Breeding diet:	Animal
Winter diet:	Animal

Status summary

Grasshopper Warbler was previously amber-listed because of a contraction in range during the period preceding the 1988-91 Atlas (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.

BBS UK 1994–2010

Grasshopper Warbler

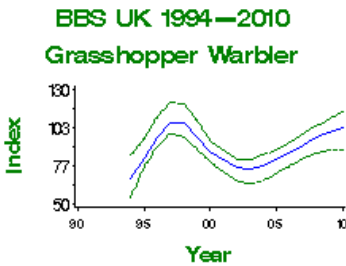


Smoothed population index, relative to an arbitrary 100 in the year given, with 85% confidence limits in green

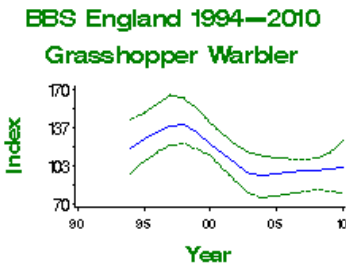
Population changes in detail

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
BBS UK	14	1995-2009	73	23	-10	43		
	10	1999-2009	75	4	-20	22		
	5	2004-2009	88	30	9	58		
BBS England	14	1995-2009	32	-21	-45	8		
	10	1999-2009	34	-24	-48	0		
	5	2004-2009	41	6	-20	38		

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See here for more information.



BBS UK graph



BBS England graph

Demographic trends

Productivity and survival trends for this species are not currently produced by BTO

Causes of change

The demographic and ecological causes of population change in this species are largely unknown.

Change factor	Primary driver	Secondary driver
Demographic	Unknown	
Ecological	Unknown	

Further information on causes of change

There are not enough data to carry out demographic analyses for this species and the causes of the decline, both demographic and ecological, are largely unknown.

Although there is no specific evidence available, as this species is a migrant, it is possible that it has suffered from changes in conditions in the African Sahel zone along with some other trans-Saharan migrants.

Another hypothesis, again lacking good evidence to support or refute this, is that the decline is related to a recent decrease in the amount of suitable scrub habitat preferred by breeding Grasshopper Warblers. However, the Grasshopper Warbler's decline has been fairly steep and perhaps too rapid for gradual changes in scrub habitat availability or post-afforestation decline to be major factors (Riddiford 1983).

Species references

Gibbons, D.W., Reid, J.B. & Chapman, R.A. (1993) The New Atlas of Breeding Birds in Britain and Ireland: 1988-1991. T. & A.D. Poyser, London.

Marchant, J.H., Hudson, R., Carter, S.P. & Whittington, P.A. (1990) Population Trends in British Breeding Birds. BTO, Tring.

PECBMS (2011a) Population Trends of Common European Breeding Birds 2011. CSO, Prague. [Full text](#)

Riddiford, N. (1983) Recent declines of Grasshopper Warblers *Locustella naevia* at British bird observatories. *Bird Study* 30: 143-148.

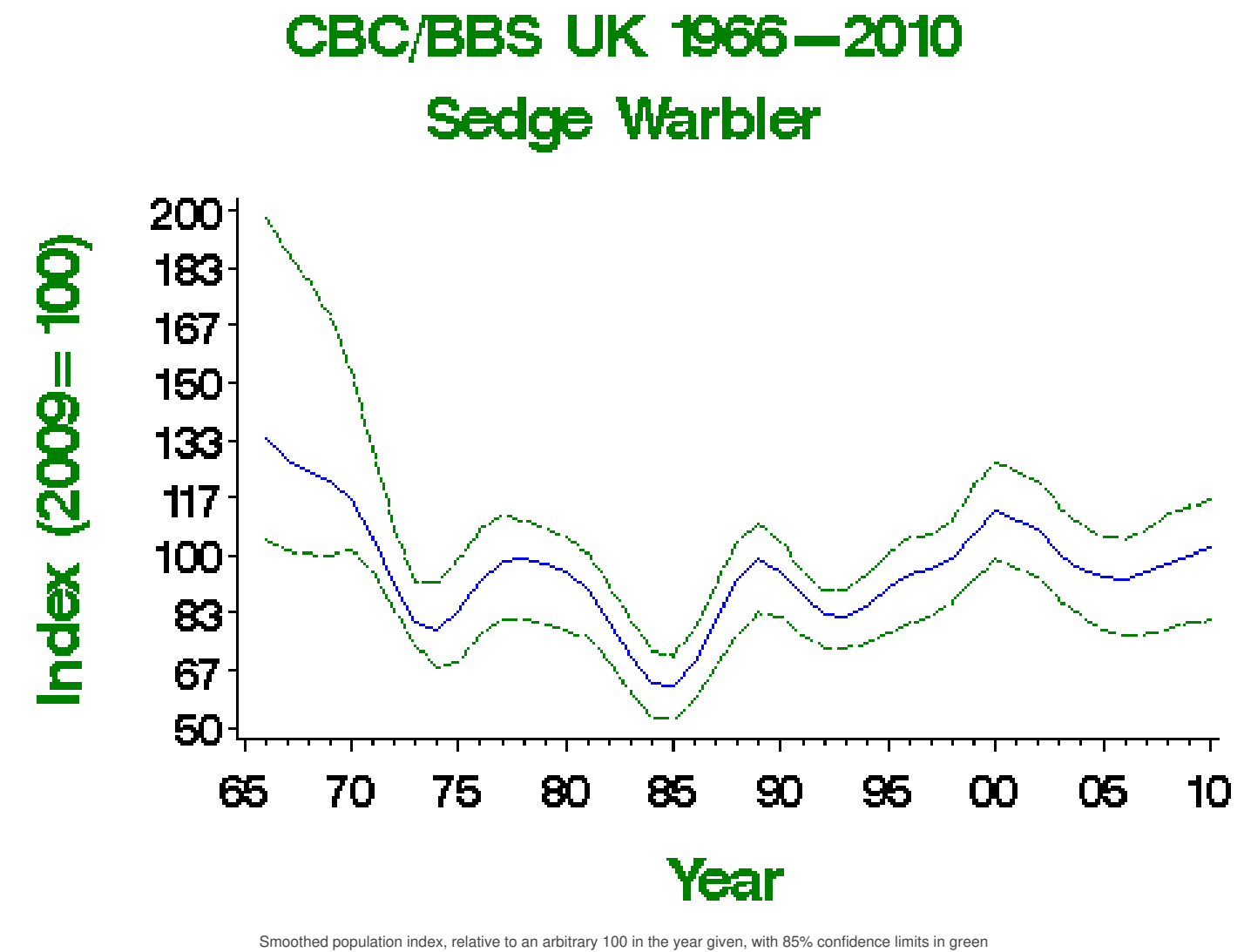
This report should be cited as: Baillie, S.R., Marchant, J.H., Leech, D.I., Renwick, A.R., Eglington, S.M., Joys, A.C., Noble, D.G., Barimore, C., Conway, G.J., Downie, I.S., Risely, K. & Robinson, R.A. (2012). *BirdTrends 2011*. BTO Research Report No. 609. BTO, Thetford. <https://www.bto.org/birdtrends>

Key facts

Conservation listings:	Europe: no SPEC category (concentrated in Europe, conservation status favourable) (BiE04) UK: green (BoCC3)
Long-term trend:	UK: shallow decline England: moderate decline
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.



Population changes in detail

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS UK	42	1967-2009	137	-22	-56	12		
	25	1984-2009	196	59	13	116		
	10	1999-2009	320	-6	-18	5		

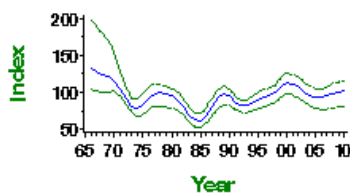
Source	5 Period (yrs)	2004-2009 Years	342 Plots	4 Change (%)	-8 Lower limit	16 Upper limit	Alert >25	Comment
CBC/BBS England		1967-2009	93	(%)				
	25	1984-2009	127	41	4	95		
	10	1999-2009	204	-7	-20	4		
	5	2004-2009	218	-2	-12	9		
WBS/WBBS waterways	34	1975-2009	69	-37	-56	-12	>25	
	25	1984-2009	82	-15	-34	12		
	10	1999-2009	123	-23	-34	-14		
	5	2004-2009	121	-7	-19	3		
CES adults	25	1984-2009	65	-40	-58	-24	>25	
	10	1999-2009	74	-37	-44	-30	>25	
	5	2004-2009	70	-30	-36	-24	>25	
CES juveniles	25	1984-2009	63	48	-22	366		
	10	1999-2009	72	-8	-27	20		
	5	2004-2009	68	-5	-23	17		
BBS UK	14	1995-2009	291	8	-9	26		
	10	1999-2009	310	-4	-17	8		
	5	2004-2009	336	5	-8	16		
BBS England	14	1995-2009	185	-5	-22	10		
	10	1999-2009	198	-6	-20	4		
	5	2004-2009	216	-2	-14	7		
BBS Scotland	14	1995-2009	53	30	-9	89		
	10	1999-2009	54	-1	-29	26		
	5	2004-2009	60	12	-13	39		

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



CBC/BBS UK 1966—2010

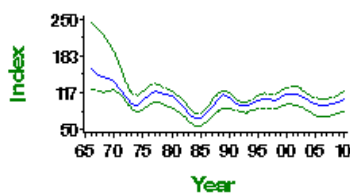
Sedge Warbler



CBC/BBS UK graph

CBC/BBS England 1966—2010

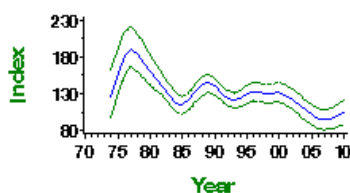
Sedge Warbler



CBC/BBS England graph

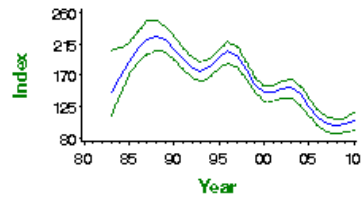
WBS/WBBS 1974—2010

Sedge Warbler



CES adult abundance 1983–2010

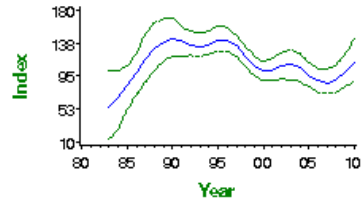
Sedge Warbler



CES adults graph

CES juvenile abundance 1983–2010

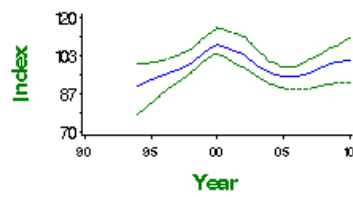
Sedge Warbler



CES juveniles graph

BBS UK 1994–2010

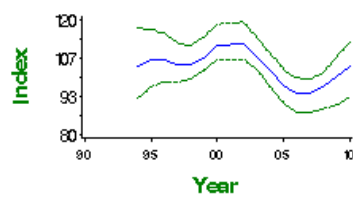
Sedge Warbler



BBS UK graph

BBS England 1994–2010

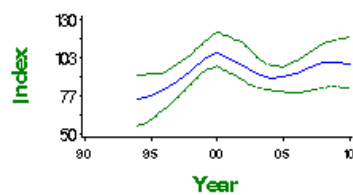
Sedge Warbler



BBS England graph

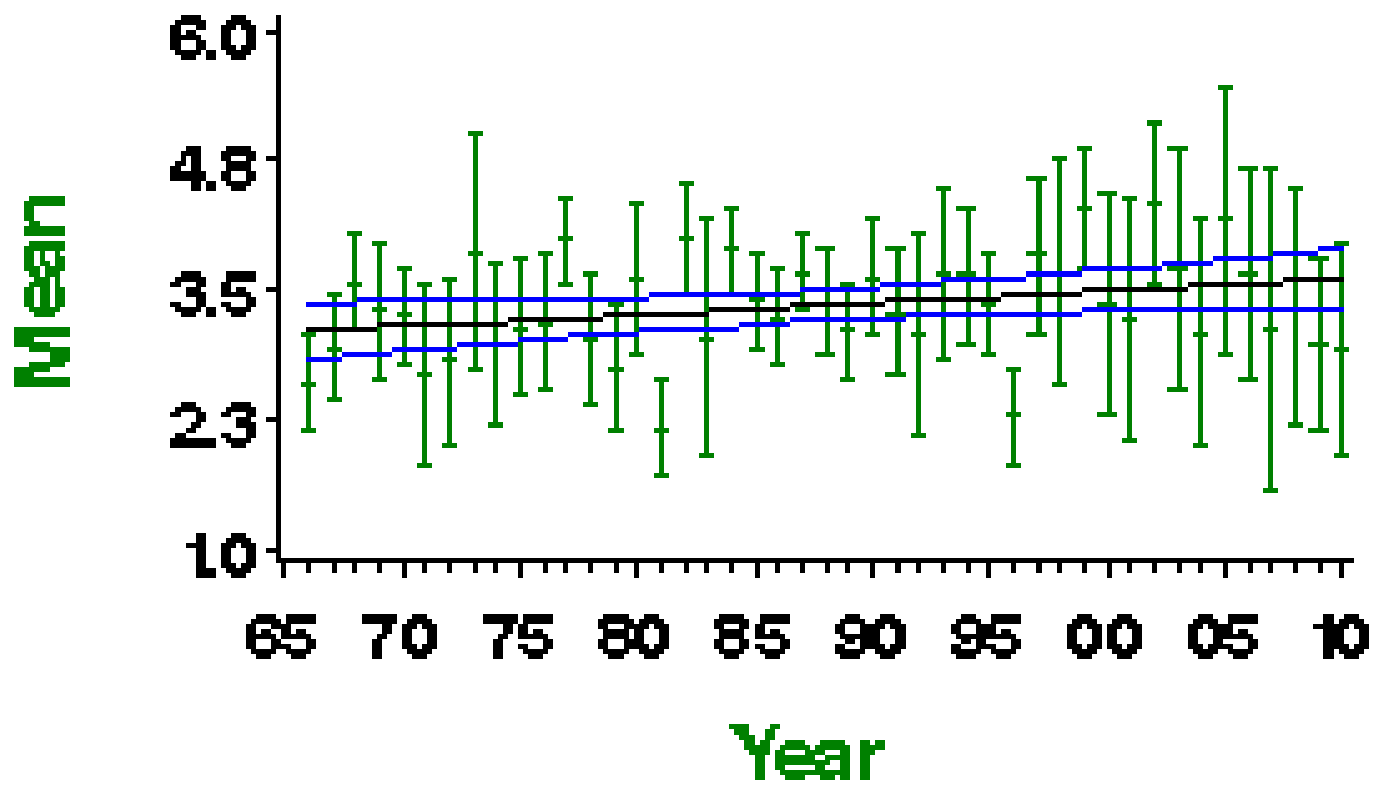
BBS Scotland 1994–2010

Sedge Warbler



BBS Scotland graph

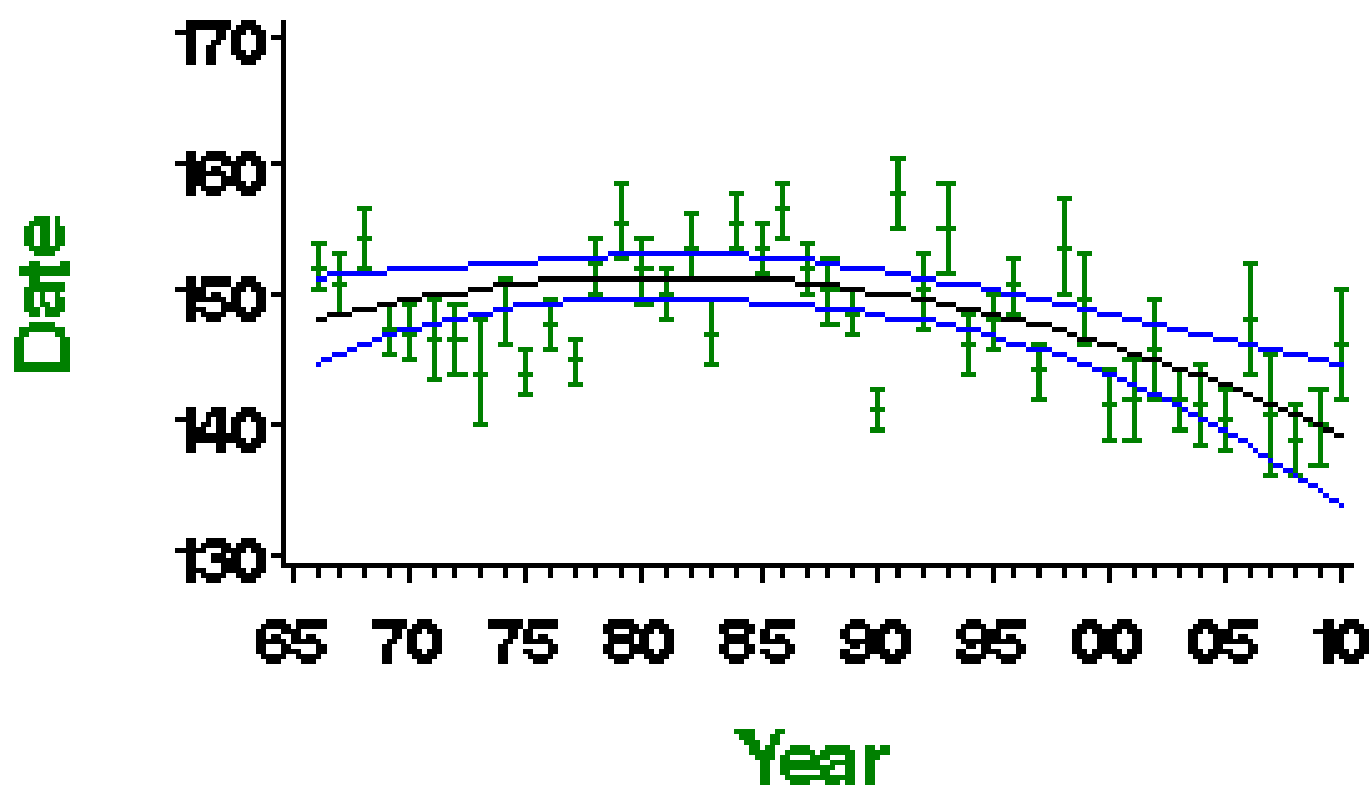
Fledglings per breeding attempt 1966–2010 Sedge Warbler



Mean number of fledglings produced per nest - green bars represent standard error and black line shows long-term trend

Laying date 1966–2010

Sedge Warbler



Mean laying date in Julian days (1st April = Day 90) - green bars represent standard error and black line shows long-term trend

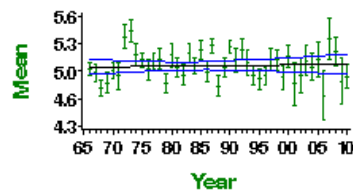
More on demographic trends

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Fledglings per breeding attempt	41	1968-2009	24	Linear increase	3.13 fledglings	3.59 fledglings	15.0%		
Clutch size	41	1968-2009	35	None					
Brood size	41	1968-2009	55	None					
Nest failure rate at egg stage	41	1968-2009	41	Curvilinear	1.44% nests/day	1.16% nests/day	-19.4%		
Nest failure rate at chick stage	41	1968-2009	47	None					
Laying date	41	1968-2009	47	Curvilinear	May 29	May 20	-9 days		
Juvenile to Adult ratio (CES)	25	1984-2009	71	Smoothed trend	230 Index value	100 Index value	-57%	>50	
Juvenile to Adult ratio (CES)	10	1999-2009	81	Smoothed trend	109 Index value	100 Index value	-9%		
Juvenile to Adult ratio (CES)	5	2004-2009	77	Smoothed trend	105 Index value	100 Index value	-5%		

For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).

Clutch size 1966—2010

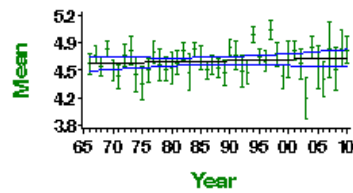
Sedge Warbler



Mean number of eggs per nest - green bars represent standard error and black line shows long-term trend

Brood size 1966—2010

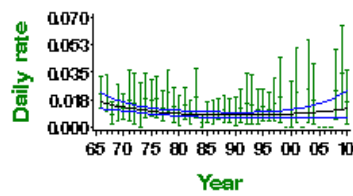
Sedge Warbler



Mean number of chicks per nest - green bars represent standard error and black line shows long-term trend

Egg stage nest failure rate

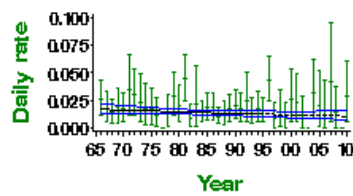
Sedge Warbler



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Chick stage nest failure rate

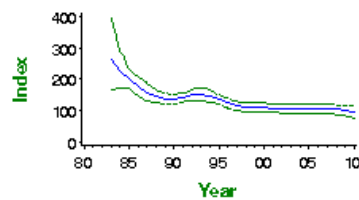
Sedge Warbler



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

CES productivity 1983—2010

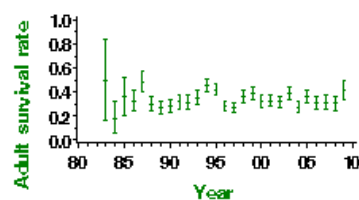
Sedge Warbler



Smoothed long-term trend in ratio of juvenile:adult birds caught - green lines indicate 85% confidence limits

CES survival 1983—2009

Sedge Warbler



Proportion of adult birds surviving to following year - green bars represent 95% confidence limits

This report should be cited as: Baillie, S.R., Marchant, J.H., Leech, D.I., Renwick, A.R., Eglinton, S.M., Joys, A.C., Noble, D.G., Barimore, C., Conway, G.J., Downie, I.S., Risely, K. & Robinson, R.A. (2012). BirdTrends 2011. BTO Research Report No. 609. BTO, Thetford. <https://www.bto.org/birdtrends>

Key facts

Conservation listings:	Europe: no SPEC category (concentrated in Europe, conservation status favourable) (BiE04) UK: green (BoCC3)
Long-term trend:	UK: probable rapid increase
Population size:	60,800-122,000 pairs in 2000 (1988-91 Atlas estimate updated using CBC/BBS trend: BiE04, APEP06)

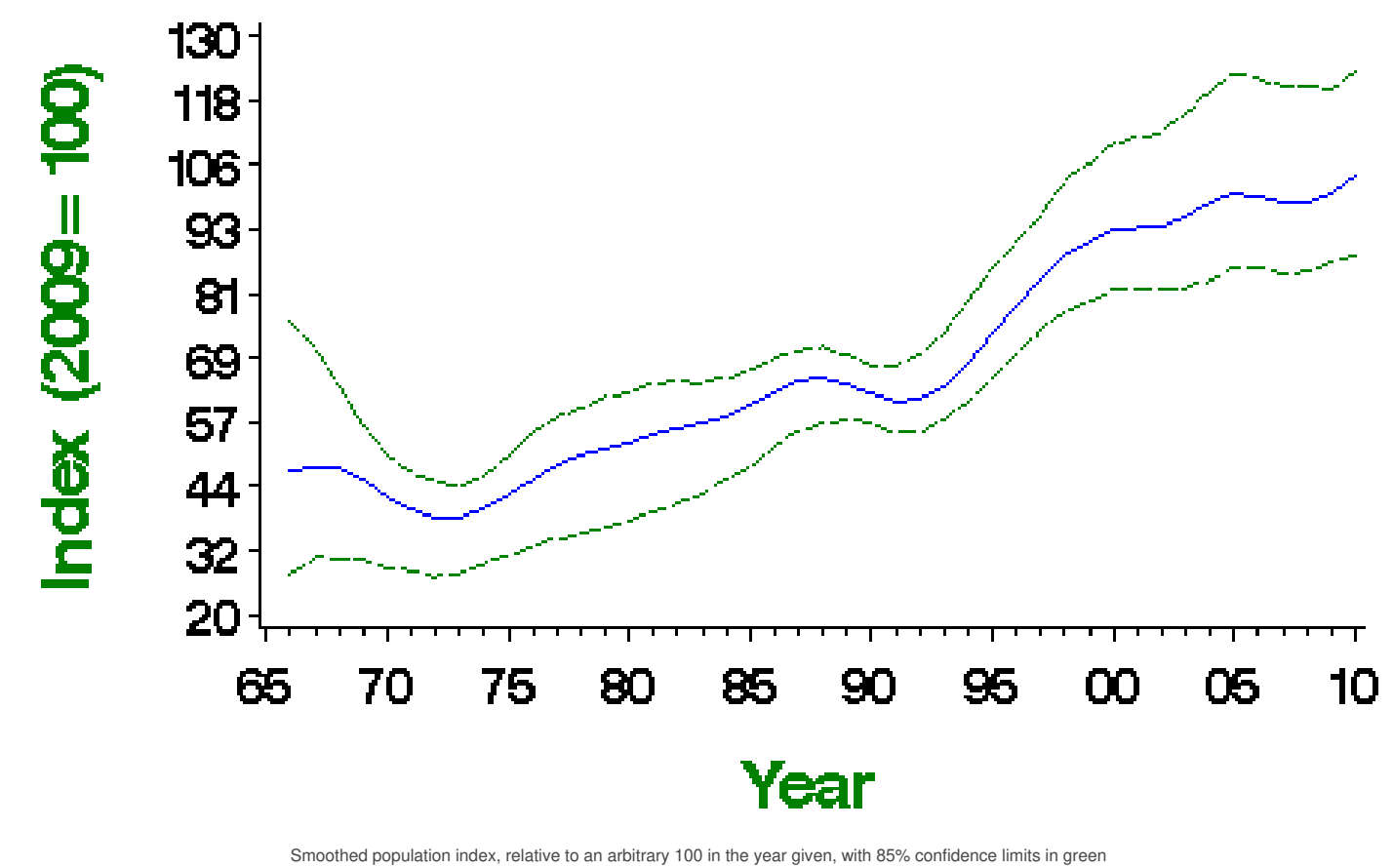
Migrant status:	Long-distance migrant
Nesting habitat:	Above-ground nester
Primary breeding habitat:	Wetland
Secondary breeding habitat:	
Breeding diet:	Animal
Winter diet:	Animal

Status summary

This species has an unusually clumped distribution, with very high breeding concentrations in Phragmites reedbeds, where numbers are very hard to census. 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. Both CBC/BBS and WBS/WBBS show progressive moderate increases. CES, however, shows a decline from 1983 until the early 1990s, followed by a partial recovery, and another more recent decline. 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).

CBC/BBS UK 1966–2010

Reed Warbler



Population changes in detail

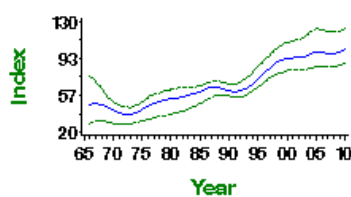
Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS UK	42	1967-2009	61	107	15	312		
	25	1984-2009	88	73	31	185		
	10	1999-2009	141	10	-3	24		
	5	2004-2009	159	2	-10	15		
CBC/BBS England	42	1967-2009	58	81	17	230		
	25	1984-2009	83	54	19	107		
	10	1999-2009	134	7	-3	25		
	5	2004-2009	150	4	-6	17		
WBS/WBBS waterways	28	1981-2009	42	74	-4	267		
	25	1984-2009	45	77	-5	231		
	10	1999-2009	74	-7	-23	9		
	5	2004-2009	75	-6	-17	6		
CES adults	25	1984-2009	55	-35	-49	-13	>25	
	10	1999-2009	62	-27	-35	-18	>25	
	5	2004-2009	61	-10	-17	-1		
CES juveniles	25	1984-2009	57	49	-18	258		
	10	1999-2009	64	-7	-24	17		
	5	2004-2009	63	5	-11	26		
BBS UK	14	1995-2009	122	30	13	56		
	10	1999-2009	136	14	2	31		
	5	2004-2009	159	4	-5	15		
BBS England	14	1995-2009	116	26	8	53		
	10	1999-2009	129	11	-1	26		
	5	2004-2009	150	5	-5	16		

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



CBC/BBS UK 1966–2010

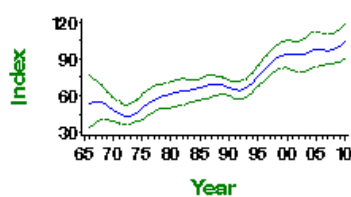
Reed Warbler



CBC/BBS UK graph

CBC/BBS England 1966–2010

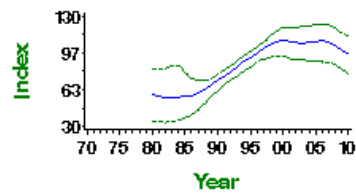
Reed Warbler



CBC/BBS England graph

WBS/WBBS 1980—2010

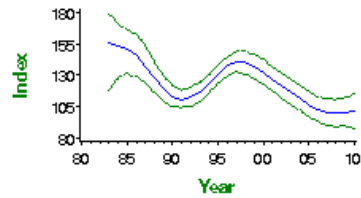
Reed Warbler



WBS/WBBS waterways graph

CES adult abundance 1983—2010

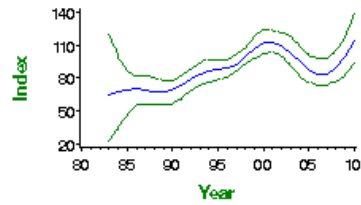
Reed Warbler



CES adults graph

CES juvenile abundance 1983—2010

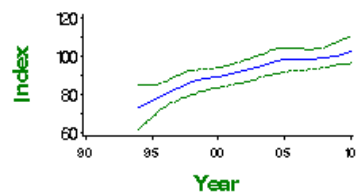
Reed Warbler



CES juveniles graph

BBS UK 1994—2010

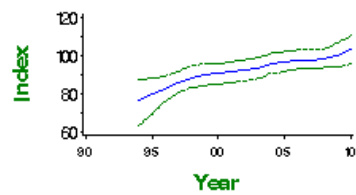
Reed Warbler



BBS UK graph

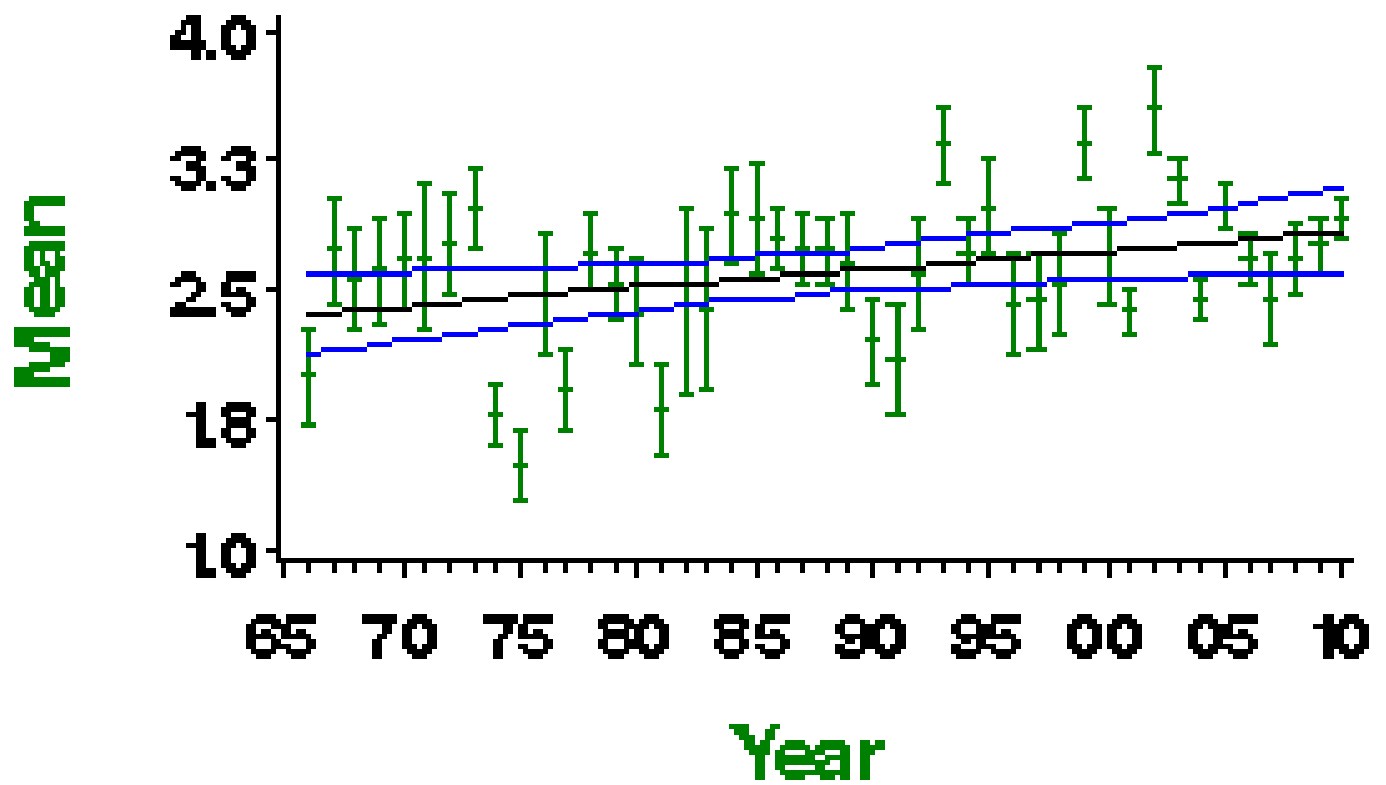
BBS England 1994—2010

Reed Warbler



BBS England graph

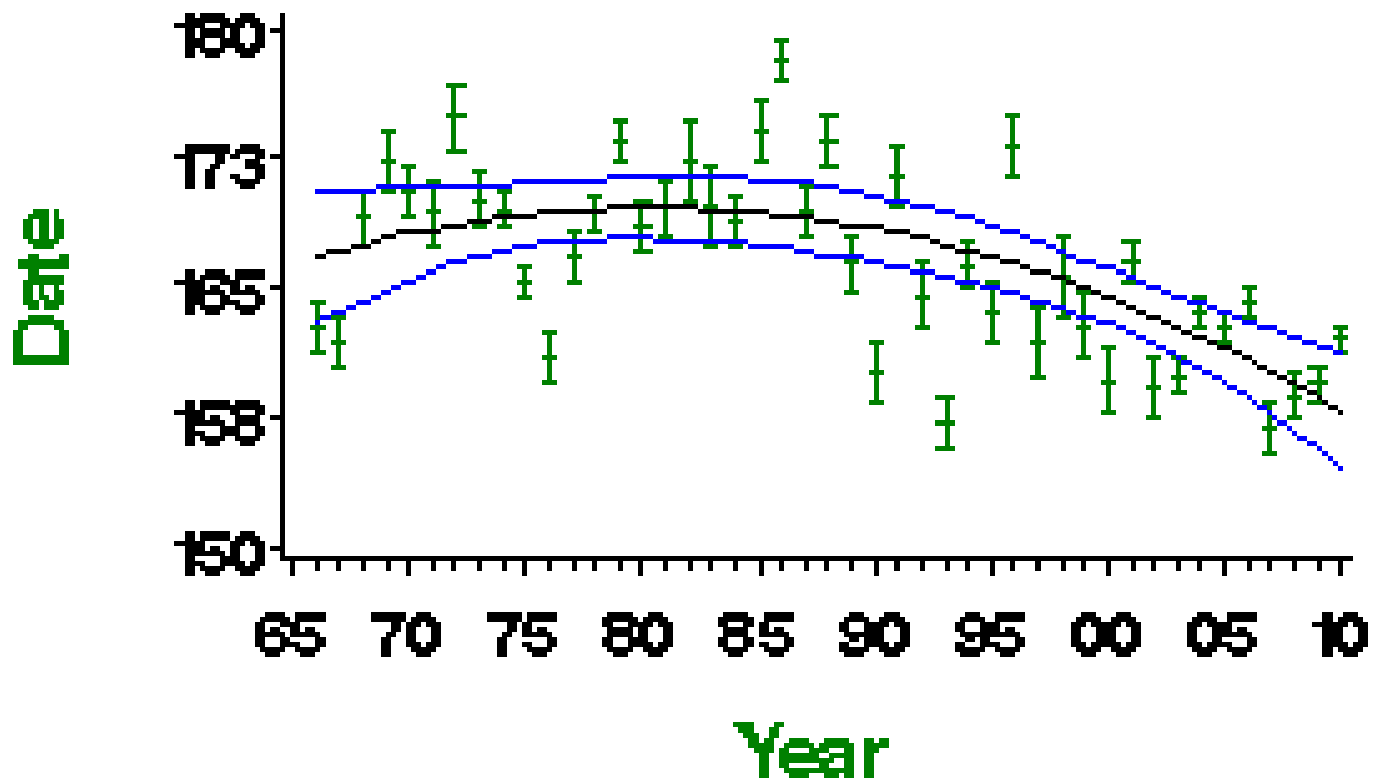
Fledglings per breeding attempt 1966–2010 Reed Warbler



Mean number of fledglings produced per nest - green bars represent standard error and black line shows long-term trend

Laying date 1966–2010

Reed Warbler



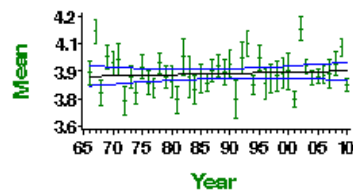
More on demographic trends

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Fledglings per breeding attempt	41	1968-2009	82	Linear increase	2.38 fledglings	2.83 fledglings	18.7%		
Clutch size	41	1968-2009	121	None					
Brood size	41	1968-2009	140	None					
Nest failure rate at egg stage	41	1968-2009	152	None					
Nest failure rate at chick stage	41	1968-2009	117	Linear decline	2.02% nests/day	0.59% nests/day	-70.8%		
Laying date	41	1968-2009	173	Curvilinear	Jun 17	Jun 8	-9 days		
Juvenile to Adult ratio (CES)	25	1984-2009	61	Smoothed trend	68 Index value	100 Index value	46%		
Juvenile to Adult ratio (CES)	10	1999-2009	69	Smoothed trend	93 Index value	100 Index value	8%		
Juvenile to Adult ratio (CES)	5	2004-2009	68	Smoothed trend	95 Index value	100 Index value	5%		

For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).

Clutch size 1966—2010

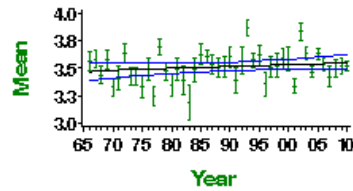
Reed Warbler



Mean number of eggs per nest - green bars represent standard error and black line shows long-term trend

Brood size 1966—2010

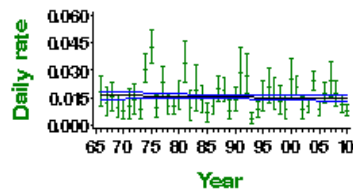
Reed Warbler



Mean number of chicks per nest - green bars represent standard error and black line shows long-term trend

Egg stage nest failure rate

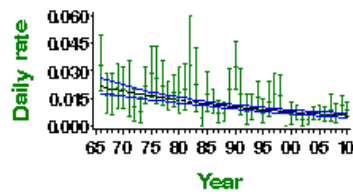
Reed Warbler



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Chick stage nest failure rate

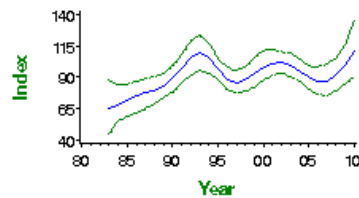
Reed Warbler



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

CES productivity 1983—2010

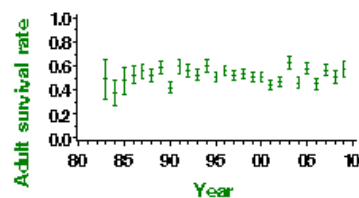
Reed Warbler



Smoothed long-term trend in ratio of juvenile:adult birds caught - green lines indicate 85% confidence limits

CES survival 1983—2009

Reed Warbler



Proportion of adult birds surviving to following year - green bars represent 95% confidence limits

Causes of change

Breeding performance has increased, with some suggestion that this may be related to warming climate or improved habitat management, although the evidence for this is sparse.

Change factor	Primary driver	Secondary driver
Demographic	Increased breeding success	
Ecological	Climate change	

Further information on causes of change

There is some evidence to suggest that this species has benefited from warmer climates. Reed Warblers have shown a trend towards earlier laying (see above), which can be partly explained by recent climate change (Crick & Sparks 1999, Halupka et al. 2008). Halupka et al. 2008 analysed changes in breeding parameters of Polish Reed Warblers, studied during 12 breeding seasons between 1970 and 2006, and found that the onset of breeding advanced with warming temperatures, although the end of breeding did not change, thus resulting in an extension of the breeding season. The lengthening of the laying period by about three weeks meant that more birds were able to rear second broods. Furthermore, mean temperature during May-July correlated negatively with the proportion of nests that failed and there was some evidence of a positive relationship with the number of fledglings. The data show a linear increase in the numbers of fledglings per breeding attempt, and a small improvement is apparent in CES productivity, although there is no available evidence to suggest that this is related to changing climate. Breeding performance as measured by brood size has also improved slightly.

Both CBC/BBS and WBS/WBBS trends show progressive moderate increases perhaps linked to increasingly sensitive management of small and linear wetland sites. Thaxter et al. (2006) analysed data from two sites and found indirect evidence linking good habitat management to local abundance and survival.

As this species is a migrant it is possible that factors operating outside the breeding season may be responsible for changes in population in the UK. Thaxter et al. (2006) found that, unlike in the Sedge Warbler, rainfall in the Sahel region of West Africa did not account for variation in survival rates over time and did not correlate with variation in adult Reed Warbler abundance in the UK.

Julliard (2004) found that the French Reed Warbler population appears to be strongly regulated and that population growth rate was more influenced by survival rate than by recruitment. There is no evidence from the UK regarding survival rates.

Species references

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Julliard, R. (2004) Estimating the contribution of survival and recruitment to large scale population dynamics. *Animal Biodiversity and Conservation* 27: 417-426.

Robertson, D. (2003) Eurasian Reed Warblers in Scotland: a review of probable breeding records. *Scottish Birds* 24: 36-39.

Thaxter, C.B., Redfern, C.P.F. & Bevan, R.M. (2006) Survival rates of adult Reed Warblers *Acrocephalus scirpaceus* at a northern and southern site in England. *Ringing & Migration* 23: 65-79.

This report should be cited as: Baillie, S.R., Marchant, J.H., Leech, D.I., Renwick, A.R., Eglington, S.M., Joys, A.C., Noble, D.G., Barimore, C., Conway, G.J., Downie, I.S., Risely, K. & Robinson, R.A. (2012). *BirdTrends 2011*. BTO Research Report No. 609. BTO, Thetford. <https://www.bto.org/birdtrends>

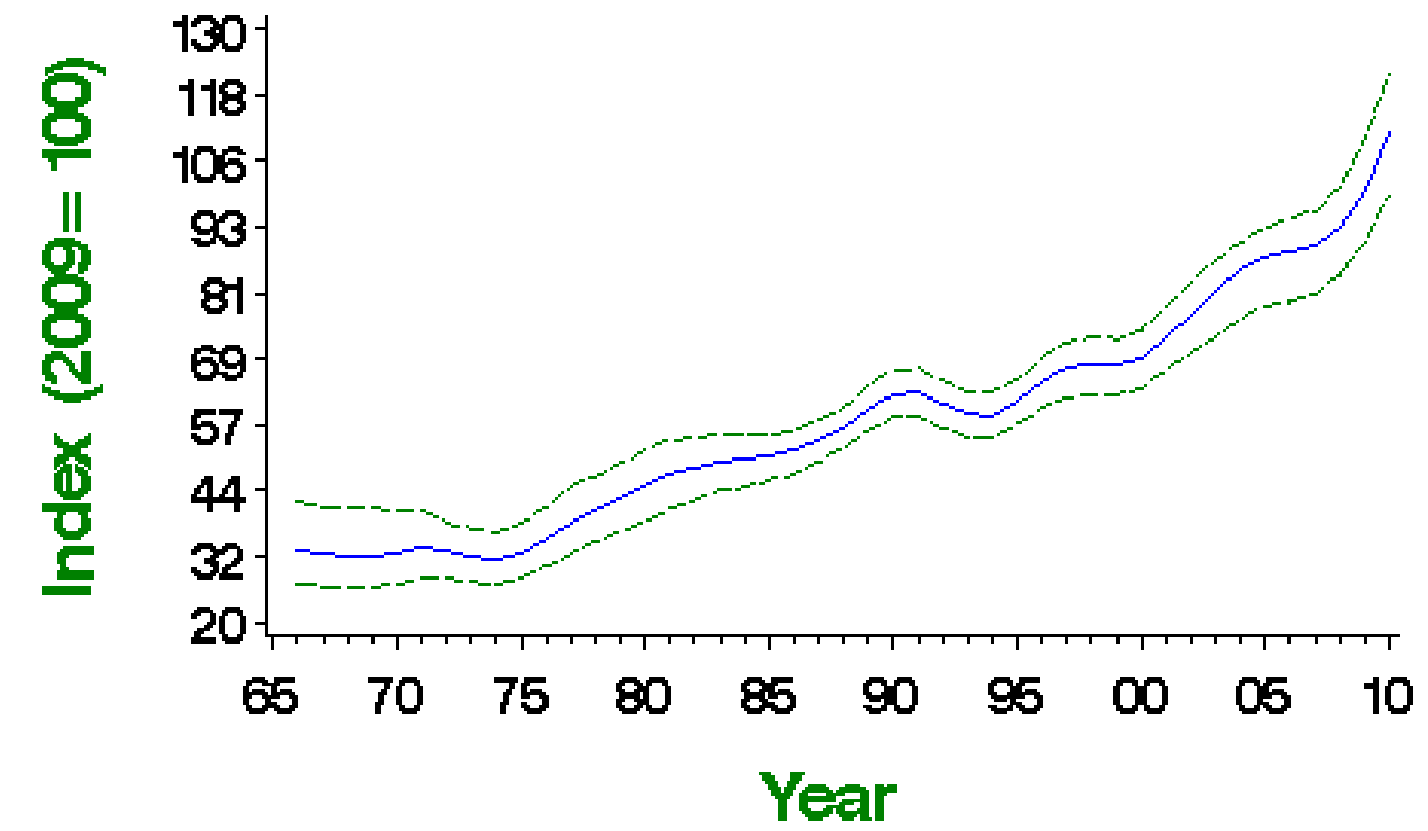
Key facts

Conservation listings:	Europe: no SPEC category (not concentrated in Europe, conservation status favourable) (BiE04) UK: green (BoCC3)
Long-term trend:	UK, England: rapid increase
Population size:	144,000 territories in 2000 (1988-91 Atlas estimate updated using CBC/BBS trend: BiE04, APEP06)
Migrant status:	Resident
Nesting habitat:	Cavity nester
Primary breeding habitat:	Woodland
Secondary breeding habitat:	
Breeding diet:	Animal
Winter diet:	Vegetation

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. Numbers have shown widespread moderate increase across Europe since 1980 (PECBMS 2011a).

CBC/BBS UK 1966–2010
Nuthatch



Smoothed population index, relative to an arbitrary 100 in the year given, with 85% confidence limits in green

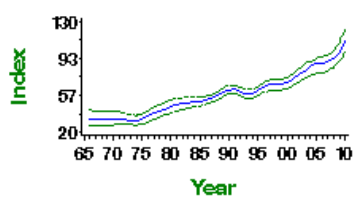
Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS UK	42	1967-2009	203	206	111	314		
	25	1984-2009	304	99	65	146		
	10	1999-2009	516	48	37	60		
	5	2004-2009	589	17	11	25		
CBC/BBS England	42	1967-2009	174	220	141	359		
	25	1984-2009	259	102	66	154		
	10	1999-2009	436	55	43	72		
	5	2004-2009	502	21	14	31		
BBS UK	14	1995-2009	435	66	47	82		
	10	1999-2009	498	48	34	61		
	5	2004-2009	582	20	13	28		
BBS England	14	1995-2009	365	71	53	91		
	10	1999-2009	420	55	41	72		
	5	2004-2009	496	24	16	34		
BBS Wales	14	1995-2009	68	33	7	68		
	10	1999-2009	76	15	-4	41		
	5	2004-2009	84	2	-12	19		

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



CBC/BBS UK 1966—2010

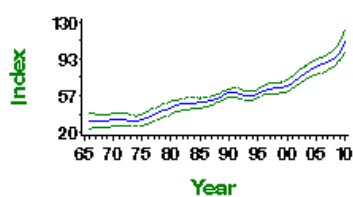
Nuthatch



CBC/BBS UK graph

CBC/BBS England 1966—2010

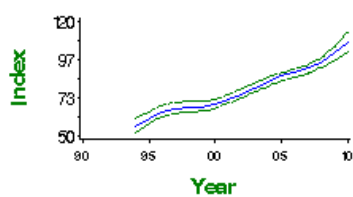
Nuthatch



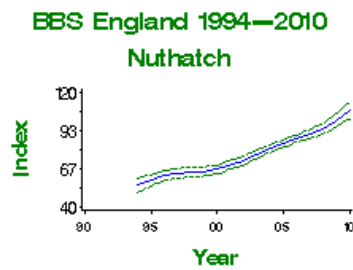
CBC/BBS England graph

BBS UK 1994—2010

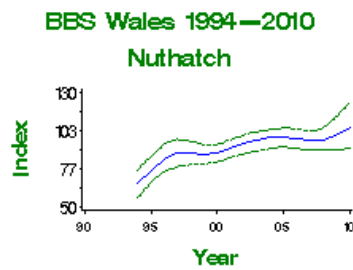
Nuthatch



BBS UK graph



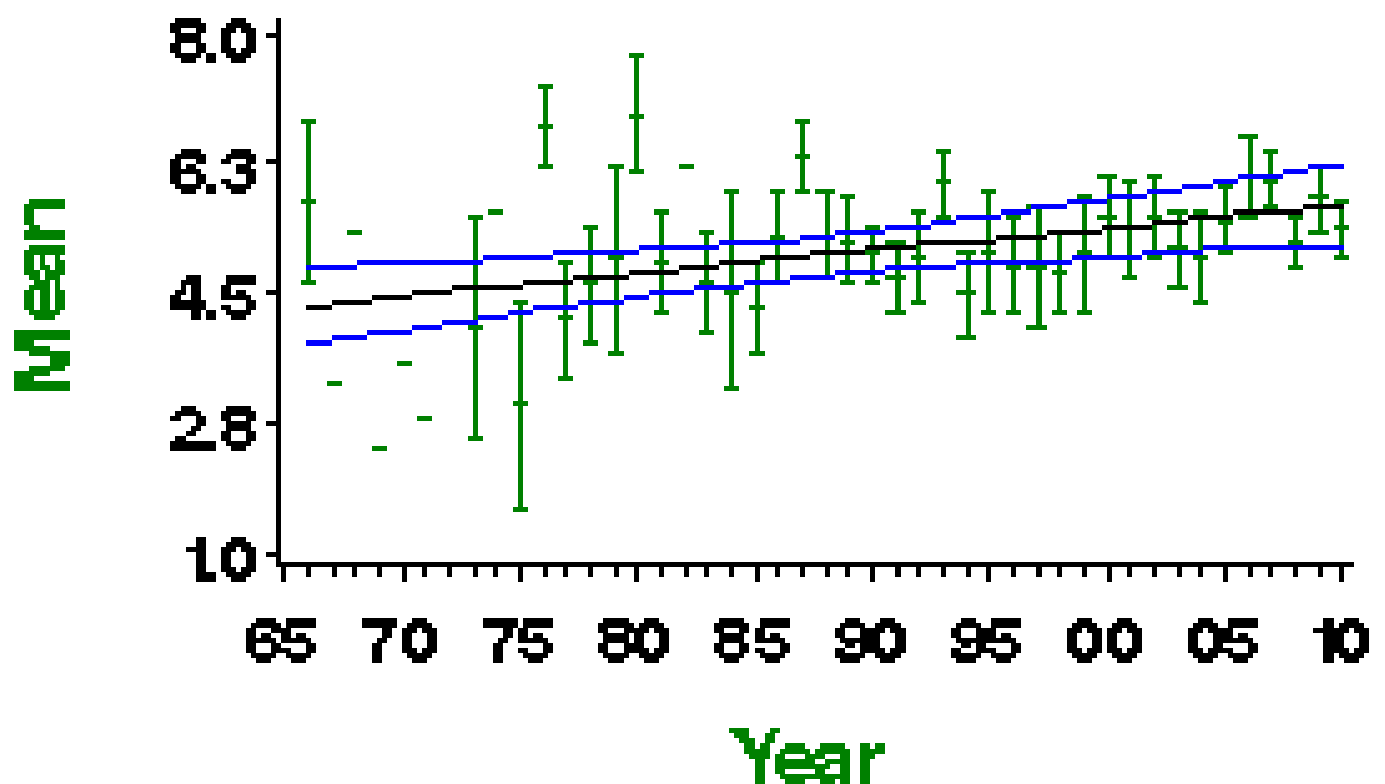
BBS England graph



BBS Wales graph

Demographic trends

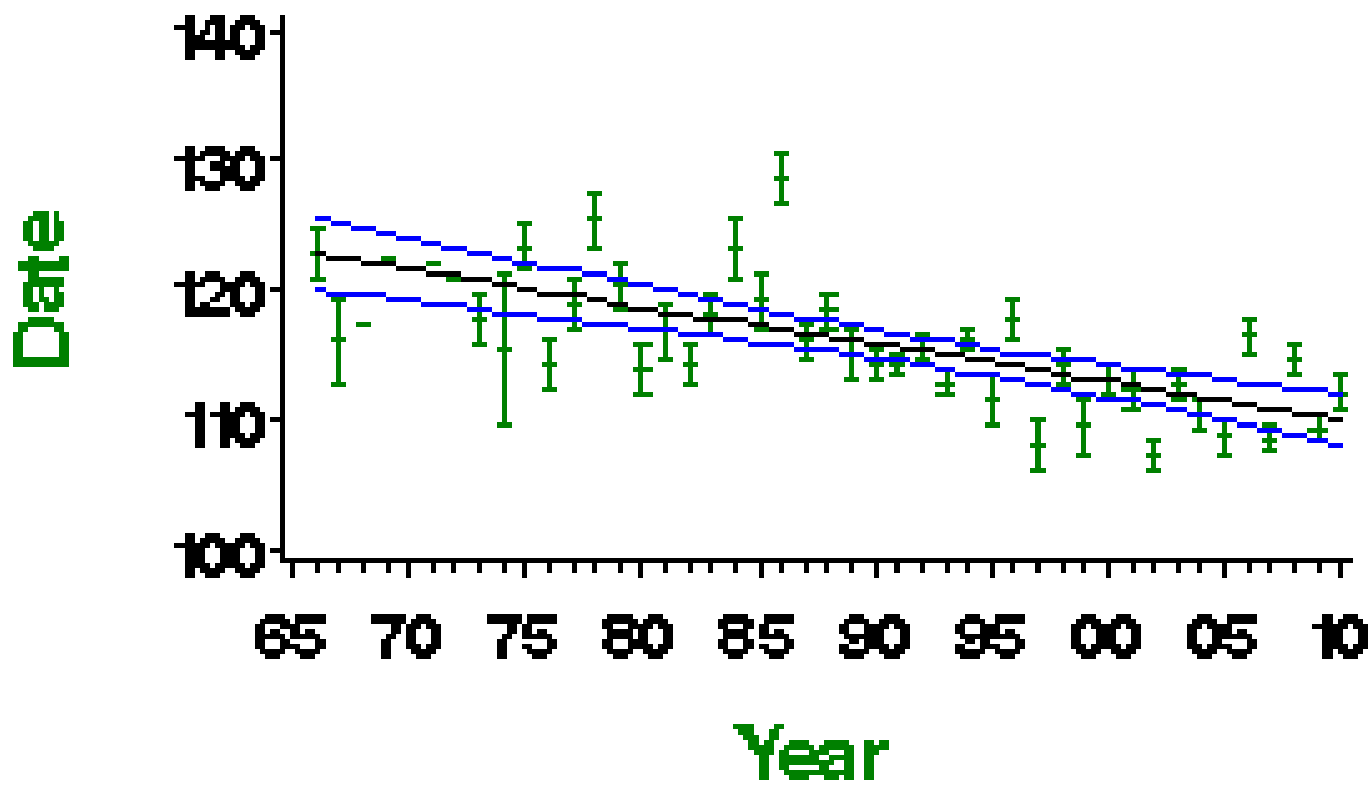
Fledglings per breeding attempt 1966—2010 Nuthatch



Mean number of fledglings produced per nest - green bars represent standard error and black line shows long-term trend

Laying date 1966—2010

Nuthatch



Mean laying date in Julian days (1st April = Day 90) - green bars represent standard error and black line shows long-term trend

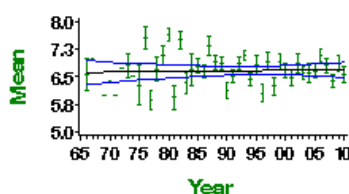
More on demographic trends

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Fledglings per breeding attempt	41	1968-2009	22	Linear increase	4.40 fledglings	5.66 fledglings	28.8%		
Clutch size	41	1968-2009	28	None					Small sample
Brood size	41	1968-2009	70	Curvilinear	4.35 chicks	5.22 chicks	20.1%		
Nest failure rate at egg stage	41	1968-2009	50	Linear decline	0.95% nests/day	0.21% nests/day	-77.9%		
Nest failure rate at chick stage	41	1968-2009	57	Linear decline	0.45% nests/day	0.21% nests/day	-53.3%		
Laying date	41	1968-2009	28	Linear decline	May 2	Apr 20	-12 days		Small sample

For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).

Clutch size 1966—2010

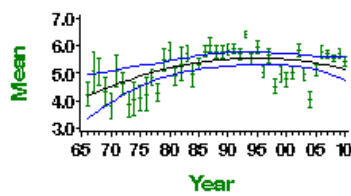
Nuthatch



Mean number of eggs per nest - green bars represent standard error and black line shows long-term trend

Brood size 1966–2010

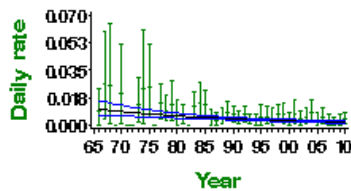
Nuthatch



Mean number of chicks per nest - green bars represent standard error and black line shows long-term trend

Egg stage nest failure rate

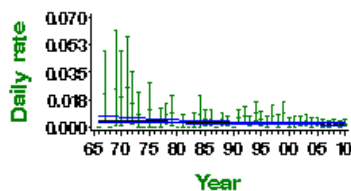
Nuthatch



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Chick stage nest failure rate

Nuthatch



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Causes of change

The demographic causes of the population increase appear to be an increase in the number of fledglings per breeding attempt, larger brood sizes and a decrease in daily failure rates. However, it is unclear what the ecological drivers of these changes are.

Change factor	Primary driver	Secondary driver
Demographic	Increased breeding success	
Ecological	Unknown	

Further information on causes of change

As shown above, the number of fledglings per breeding attempt has increased. There was also a large increase in brood size up to the 1990s, although this has now stabilised, while daily failure rate has fallen.

There is little evidence relating to Nuthatch population change in the UK. However, studies from Europe provide evidence that mild winters are likely to have helped this species. Kallander (1997) used a long-term data set (1977-1991) to provide good evidence that Nuthatches in a Swedish national park had a population size in spring which co-varied positively with winter temperatures and suggest that increases in population size may be associated with increasing mean winter temperature. Nilsson (1982, 1987) also found that mortality was concentrated in winter and that starvation was probably the major cause. However, a long-term study in Poland from 1975 to 1990 found that bird numbers in spring were not significantly correlated with the severity of the preceding winter, though winter survival was higher in the unusually mild winter of 1989/90, which had a rich supply of hornbeam seeds (Wesolowski & Stawarczyk 1991). It is not possible to say whether such factors have also operated in the UK, as the climate here is considerably different.

Several studies have also reported a link between population size and the size of food availability in the autumn. A study of two Nuthatch populations in Sweden provided good evidence that autumn population size was correlated with the size of the hazelnut crop, suggesting food supplies play a role, although beechmast size was not correlated with overwinter survival and nor was autumn population size correlated with the population density in spring (Enoksson & Nilsson 1983, Enoksson 1990). In the studies by Nilsson mentioned above, the main density-dependent factor, recruitment of young of the year to the autumn population, was positively related to the current beechmast supply and negatively to the density of adults (Nilsson 1982, 1987). A long-term study in Poland from 1975 to 1990 also found that Nuthatch numbers seemed to be influenced by autumn seed supply and also availability of caterpillars in the preceding spring (Wesolowski & Stawarczyk 1991). Another continental study in Europe found that local survival in autumn was higher in beechmast years for juveniles, but not for adults and that local winter survival was not higher in years with than in years without beechmast (Matthysen 1989). Thus there is some evidence that increases in population size are linked to food supplies, but again, this has not been directly tested for UK birds.

Although there is no direct evidence available, Nuthatches are known to favour dead wood, and so it is possible that they may have benefited from the increase in dead wood in the UK (Amar et al. 2010).

In Belgium, competition for nest sites with the non-native, invasive Ring-necked Parakeet was found to be detrimental to Nuthatches (Strubbe & Matthysen 2009). However, there is evidence showing that this is not a problem in the UK at present (Newson et al. 2011).

The reasons for the decline in Nuthatches in Wales are unknown.

Species references

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Nilsson, S.G. (1982) Seasonal variation in the survival rate of adult Nuthatches *Sitta europaea* in Sweden. *Ibis* 124: 96-100.

Nilsson, S.G. (1987) Limitation and regulation of population density in the Nuthatch *Sitta europaea* (Aves) breeding in natural cavities. *Journal of Animal Ecology* 56: 921-937.

PECBMS (2011a) Population Trends of Common European Breeding Birds 2011. CSO, Prague. [Full text](#)

Strubbe, D. & Matthysen, E. (2009) Experimental evidence for nest-site competition between invasive Ring-necked Parakeets (*Psittacula krameri*) and native Nuthatches (*Sitta europaea*). *Biological Conservation* 142: 1588-1594.

Wesolowski, T. & Stawarczyk, T. (1991) Survival and population dynamics of Nuthatches *Sitta europaea* breeding in natural cavities in a primeval temperate forest. *Ornis Scandinavica* 22: 143-154.

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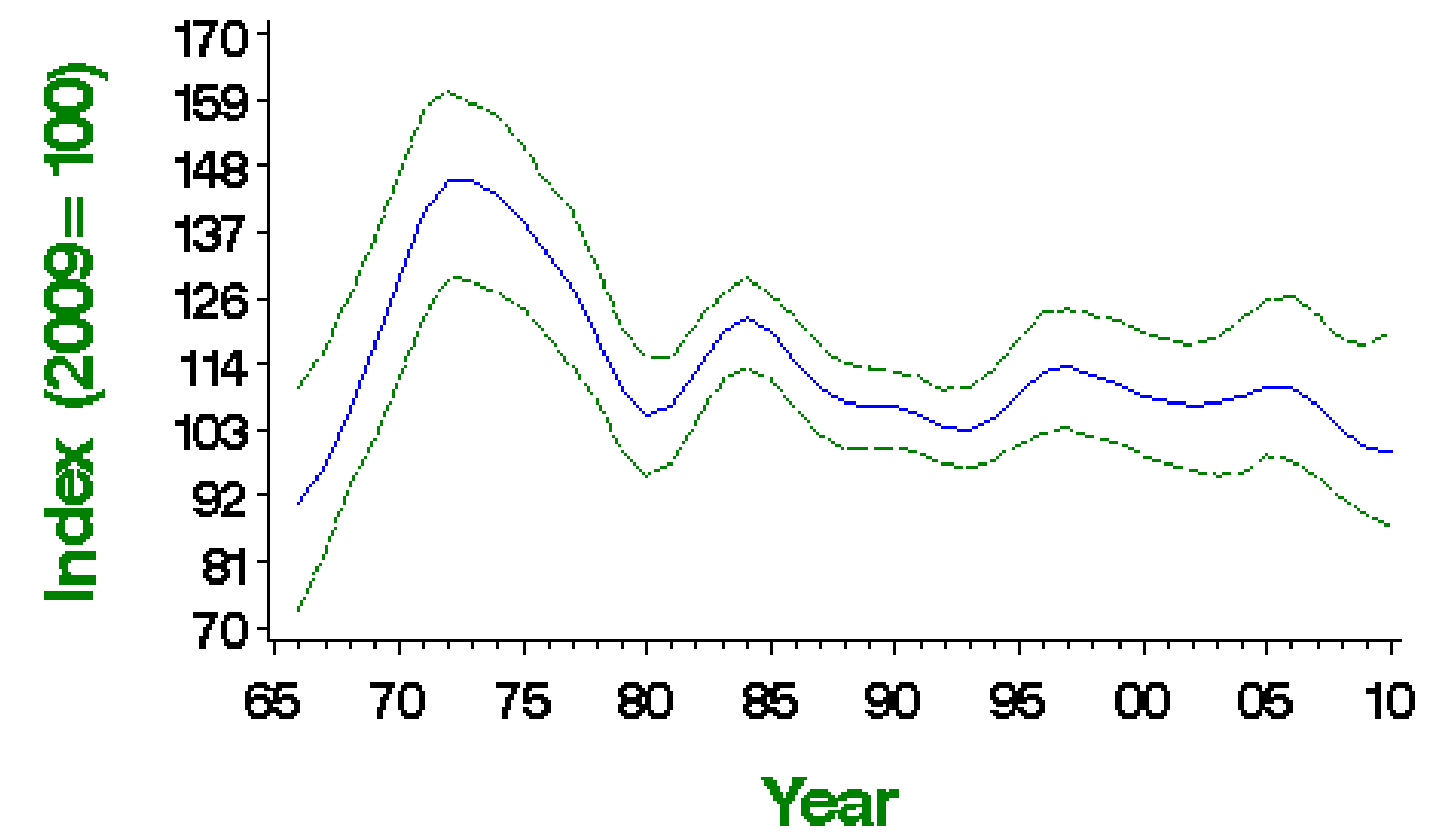
Key facts

Conservation listings:	Europe: no SPEC category (not concentrated in Europe, conservation status favourable) (BiE04) UK: green (species level); amber (race britannica, >20% of European breeders) (BoCC3)
Long-term trend:	UK, England: fluctuating, with no long-term trend
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).

CBC/BBS UK 1966–2010
Treecreeper



Smoothed population index, relative to an arbitrary 100 in the year given, with 85% confidence limits in green

Population changes in detail

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS UK	42	1967-2009	195	2	-24	41		
	25	1984-2009	261	-18	-31	3		
	10	1999-2009	373	-10	-23	8		
	5	2004-2009	391	-8	-15	3		

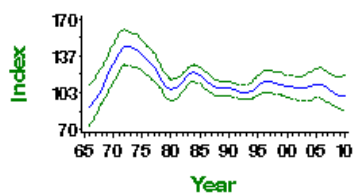
CBC/BBS England Source	Period (yrs)	1967-2009 Years	1952s (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
	25	1984-2009	200	-19	-33	-4		
	10	1999-2009	276	-8	-17	2		
	5	2004-2009	288	-3	-13	9		
CES adults	25	1984-2009	38	20	-15	83		
	10	1999-2009	43	-2	-19	18		
	5	2004-2009	40	-5	-22	15		
CES juveniles	25	1984-2009	60	48	7	119		
	10	1999-2009	69	26	5	48		
	5	2004-2009	63	-3	-19	14		
BBS UK	14	1995-2009	329	-6	-19	9		
	10	1999-2009	357	-11	-24	4		
	5	2004-2009	391	-7	-18	4		
BBS England	14	1995-2009	241	-11	-22	2		
	10	1999-2009	259	-11	-21	-1		
	5	2004-2009	284	-4	-12	5		
BBS Scotland	14	1995-2009	37	-2	-39	45		
	10	1999-2009	40	10	-38	67		
	5	2004-2009	50	-4	-31	23		
BBS Wales	14	1995-2009	40	1	-30	43		
	10	1999-2009	44	-34	-53	-13	>25	
	5	2004-2009	42	-17	-37	4		

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



CBC/BBS UK 1966—2010

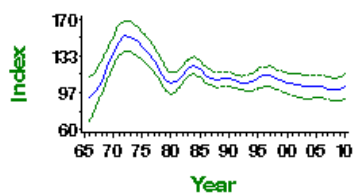
Treecreeper



CBC/BBS UK graph

CBC/BBS England 1966—2010

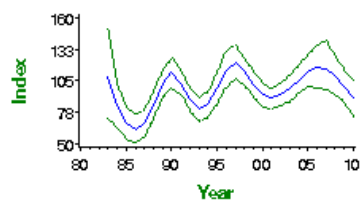
Treecreeper



CBC/BBS England graph

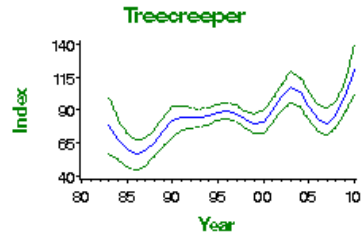
CES adult abundance 1983—2010

Treecreeper



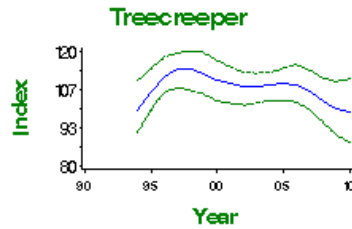
CES adults graph

CES juvenile abundance 1983–2010



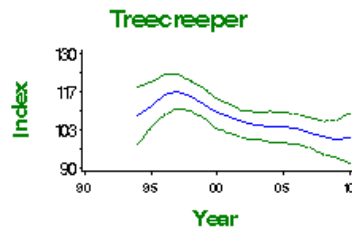
CES juveniles graph

BBS UK 1994–2010



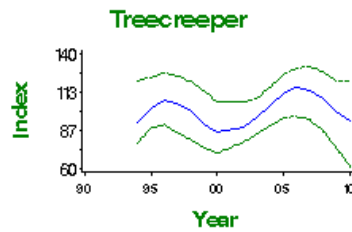
BBS UK graph

BBS England 1994–2010



BBS England graph

BBS Scotland 1994–2010



BBS Scotland graph

BBS Wales 1994–2010



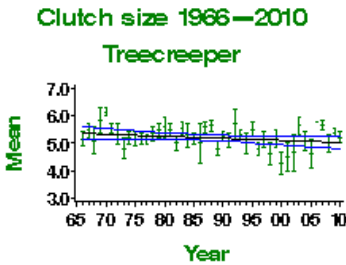
BBS Wales graph

Demographic trends

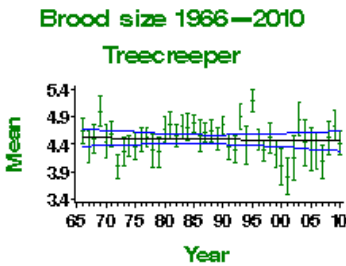
Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Clutch size	41	1968-2009	13	None					Small sample
Brood size	41	1968-2009	28	None					Small sample
Nest failure rate at egg stage	41	1968-2009	21	Curvilinear	2.36% nests/day	1.46% nests/day	-38.1%		Small sample
Nest failure rate at chick stage	41	1968-2009	22	Curvilinear	1.50% nests/day	1.46% nests/day	-2.7%		Small sample

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in May	Modelled in Aug	Change in days	Alert	Sample
Laying date	41	1966-2009	13	Linear decline	7	26			
Juvenile to Adult ratio (CES)	25	1984-2009	68	Smoothed trend	80 Index value	100 Index value	24%		
Juvenile to Adult ratio (CES)	10	1999-2009	77	Smoothed trend	77 Index value	100 Index value	30%		
Juvenile to Adult ratio (CES)	5	2004-2009	71	Smoothed trend	100 Index value	100 Index value	0%		

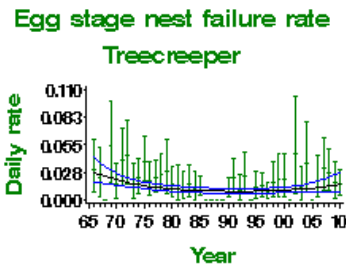
For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).



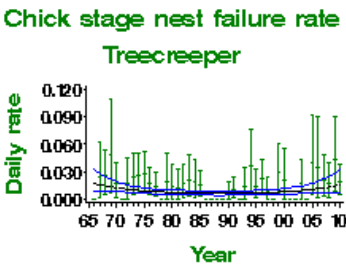
Mean number of eggs per nest - green bars represent standard error and black line shows long-term trend



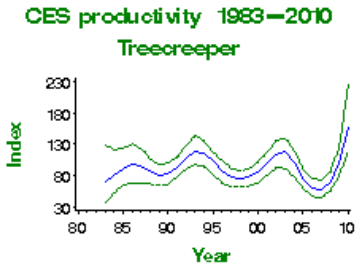
Mean number of chicks per nest - green bars represent standard error and black line shows long-term trend



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend



Smoothed long-term trend in ratio of juvenile:adult birds caught - green lines indicate 85% confidence limits

Wren

Troglodytes troglodytes

Key facts

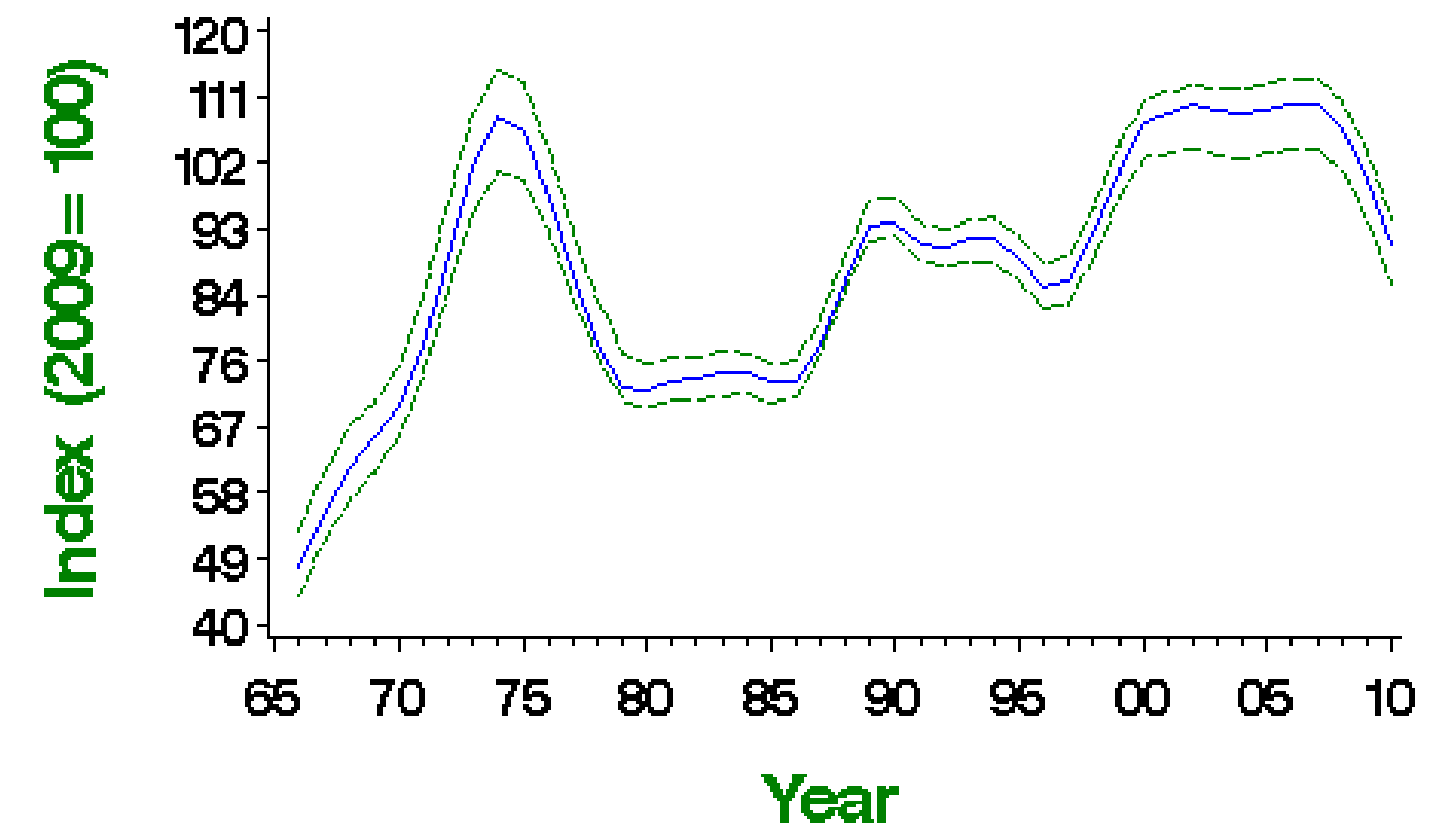
Conservation listings:	Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe) (BiE04) UK: green (species level); amber (race <i>indigenus</i> , >20% of European breeders; races <i>hebridensis</i> and <i>zetlandicus</i> , >20% of European breeders, European status); red (races <i>fridariensis</i> and <i>hirtensis</i> , rare breeders of global importance) (BoCC3) UK Biodiversity Action Plan: priority species (Fair Isle & Long-term trend :	UK, England: moderate increase
Population size:	8,512,000 territories in 2000 (1988-91 Atlas estimate updated using CBC/BBS trend: BiE04, APEP06)	
Migrant status:	Resident	
Nesting habitat:	Above-ground nester	
Primary breeding habitat:	Woodland	
Secondary breeding habitat:		
Breeding diet:	Animal	
Winter diet:	Animal	

Status summary

The Wren's current UK population estimate is the highest for any species. Abundance can vary sharply from year to year, however, although this is not evident from the smoothed trends presented here. 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. Numbers have shown widespread moderate increase across Europe since 1980 (PECBMS 2011a).

CBC/BBS UK 1966—2010

Wren



Smoothed population index, relative to an arbitrary 100 in the year given, with 85% confidence limits in green

Population changes in detail

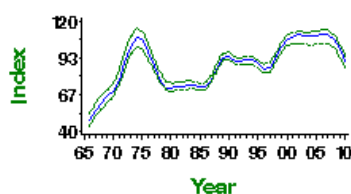
Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS UK	42	1967-2009	995	81	56	102		
	25	1984-2009	1518	35	24	46		
	10	1999-2009	2643	-1	-4	1		
	5	2004-2009	2949	-8	-10	-6		
CBC/BBS England	42	1967-2009	789	80	56	103		
	25	1984-2009	1193	32	22	43		
	10	1999-2009	2056	1	-2	3		
	5	2004-2009	2299	-6	-7	-3		
CES adults	25	1984-2009	99	30	11	54		
	10	1999-2009	111	-14	-21	-7		
	5	2004-2009	107	-15	-21	-9		
CES juveniles	25	1984-2009	98	23	-8	70		
	10	1999-2009	111	-11	-21	1		
	5	2004-2009	106	-11	-20	0		
BBS UK	14	1995-2009	2361	12	7	16		
	10	1999-2009	2607	0	-3	2		
	5	2004-2009	2949	-9	-10	-7		
BBS England	14	1995-2009	1809	8	4	11		
	10	1999-2009	1985	2	-2	4		
	5	2004-2009	2232	-7	-9	-5		
BBS Scotland	14	1995-2009	226	31	22	54		
	10	1999-2009	243	-7	-12	7		
	5	2004-2009	287	-21	-22	-10		
BBS Wales	14	1995-2009	194	1	-10	9		
	10	1999-2009	221	-7	-14	-1		
	5	2004-2009	233	-16	-20	-10		
BBS N.Ireland	14	1995-2009	90	63	23	99		
	10	1999-2009	103	1	-7	12		
	5	2004-2009	112	1	-5	9		

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



CBC/BBS UK 1966–2010

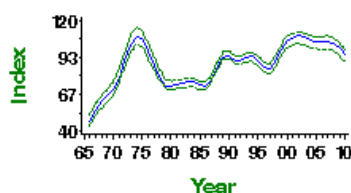
Wren



CBC/BBS UK graph

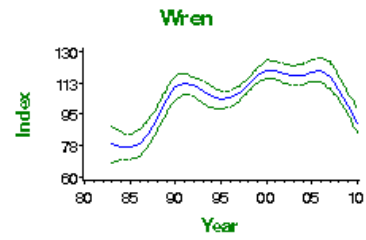
CBC/BBS England 1966–2010

Wren



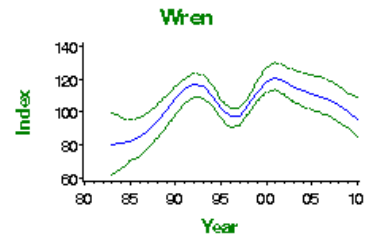
CBC/BBS England graph

CES adult abundance 1983—2010



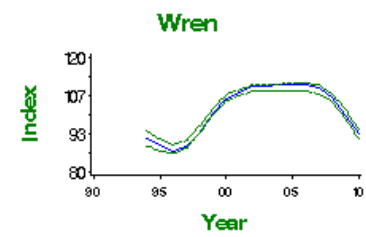
CES adults graph

CES juvenile abundance 1983—2010



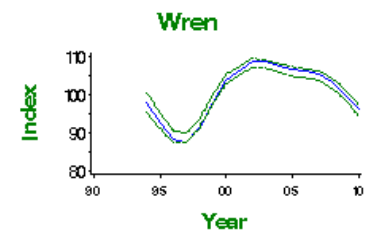
CES juveniles graph

BBS UK 1994—2010



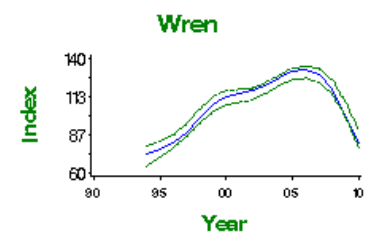
BBS UK graph

BBS England 1994—2010



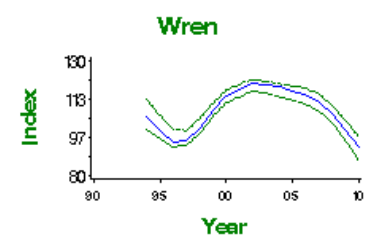
BBS England graph

BBS Scotland 1994—2010



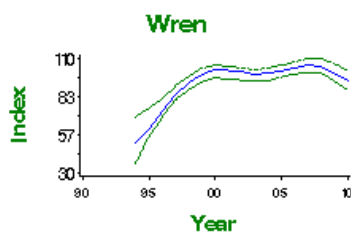
BBS Scotland graph

BBS Wales 1994—2010



BBS Wales graph

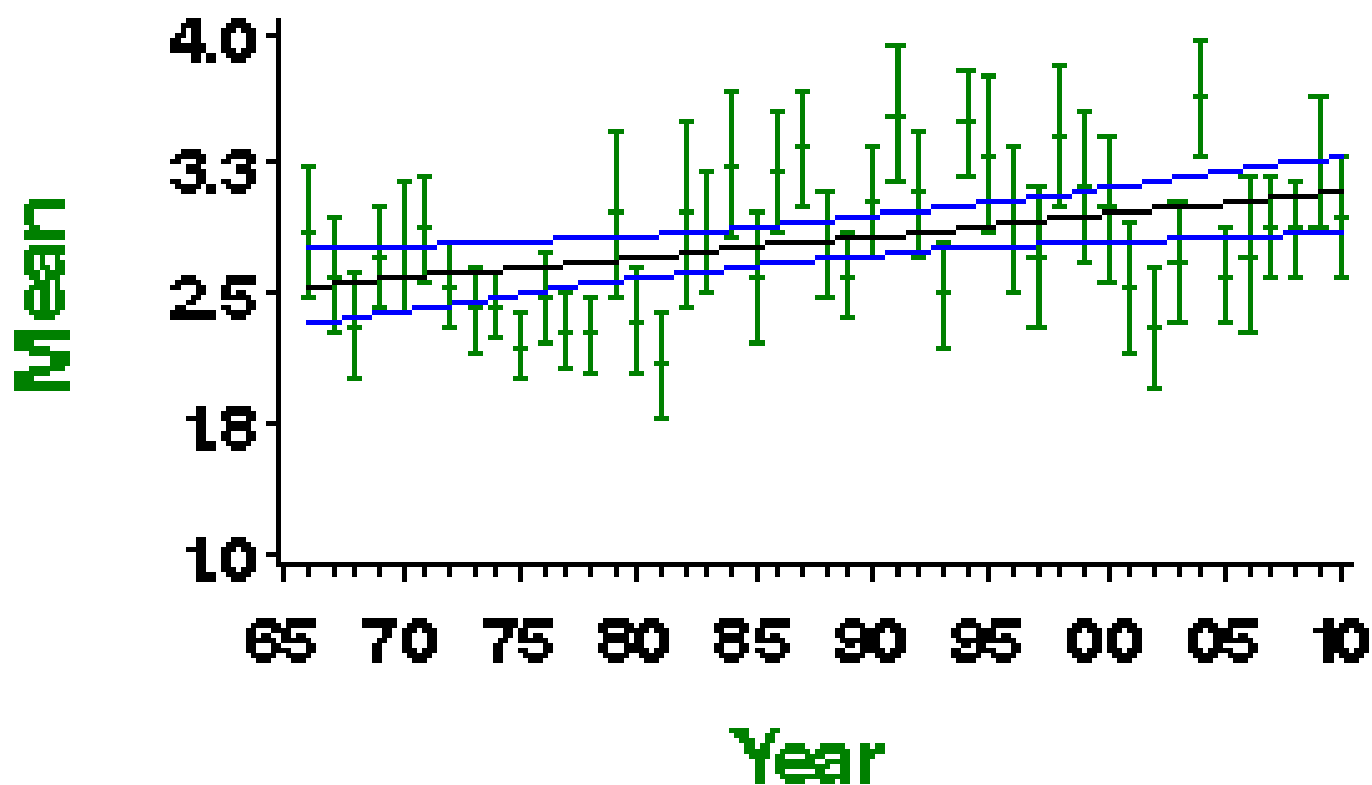
BBS N. Ireland 1994–2010



BBS N.Ireland graph

Demographic trends

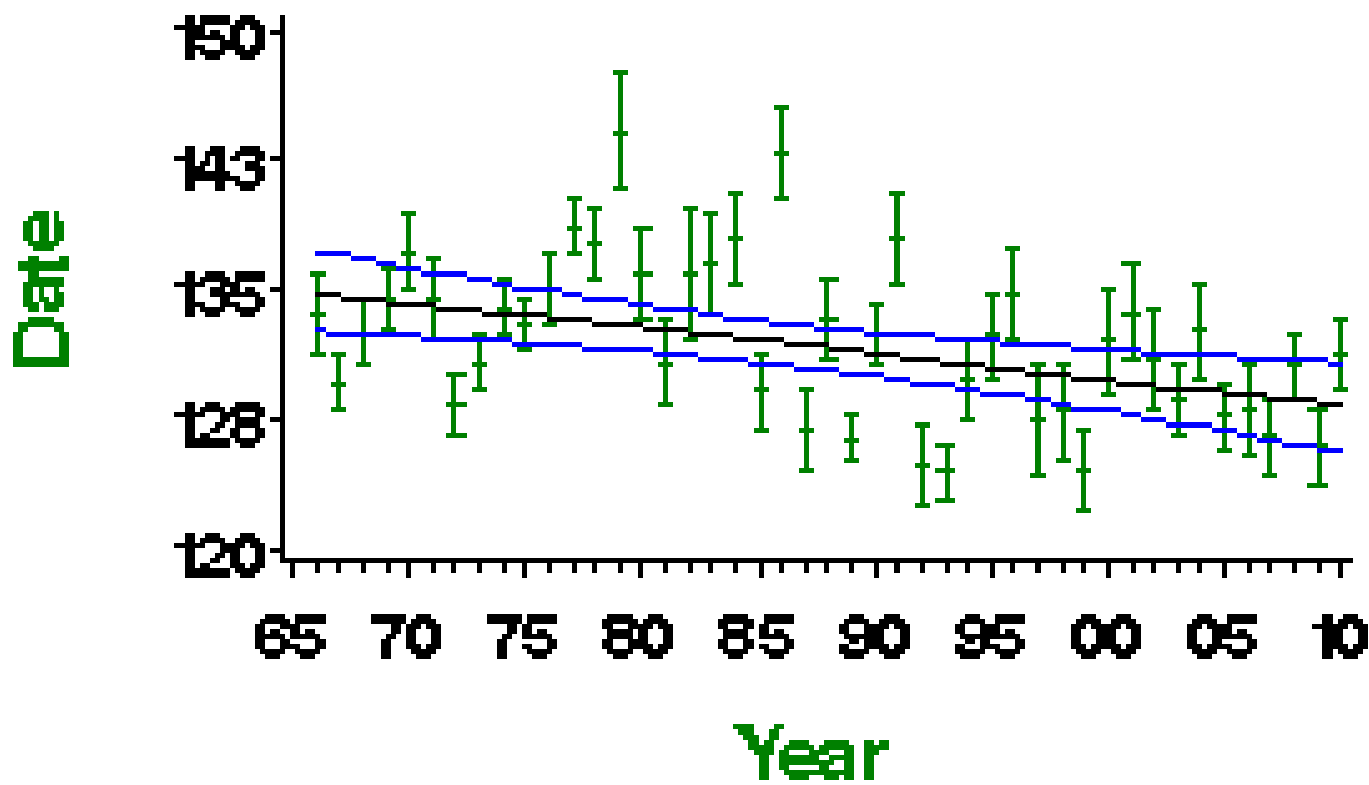
Fledglings per breeding attempt 1966–2010 Wren



Mean number of fledglings produced per nest - green bars represent standard error and black line shows long-term trend

Laying date 1966–2010

Wren



Mean laying date in Julian days (1st April = Day 90) - green bars represent standard error and black line shows long-term trend

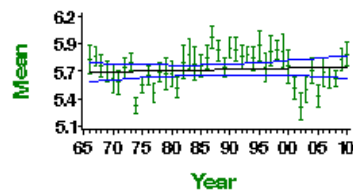
More on demographic trends

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Fledglings per breeding attempt	41	1968-2009	60	Linear increase	2.57 fledglings	3.06 fledglings	19.3%		
Clutch size	41	1968-2009	95	None					
Brood size	41	1968-2009	99	Curvilinear	4.71 chicks	4.67 chicks	-0.8%		
Nest failure rate at egg stage	41	1968-2009	139	Linear decline	1.88% nests/day	1.21% nests/day	-35.6%		
Nest failure rate at chick stage	41	1968-2009	96	None					
Laying date	41	1968-2009	88	Linear decline	May 15	May 8	-7 days		
Juvenile to Adult ratio (CES)	25	1984-2009	102	Smoothed trend	104 Index value	100 Index value	-3%		
Juvenile to Adult ratio (CES)	10	1999-2009	115	Smoothed trend	98 Index value	100 Index value	2%		
Juvenile to Adult ratio (CES)	5	2004-2009	110	Smoothed trend	100 Index value	100 Index value	0%		

For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).

Clutch size 1966—2010

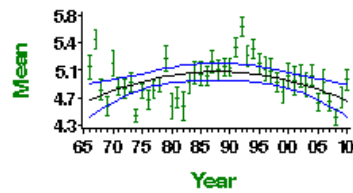
Wren



Mean number of eggs per nest - green bars represent standard error and black line shows long-term trend

Brood size 1966—2010

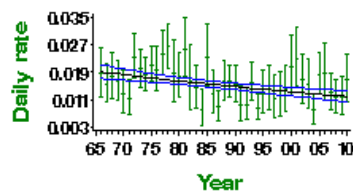
Wren



Mean number of chicks per nest - green bars represent standard error and black line shows long-term trend

Egg stage nest failure rate

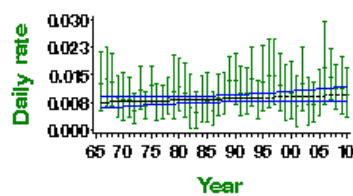
Wren



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Chick stage nest failure rate

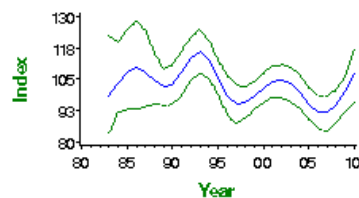
Wren



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

CES productivity 1983—2010

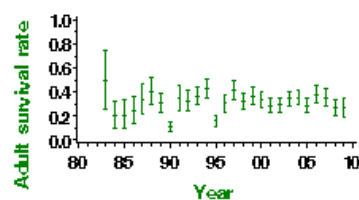
Wren



Smoothed long-term trend in ratio of juvenile:adult birds caught - green lines indicate 85% confidence limits

CES survival 1983—2009

Wren



Proportion of adult birds surviving to following year - green bars represent 95% confidence limits

Causes of change

There is good evidence that mortality rates are severely affected by cold winter weather. Thus, a warming climate may have benefited this species, although there is only circumstantial evidence for this.

Change factor	Primary driver	Secondary driver
Demographic	Increased survival	
Ecological	Climate change	

Further information on causes of change

There has been a reduction in the failure rate of nests at the egg stage but there have been few other directional changes in demographic parameters presented here (see above), perhaps reflecting the strong influence of annual climatic variation on this species overriding any more subtle long-term trends.

There is good evidence that annual numbers are influenced by mortality rates and that mortality may be very high in severe winters (Peach et al. 1995). Wren survival rates were negatively correlated with the number of snow days in winter (Peach et al. 1995). Robinson et al. (2007) showed that survival is related to the strength of the North Atlantic Oscillation, an ocean-scale weather pattern that has a strong influence on UK weather. First-year survival was more influenced by weather than that of adult birds, although adult survival was also affected. This suggests that a warming climate may benefit this species.

Species references

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This report should be cited as: Baillie, S.R., Marchant, J.H., Leech, D.I., Renwick, A.R., Eglington, S.M., Joys, A.C., Noble, D.G., Barimore, C., Conway, G.J., Downie, I.S., Risely, K. & Robinson, R.A. (2012). BirdTrends 2011. BTO Research Report No. 609. BTO, Thetford. <https://www.bto.org/birdtrends>

Starling

Sturnus vulgaris

Key facts

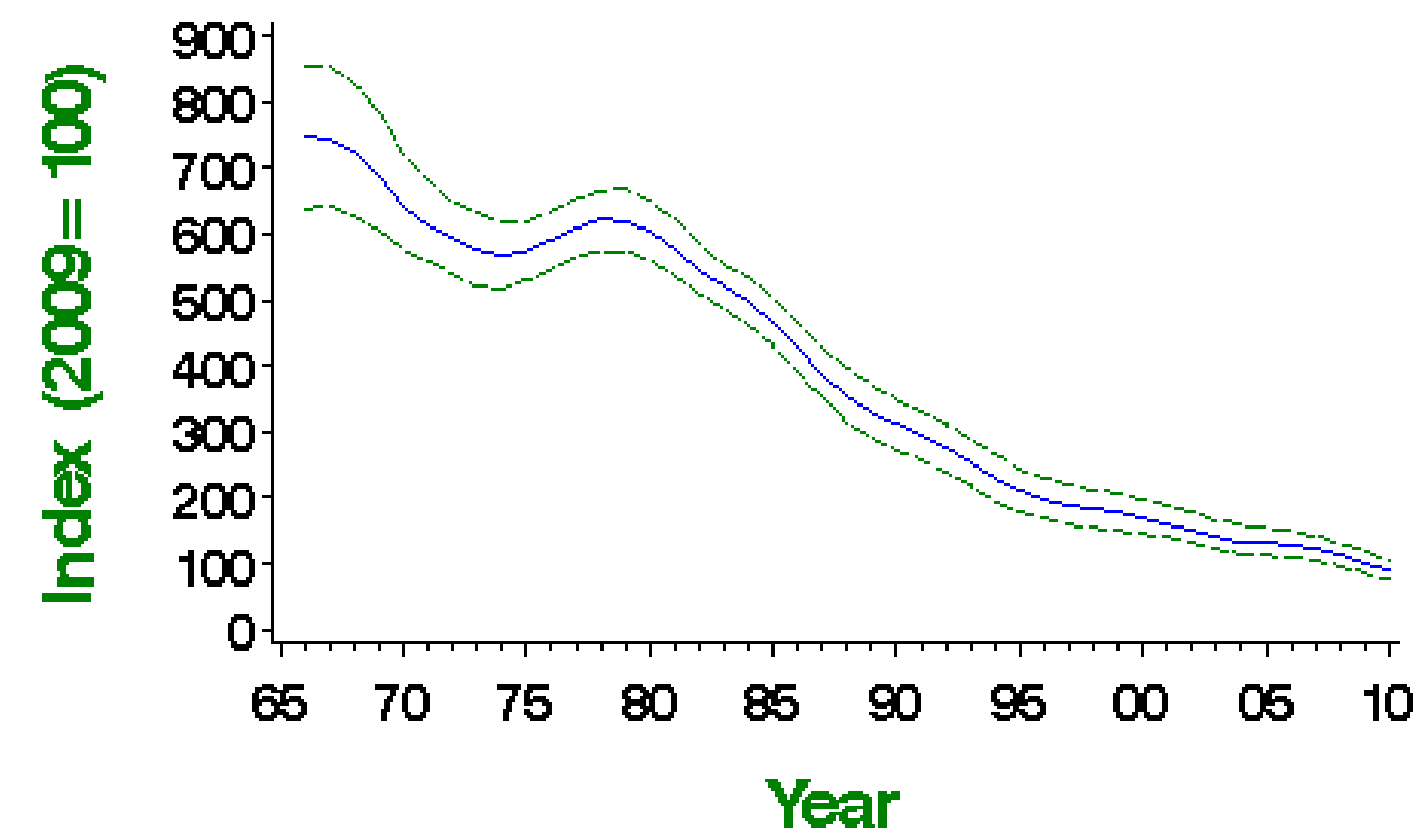
Conservation listings:	Europe: SPEC category 3 (declining) (BiE04) UK: red (species level, race <i>vulgaris</i>); amber (race <i>zetlandicus</i> , >20% of European breeders) (BoCC3) UK Biodiversity Action Plan: priority species
Long-term trend:	England: rapid decline
Population size:	804,000 territories in 2000 (1988-91 Atlas estimate updated using CBC/BBS trend: BiE04, APEP06); 8,500,000 birds in Britain in 1994-2000 (Robinson <i>et al.</i> 2005a)
Migrant status:	Resident
Nesting habitat:	Cavity nester
Primary breeding habitat:	Farmland
Secondary breeding habitat:	
Breeding diet:	Animal
Winter diet:	Vegetation

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. 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 moderate decrease across Europe since 1980 (PECBMS 2011a).

CBC/BBS England 1966–2010

Starling



Smoothed population index, relative to an arbitrary 100 in the year given, with 85% confidence limits in green

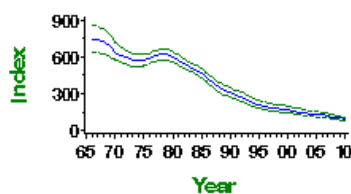
Population changes in detail

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS England	42	1967-2009	584	-87	-90	-82	>50	
	25	1984-2009	900	-80	-83	-76	>50	
	10	1999-2009	1526	-44	-46	-39	>25	
	5	2004-2009	1646	-26	-29	-20	>25	
BBS UK	14	1995-2009	1734	-45	-48	-41	>25	
	10	1999-2009	1841	-41	-44	-37	>25	
	5	2004-2009	1988	-27	-31	-21	>25	
BBS England	14	1995-2009	1421	-51	-54	-47	>50	
	10	1999-2009	1501	-44	-46	-40	>25	
	5	2004-2009	1623	-26	-30	-21	>25	
BBS Scotland	14	1995-2009	144	-29	-40	-12	>25	
	10	1999-2009	152	-35	-46	-22	>25	
	5	2004-2009	168	-27	-40	-11	>25	
BBS Wales	14	1995-2009	82	-63	-72	-49	>50	
	10	1999-2009	87	-48	-57	-36	>25	
	5	2004-2009	85	-30	-40	-16	>25	
BBS N.Ireland	14	1995-2009	77	26	1	71		
	10	1999-2009	90	-31	-44	-16	>25	
	5	2004-2009	98	-34	-51	-15	>25	

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.

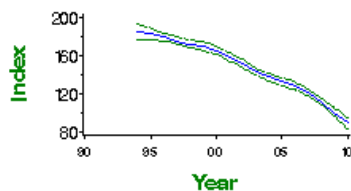


CBC/BBS England 1966–2010 Starling



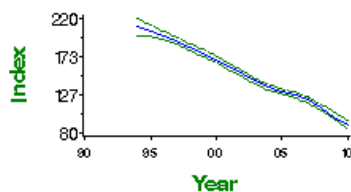
CBC/BBS England graph

BBS UK 1994–2010 Starling



BBS UK graph

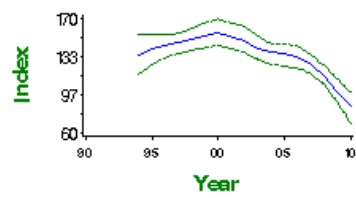
BBS England 1994–2010 Starling



BBS England graph

BBS Scotland 1994—2010

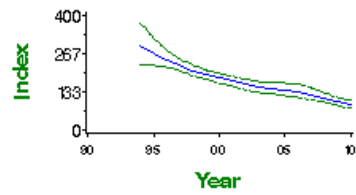
Starling



BBS Scotland graph

BBS Wales 1994—2010

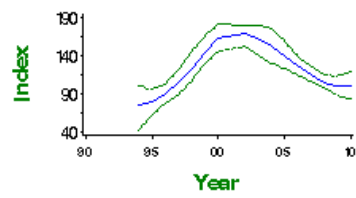
Starling



BBS Wales graph

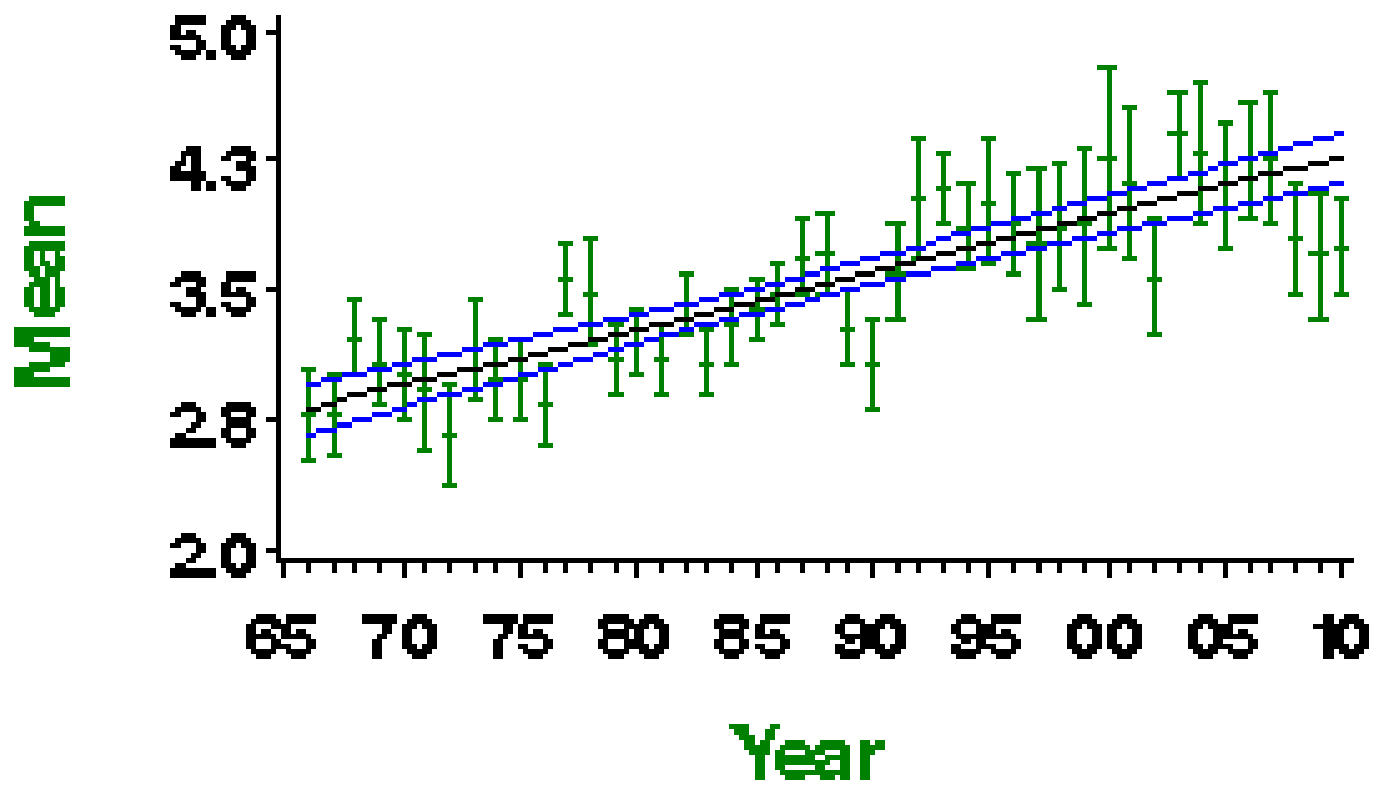
BBS N. Ireland 1994—2010

Starling



BBS N.Ireland graph

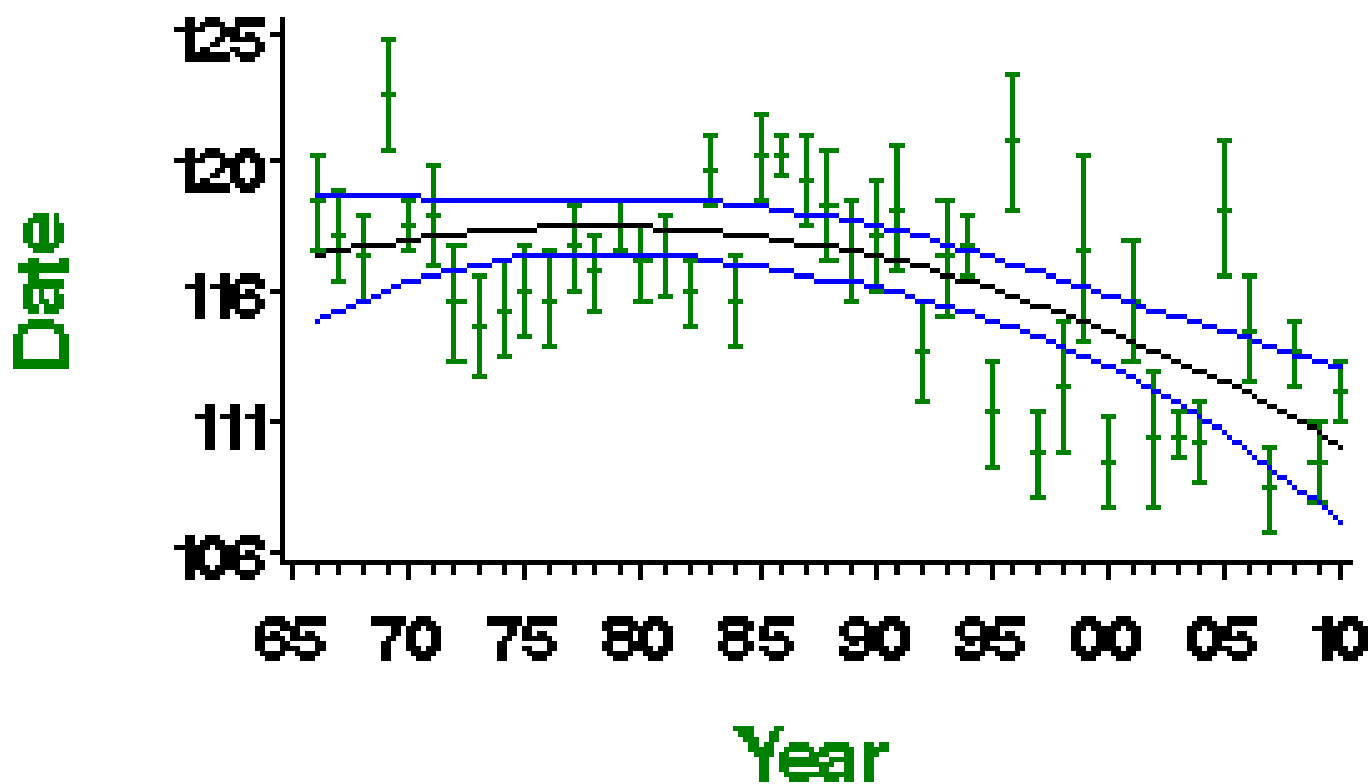
Fledglings per breeding attempt 1966–2010 Starling



Mean number of fledglings produced per nest - green bars represent standard error and black line shows long-term trend

Laying date 1966—2010

Starling



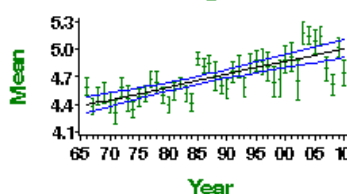
More on demographic trends

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Fledglings per breeding attempt	41	1968-2009	63	Linear increase	2.88 fledglings	4.22 fledglings	46.7%		
Clutch size	41	1968-2009	76	Linear increase	4.43 eggs	5.00 eggs	12.9%		
Brood size	41	1968-2009	214	Linear increase	3.30 chicks	3.71 chicks	12.5%		
Nest failure rate at egg stage	41	1968-2009	120	Linear decline	1.14% nests/day	0.23% nests/day	-79.8%		
Nest failure rate at chick stage	41	1968-2009	134	Linear decline	0.58% nests/day	0.20% nests/day	-65.5%		
Laying date	41	1968-2009	84	Curvilinear	Apr 27	Apr 20	-7 days		

For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).

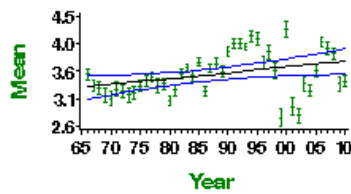
Clutch size 1966—2010

Starling



Brood size 1966–2010

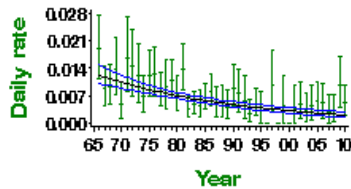
Starling



Mean number of chicks per nest - green bars represent standard error and black line shows long-term trend

Egg stage nest failure rate

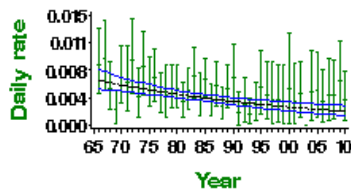
Starling



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Chick stage nest failure rate

Starling



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Causes of change

There is good evidence that changes in first-year overwinter survival rates best account for observed population change. Although direct evidence explaining the ecological drivers behind this is lacking, changes in the management of pastoral farmland are thought to be largely responsible.

Change factor	Primary driver	Secondary driver
Demographic	Decreased juvenile survival	
Ecological	Unknown	

Further information on causes of change

As the population has dropped, the numbers of fledglings per breeding attempt has increased markedly (see above); clutches are now larger, and rates of nest loss at the egg and chick stage have fallen. These improvements in breeding performance suggest that decreasing survival rates are likely to be responsible for the decline. Evidence for this is provided by Freeman et al. (2007), who conducted a population modelling exercise and found that changes in first-year overwinter survival rates could best account for observed population change, and were sufficient, on their own, to explain the broad pattern of decline. The decline in survival rates nationwide coincided with the major period of population decline. MacLeod et al. (2008) also provide evidence linking Starling declines to the non-breeding-season environmental conditions, suggesting that the species' population status is dependent on interactive or synergistic effects of food availability and predation.

There is little direct evidence from studies analysing the ecological drivers of the declines. However, changes in pastoral farming practices are likely to account for at least some of the decline in the wider countryside, probably related to changes in food resources, though these are largely unquantified (Robinson et al. 2005). 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, 2005). Whilst the number of cattle has declined, sheep numbers have increased, producing a different sward structure (Chamberlain et al. 2000, Fuller & Gough 1999) and patterns of stock rearing have changed. These may have reduced foraging opportunities for Starling (Robinson et al. 2002, 2005). Also the use of insecticides on grassland, though low, is targeted partly at tipulids, which may have reduced foraging opportunities further (Vickery et al. 2001). Although there is little published evidence that the density of tipulids has changed over time (Wilson et al. 1999), the area of permanent pasture has declined and the use of insecticides on them has increased. Drainage of grasslands is also thought to have reduced the quality of foraging conditions (Newton 2004).

Further research into urban Starling population dynamics is to be encouraged if we are to understand the causes of decline of this charismatic species more fully.

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Wilson, J.D., Morris, A.J., Arroyo, B.E., Clark, S.C. & Bradbury, R.B. (1999) A review of the abundance and diversity of invertebrate and plant foods of granivorous birds in northern Europe in relation to agricultural change. *Agriculture, Ecosystems & Environment* 75: 13-30.

This report should be cited as: Baillie, S.R., Marchant, J.H., Leech, D.I., Renwick, A.R., Eglington, S.M., Joys, A.C., Noble, D.G., Barimore, C., Conway, G.J., Downie, I.S., Risely, K. & Robinson, R.A. (2012). BirdTrends 2011. BTO Research Report No. 609. BTO, Thetford. <https://www.bto.org/birdtrends>

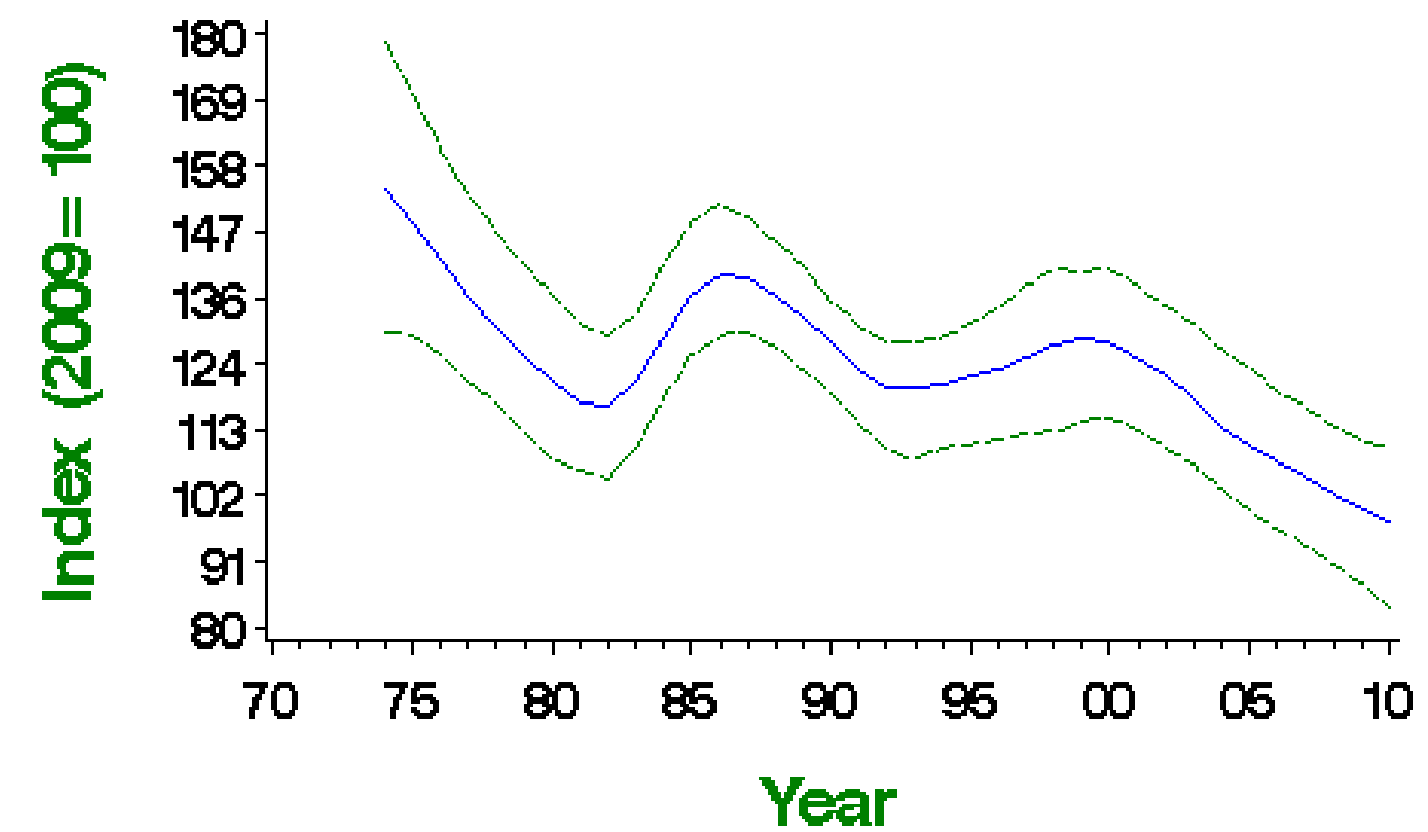
Key facts

Conservation listings:	Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe) (BiE04) UK: green (species level); amber (race gularis, >20% of European breeders; race hibernicus, >20% of European breeders, European status) (BoCC3)
Long-term trend:	UK waterways: moderate decline
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. In a river system in southern Norway, climate variables including winter temperature explained 84% of the variation in population level during 1978-2008 (Nilsson et al. 2011).

WBS/WBBS 1974–2010
Dipper



Smoothed population index, relative to an arbitrary 100 in the year given, with 85% confidence limits in green

Population changes in detail

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
WBS/WBBS waterways	34	1975-2009	62	-32	-49	-15	>25	
	25	1984-2009	73	-22	-40	-5		
	10	1999-2009	113	-22	-32	-8		
	5	2004-2009	118	-12	-21	-3		

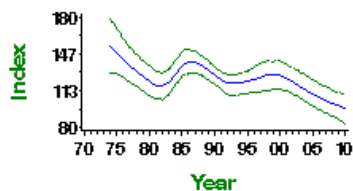
BBS UK Source	Period (yrs)	1995-2009 Years	70ths (n)	Change (%)	Lower limit	Upper limit	>25 Alert	Comment
	10	1999-2009	62	-41	-56	-21	>25	
	5	2004-2009	72	-35	-54	-8	>25	
BBS England	10	1999-2009	30	-18	12	19		
	5	2004-2009	39	11	1	6		

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



WBS/WBBS 1974—2010

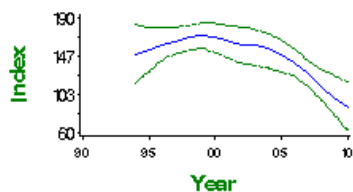
Dipper



WBS/WBBS waterways graph

BBS UK 1994—2010

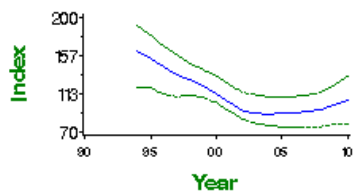
Dipper



BBS UK graph

BBS England 1994—2010

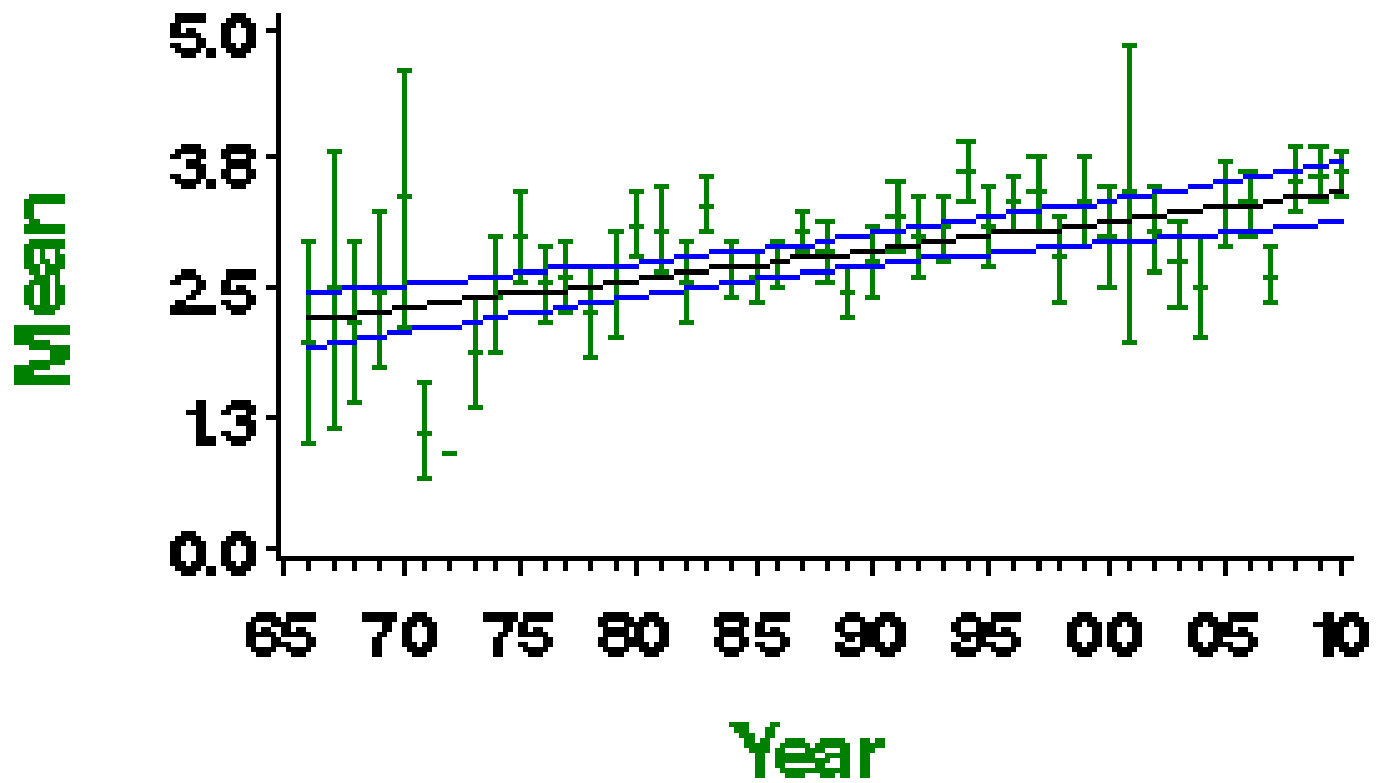
Dipper



BBS England graph

Demographic trends

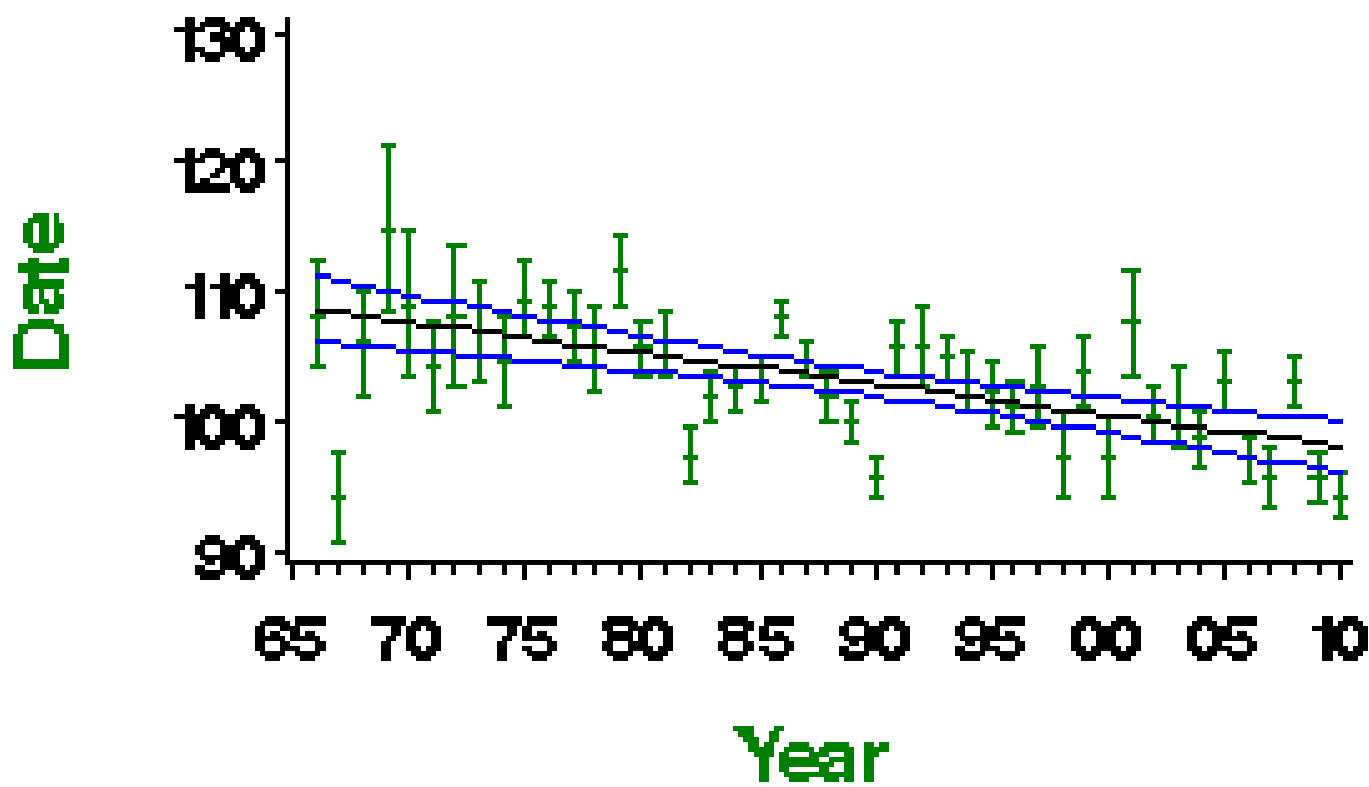
Fledglings per breeding attempt 1966–2010 Dipper



Mean number of fledglings produced per nest - green bars represent standard error and black line shows long-term trend

Laying date 1966—2010

Dipper



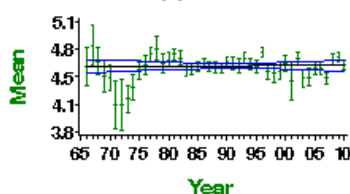
More on demographic trends

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Fledglings per breeding attempt	41	1968-2009	55	Linear increase	2.26 fledglings	3.39 fledglings	50.3%		
Clutch size	41	1968-2009	73	None					
Brood size	41	1968-2009	142	Curvilinear	3.43 chicks	3.76 chicks	9.5%		
Nest failure rate at egg stage	41	1968-2009	103	Curvilinear	2.79% nests/day	0.33% nests/day	-88.2%		
Nest failure rate at chick stage	41	1968-2009	79	Curvilinear	0.64% nests/day	0.57% nests/day	-10.9%		
Laying date	41	1968-2009	63	Linear decline	Apr 18	Apr 8	-10 days		

For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).

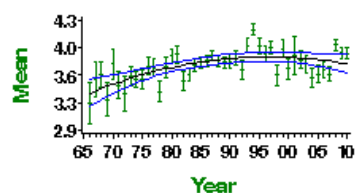
Clutch size 1966—2010

Dipper



Brood size 1966—2010

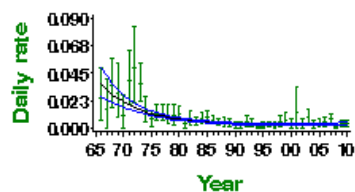
Dipper



Mean number of chicks per nest - green bars represent standard error and black line shows long-term trend

Egg stage nest failure rate

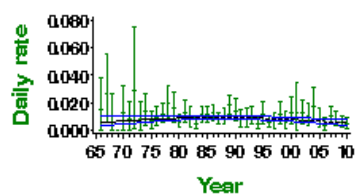
Dipper



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Chick stage nest failure rate

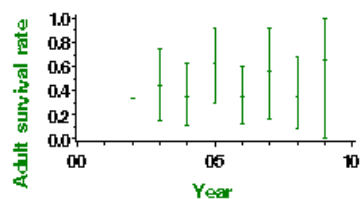
Dipper



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

RAS survival 2002—2009

Dipper



Proportion of adult birds surviving to following year - error bars represent 95% confidence limits

Ring Ouzel

Turdus torquatus

Key facts

Conservation listings:	Europe: no SPEC category (concentrated in Europe, conservation status favourable) (BiE04) UK: red (>50% population decline) (BoCC3) UK Biodiversity Action Plan: priority species
Long-term trend:	UK: decline
Population size:	6,157-7,549 pairs in 1999 (Wotton <i>et al.</i> 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). Long-term surveys coordinated by the Sim *et al.* 2010). 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). Low survival between breeding seasons is apparently a major national cause of decline (Sim *et al.* 2010). Within Glen Clunie, however, Simet *al.* (2011) found that varying combinations of demographic factors produced each year-to-year decline.

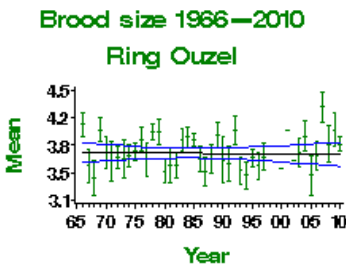
Population changes in detail

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

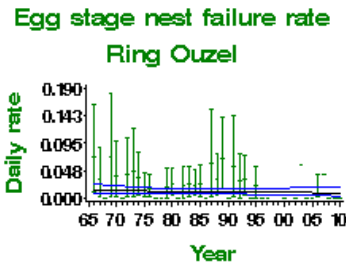
Demographic trends

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Brood size	41	1968-2009	21	None					Small sample
Nest failure rate at egg stage	41	1968-2009	11	None					Small sample
Nest failure rate at chick stage	41	1968-2009	14	None					Small sample
Laying date	41	1968-2009	21	Linear decline	May 15	May 7	-8 days		Small sample

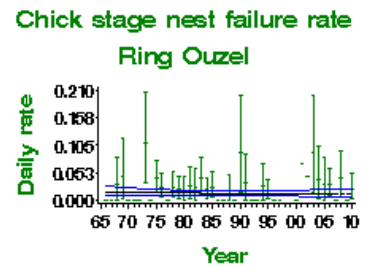
For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).



Mean number of chicks per nest - green bars represent standard error and black line shows long-term trend



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

This report should be cited as: Baillie, S.R., Marchant, J.H., Leech, D.I., Renwick, A.R., Eglington, S.M., Joys, A.C., Noble, D.G., Barimore, C., Conway, G.J., Downie, I.S., Risely, K. & Robinson, R.A. (2012). BirdTrends 2011. BTO Research Report No. 609. BTO, Thetford. <https://www.bto.org/birdtrends>

Key facts

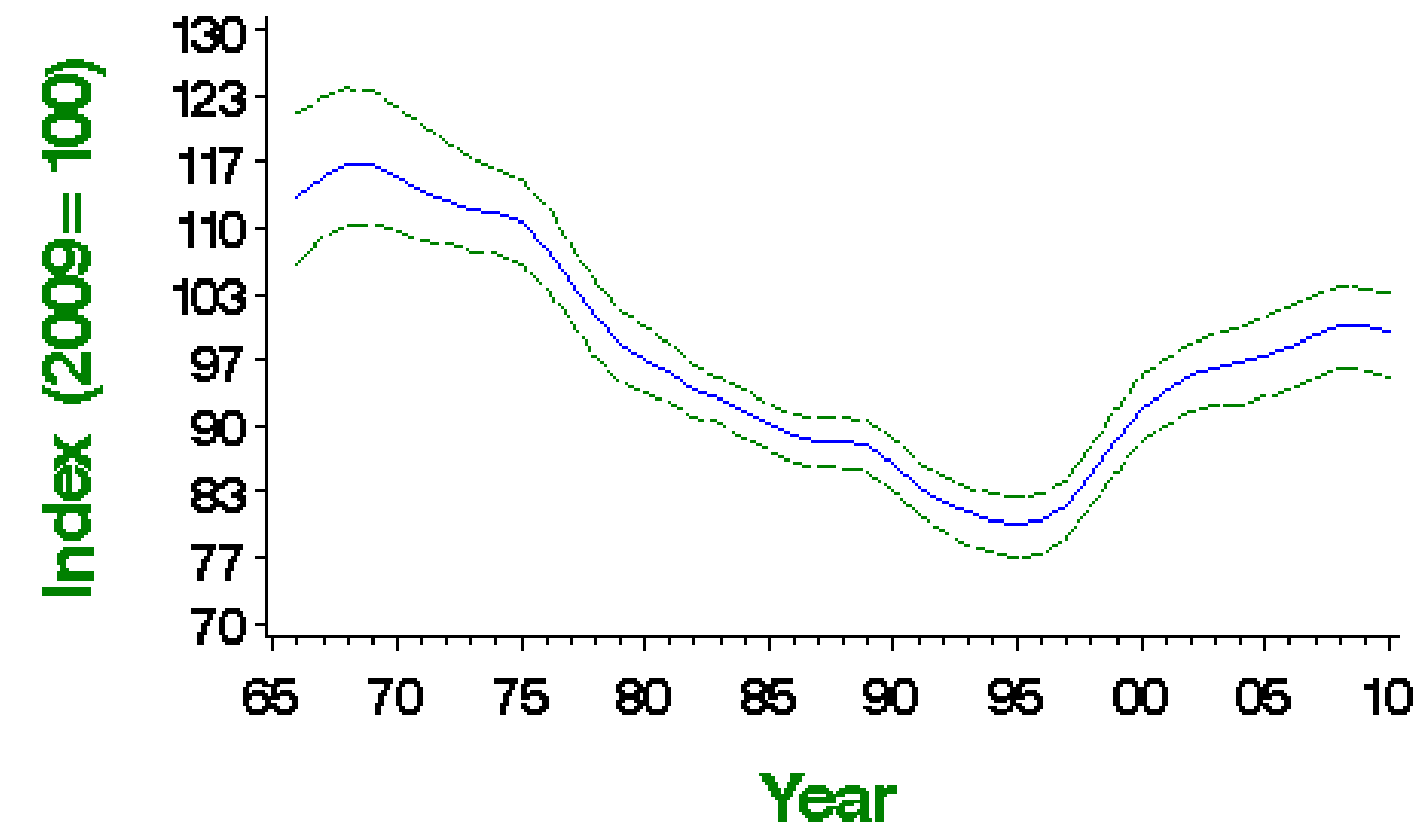
Conservation listings:	Europe: no SPEC category (concentrated in Europe, conservation status favourable) (BiE04) UK: green (BoCC3)
Long-term trend:	UK, England: shallow decline
Population size:	4,935,000 territories in 2000 (1988-91 Atlas estimate updated using CBC/BBS trend: BiE04, APEP06)

Status summary

Both CBC/BBS and CES data show long-term declines in Blackbird abundance up to about the mid 1990s, followed by a strong but 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. Fledgling numbers per breeding attempt increased during the population decline and are now decreasing again. 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. There has been widespread moderate increase across Europe since 1980 (PECBMS 2011a).

CBC/BBS UK 1966–2010

Blackbird



Smoothed population index, relative to an arbitrary 100 in the year given, with 85% confidence limits in green

Population changes in detail

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS UK	42	1967-2009	1002	-13	-23	-5		
	25	1984-2009	1525	9	2	16		
	10	1999-2009	2642	13	10	15		
	5	2004-2009	2943	4	2	5		

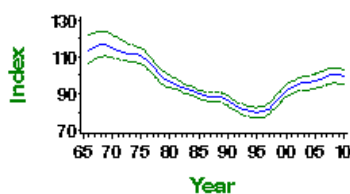
CBC/BBS England Source	Period (yrs)	1967-2009 Years	90% CIs (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
	25	1984-2009	1224	6	-1	13		
	10	1999-2009	2096	12	9	15		
	5	2004-2009	2341	3	2	5		
CES adults	25	1984-2009	99	-11	-24	2		
	10	1999-2009	110	-2	-9	8		
	5	2004-2009	106	-7	-14	0		
CES juveniles	25	1984-2009	90	-42	-60	-12	>25	
	10	1999-2009	101	-19	-36	2		
	5	2004-2009	98	-15	-29	-2		
BBS UK	14	1995-2009	2370	26	22	30		
	10	1999-2009	2606	13	10	15		
	5	2004-2009	2943	4	2	5		
BBS England	14	1995-2009	1869	23	20	27		
	10	1999-2009	2039	12	10	14		
	5	2004-2009	2298	3	1	5		
BBS Scotland	14	1995-2009	192	32	14	51		
	10	1999-2009	209	20	5	36		
	5	2004-2009	245	7	-1	15		
BBS Wales	14	1995-2009	194	43	31	56		
	10	1999-2009	221	27	19	33		
	5	2004-2009	236	9	2	14		
BBS N.Ireland	14	1995-2009	84	41	8	63		
	10	1999-2009	97	-11	-21	-3		
	5	2004-2009	103	-5	-13	2		

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



CBC/BBS UK 1966–2010

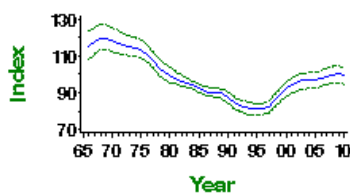
Blackbird



CBC/BBS UK graph

CBC/BBS England 1966–2010

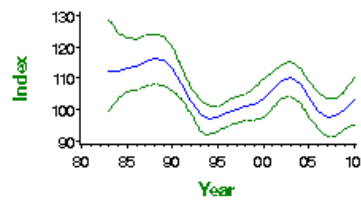
Blackbird



CBC/BBS England graph

CES adult abundance 1983–2010

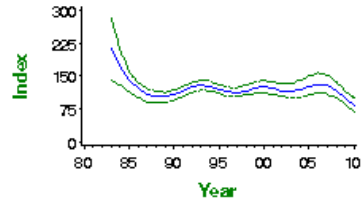
Blackbird



CES adults graph

CES juvenile abundance 1983–2010

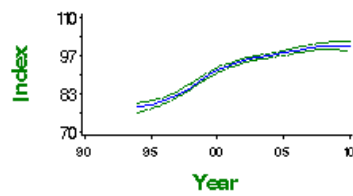
Blackbird



CES juveniles graph

BBS UK 1994–2010

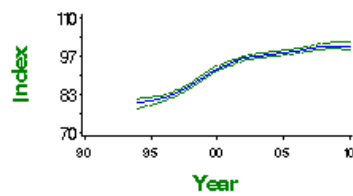
Blackbird



BBS UK graph

BBS England 1994–2010

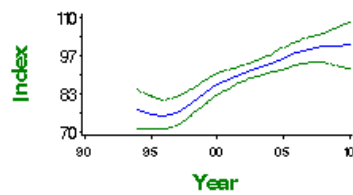
Blackbird



BBS England graph

BBS Scotland 1994–2010

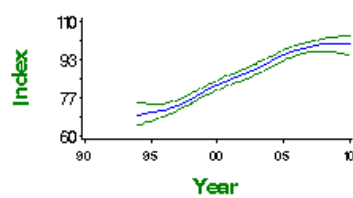
Blackbird



BBS Scotland graph

BBS Wales 1994–2010

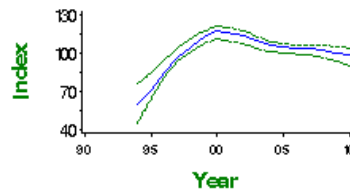
Blackbird



BBS Wales graph

BBS N. Ireland 1994–2010

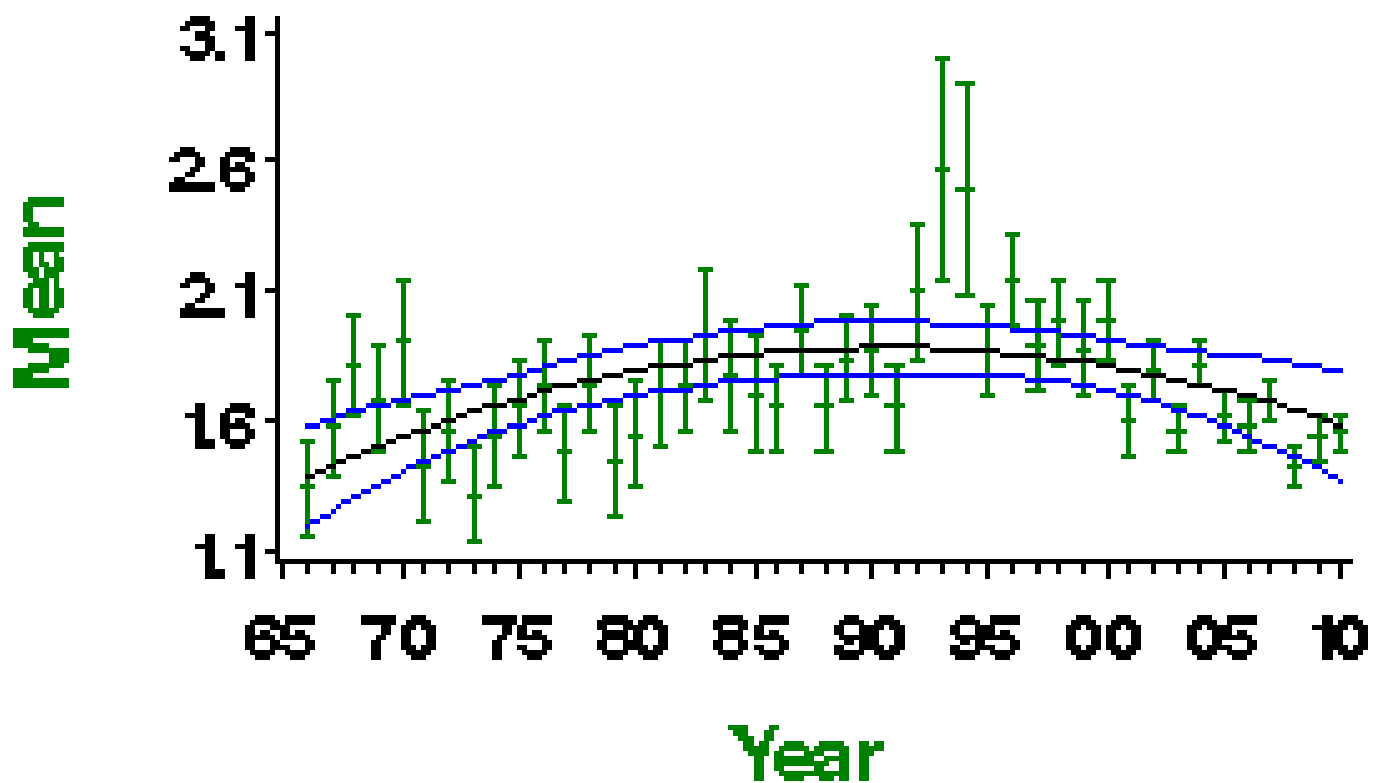
Blackbird



BBS N.Ireland graph

Demographic trends

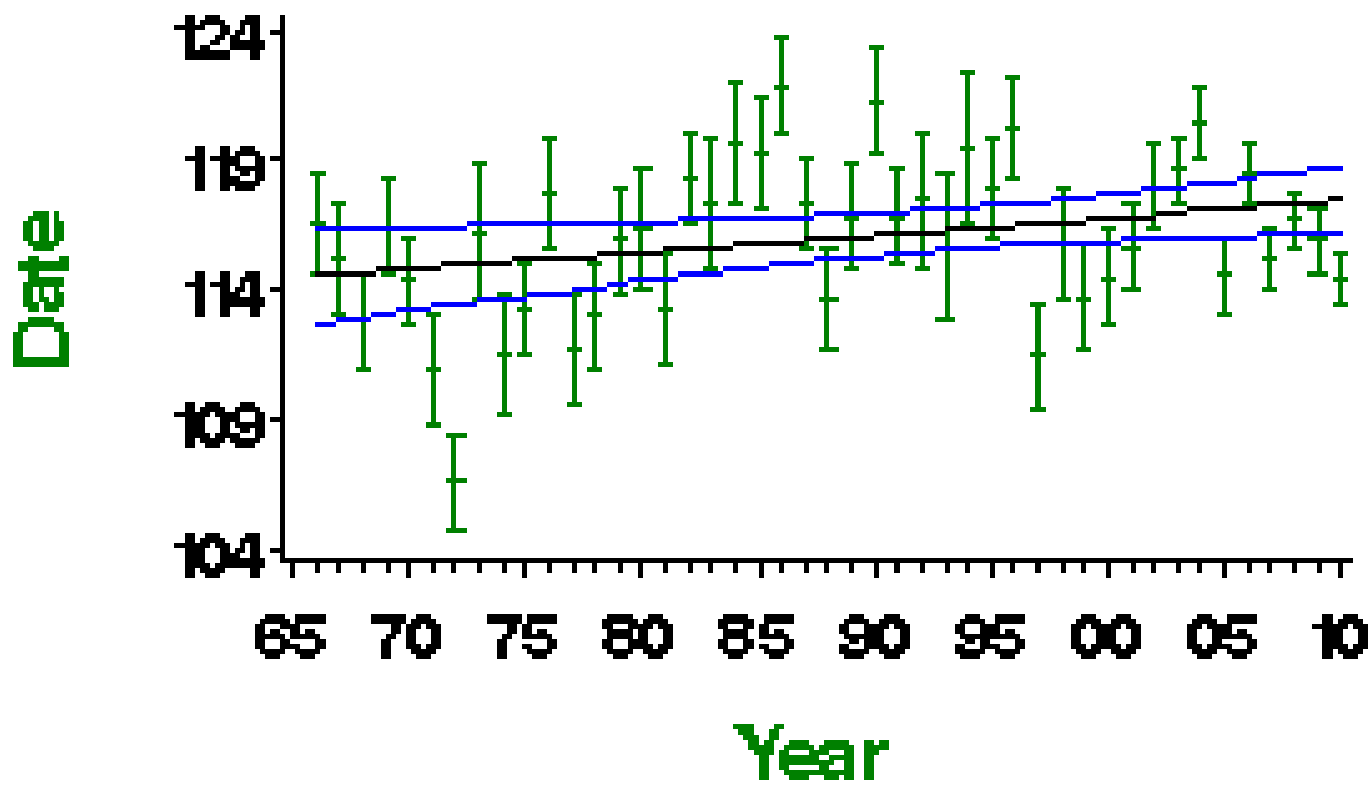
Fledglings per breeding attempt 1966–2010 Blackbird



Mean number of fledglings produced per nest - green bars represent standard error and black line shows long-term trend

Laying date 1966–2010

Blackbird



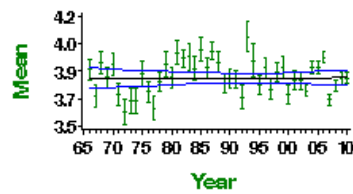
More on demographic trends

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Fledglings per breeding attempt	41	1968-2009	107	Curvilinear	1.46 fledglings	1.61 fledglings	10.0%		
Clutch size	41	1968-2009	180	None					
Brood size	41	1968-2009	235	Curvilinear	3.34 chicks	3.31 chicks	-0.9%		
Nest failure rate at egg stage	41	1968-2009	263	Curvilinear	2.63% nests/day	3.63% nests/day	38.0%		
Nest failure rate at chick stage	41	1968-2009	216	Linear decline	2.88% nests/day	1.92% nests/day	-33.3%		
Laying date	41	1968-2009	215	Linear increase	Apr 25	Apr 27	2 days		
Juvenile to Adult ratio (CES)	25	1984-2009	101	Smoothed trend	164 Index value	100 Index value	-39%	>25	
Juvenile to Adult ratio (CES)	10	1999-2009	113	Smoothed trend	129 Index value	100 Index value	-23%		
Juvenile to Adult ratio (CES)	5	2004-2009	108	Smoothed trend	112 Index value	100 Index value	-11%		

For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).

Clutch size 1966—2010

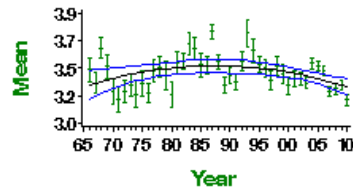
Blackbird



Mean number of eggs per nest - green bars represent standard error and black line shows long-term trend

Brood size 1966—2010

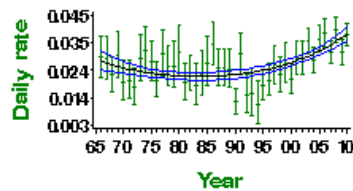
Blackbird



Mean number of chicks per nest - green bars represent standard error and black line shows long-term trend

Egg stage nest failure rate

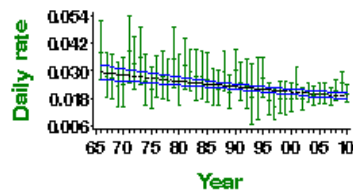
Blackbird



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Chick stage nest failure rate

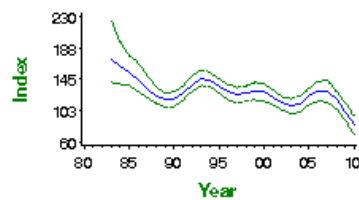
Blackbird



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

CES productivity 1983—2010

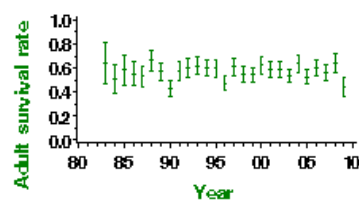
Blackbird



Smoothed long-term trend in ratio of juvenile:adult birds caught - green lines indicate 85% confidence limits

CES survival 1983—2009

Blackbird



Proportion of adult birds surviving to following year - green bars represent 95% confidence limits

This report should be cited as: Baillie, S.R., Marchant, J.H., Leech, D.I., Renwick, A.R., Eglinton, S.M., Joys, A.C., Noble, D.G., Barimore, C., Conway, G.J., Downie, I.S., Risely, K. & Robinson, R.A. (2012). BirdTrends 2011. BTO Research Report No. 609. BTO, Thetford. <https://www.bto.org/birdtrends>

Song Thrush

Turdus philomelos

Key facts

Conservation listings:	Europe: no SPEC category (concentrated in Europe, conservation status favourable) (BiE04) UK: red (species level, races <i>clarkei</i> and <i>hebridensis</i>) (BoCC3) UK Biodiversity Action Plan: click here , priority species (<i>clarkei</i> and <i>hebridensis</i>)
Long-term trend:	UK: moderate decline England: rapid decline
Population size:	1,144,000 territories in 2000 (1988-91 Atlas estimate updated using CBC/BBS trend: BiE04, APEP06)

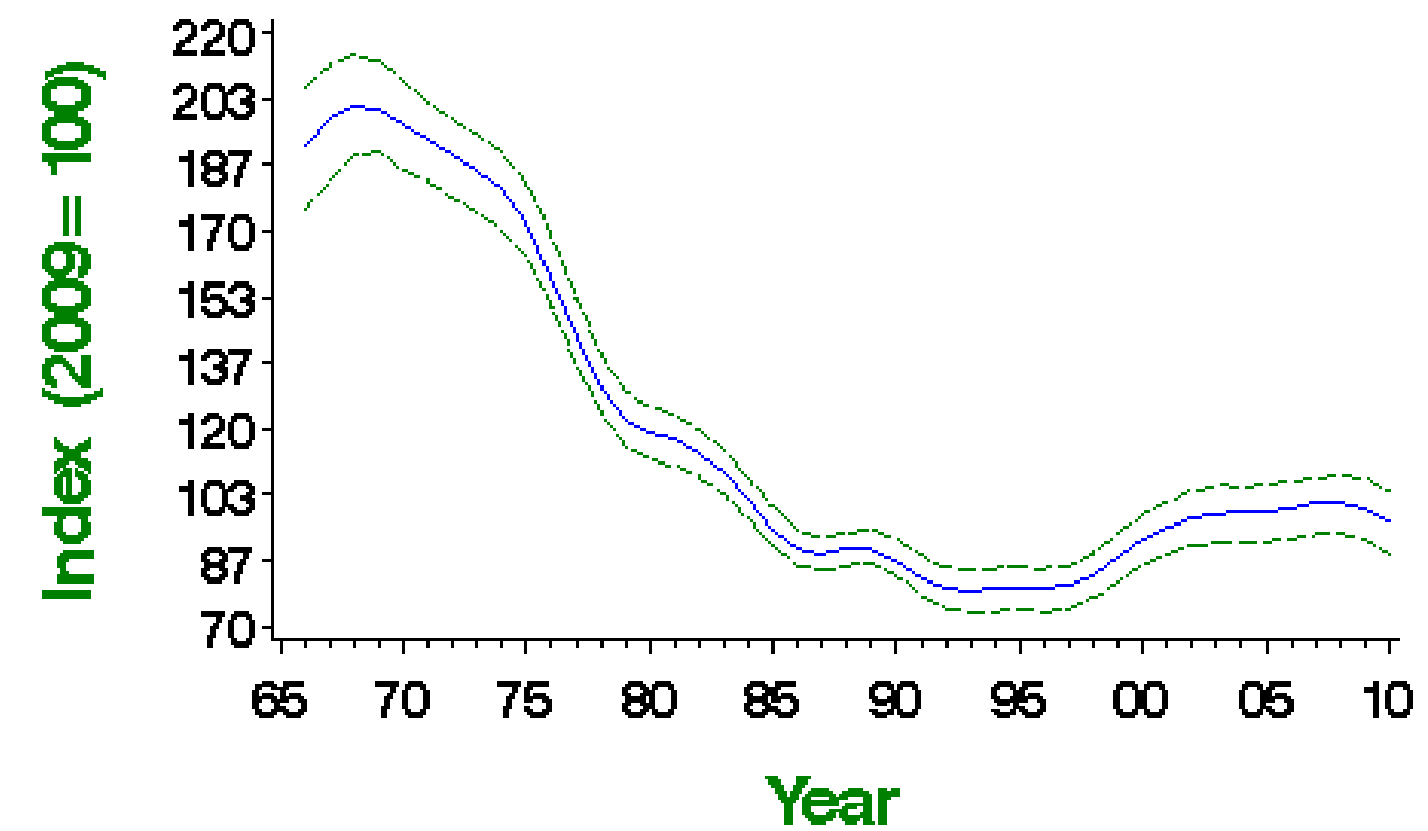
Migrant status:	Short-distance migrant
Nesting habitat:	Above-ground nester
Primary breeding habitat:	Woodland
Secondary breeding habitat:	
Breeding diet:	Animal
Winter diet:	Animal

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. Recent CBC/BBS data show a general increase, but population levels remain relatively low.

CBC/BBS UK 1966–2010

Song Thrush



Smoothed population index, relative to an arbitrary 100 in the year given, with 85% confidence limits in green

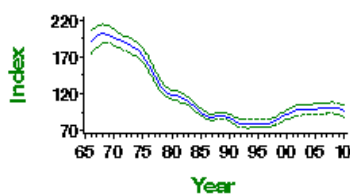
Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS UK	42	1967-2009	823	-50	-57	-42	>25	
	25	1984-2009	1233	-2	-15	9		
	10	1999-2009	2161	14	9	19		
	5	2004-2009	2429	1	-2	5		
CBC/BBS England	42	1967-2009	652	-50	-58	-41	>50	
	25	1984-2009	968	-3	-13	12		
	10	1999-2009	1678	20	15	24		
	5	2004-2009	1895	4	1	6		
CES adults	25	1984-2009	82	-23	-36	-6		
	10	1999-2009	93	11	-4	28		
	5	2004-2009	92	-6	-17	7		
CES juveniles	25	1984-2009	69	-50	-65	-27	>50	
	10	1999-2009	79	3	-15	21		
	5	2004-2009	77	-11	-25	9		
BBS UK	14	1995-2009	1906	24	18	30		
	10	1999-2009	2129	14	9	18		
	5	2004-2009	2429	1	-3	4		
BBS England	14	1995-2009	1468	22	17	28		
	10	1999-2009	1633	19	14	23		
	5	2004-2009	1863	3	0	5		
BBS Scotland	14	1995-2009	175	20	1	48		
	10	1999-2009	191	2	-13	21		
	5	2004-2009	225	-8	-17	6		
BBS Wales	14	1995-2009	166	31	17	49		
	10	1999-2009	190	9	-2	20		
	5	2004-2009	205	-3	-9	4		
BBS N.Ireland	14	1995-2009	74	66	21	111		
	10	1999-2009	86	18	1	38		
	5	2004-2009	94	6	-5	20		

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



CBC/BBS UK 1966–2010

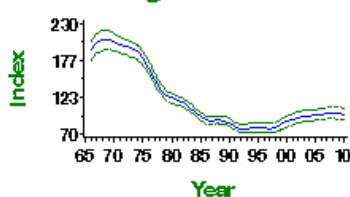
Song Thrush



CBC/BBS UK graph

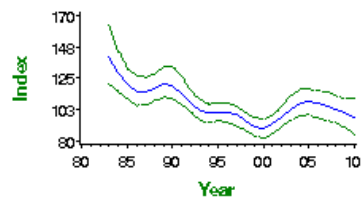
CBC/BBS England 1966–2010

Song Thrush



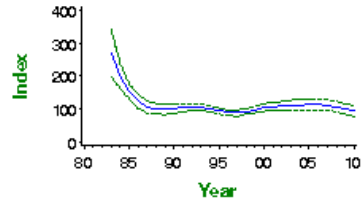
CBC/BBS England graph

CES adult abundance 1983–2010
Song Thrush



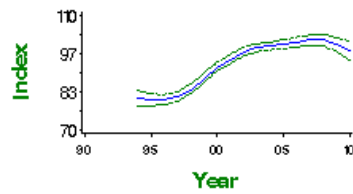
CES adults graph

CES juvenile abundance 1983–2010
Song Thrush



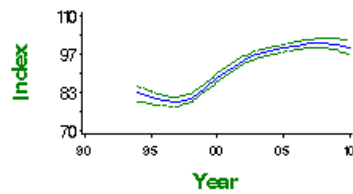
CES juveniles graph

BBS UK 1994–2010
Song Thrush



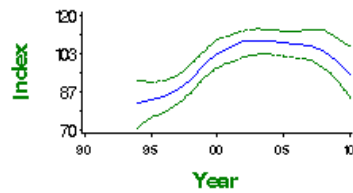
BBS UK graph

BBS England 1994–2010
Song Thrush



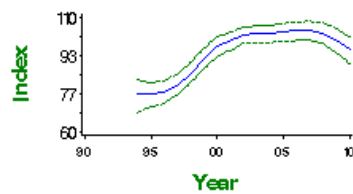
BBS England graph

BBS Scotland 1994–2010
Song Thrush



BBS Scotland graph

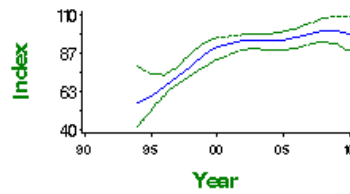
BBS Wales 1994–2010
Song Thrush



BBS Wales graph

BBS N. Ireland 1994—2010

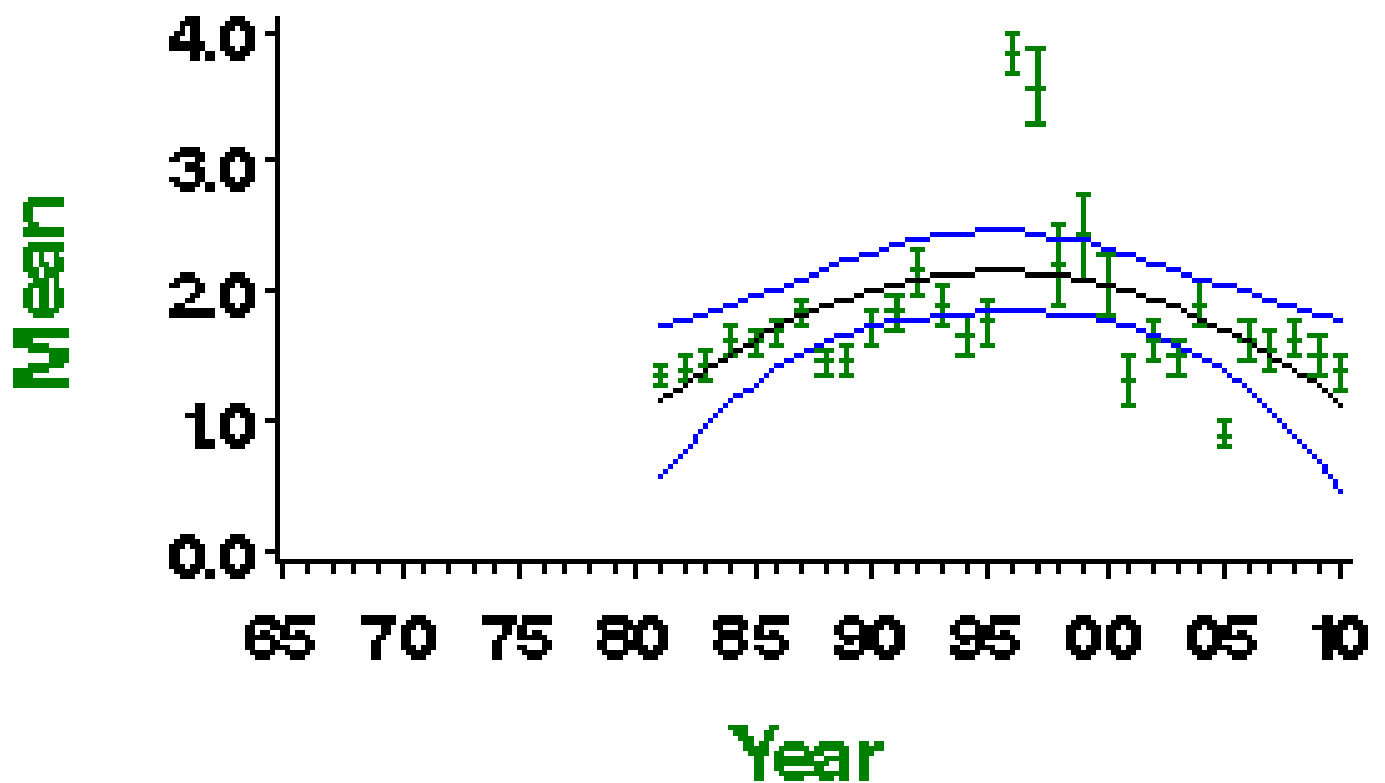
Song Thrush



BBS N.Ireland graph

Demographic trends

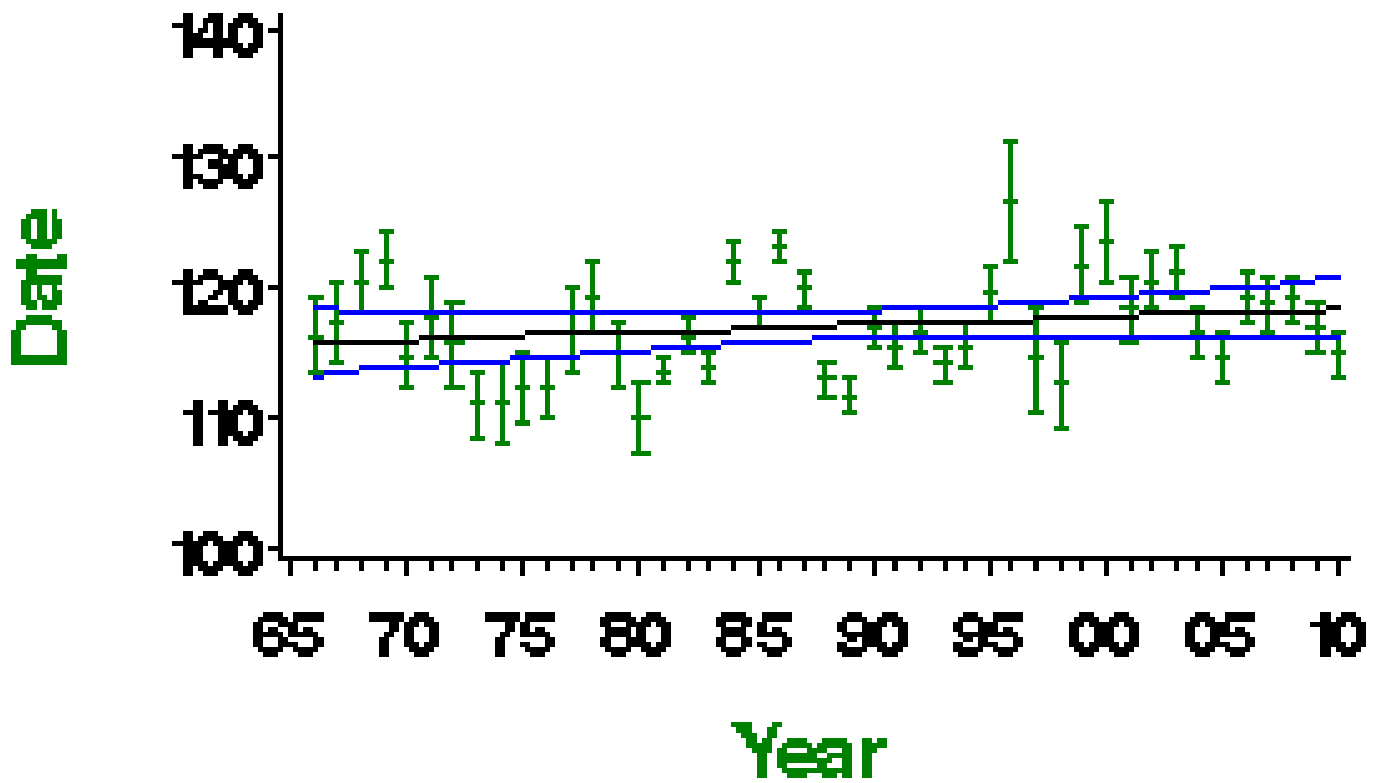
Fledglings per breeding attempt 1966—2010 Song Thrush



Mean number of fledglings produced per nest - green bars represent standard error and black line shows long-term trend

Laying date 1966–2010

Song Thrush



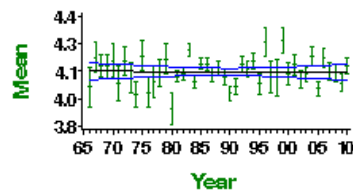
More on demographic trends

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Fledglings per breeding attempt	28	1981-2009	133	Curvilinear	1.14 fledglings	1.26 fledglings	10.1%		
Clutch size	41	1968-2009	171	None					
Brood size	41	1968-2009	189	None					
Nest failure rate at egg stage	28	1981-2009	314	Curvilinear	4.46% nests/day	4.57% nests/day	2.5%		
Nest failure rate at chick stage	28	1981-2009	230	Curvilinear	2.62% nests/day	2.43% nests/day	-7.3%		
Laying date	41	1968-2009	196	None			0 days		
Juvenile to Adult ratio (CES)	25	1984-2009	90	Smoothed trend	175 Index value	100 Index value	-43%	>25	
Juvenile to Adult ratio (CES)	10	1999-2009	103	Smoothed trend	117 Index value	100 Index value	-15%		
Juvenile to Adult ratio (CES)	5	2004-2009	100	Smoothed trend	109 Index value	100 Index value	-9%		

For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).

Clutch size 1966—2010

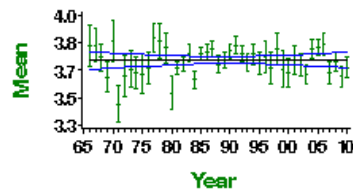
Song Thrush



Mean number of eggs per nest - green bars represent standard error and black line shows long-term trend

Brood size 1966—2010

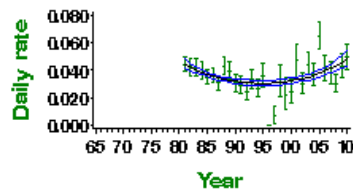
Song Thrush



Mean number of chicks per nest - green bars represent standard error and black line shows long-term trend

Egg stage nest failure rate

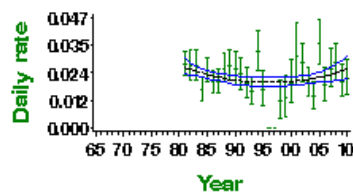
Song Thrush



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Chick stage nest failure rate

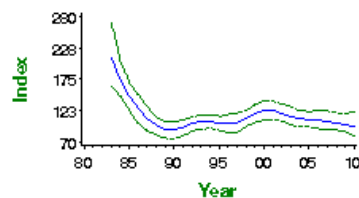
Song Thrush



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

CES productivity 1983—2010

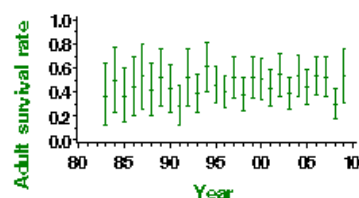
Song Thrush



Smoothed long-term trend in ratio of juvenile:adult birds caught - green lines indicate 85% confidence limits

CES survival 1983—2009

Song Thrush



Proportion of adult birds surviving to following year - green bars represent 95% confidence limits

Causes of change

Changes in survival in the first winter, and perhaps also the post-fledging period, are sufficient to have caused the population decline. The environmental causes of this are unknown but are likely to include changes in farming practices, particularly land drainage and possibly increased pesticide usage.

Change factor	Primary driver	Secondary driver
Demographic	Decreased juvenile survival	
Ecological	Unknown	

Further information on causes of change

CES productivity shows an initial decrease, followed by some partial recovery, and the number of fledglings per breeding attempt has increased by 11.2% between 1981 and 2008 (see above). There is good evidence to show that 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. 1998, Robinson et al. 2004).

Peach et al. (2004) suggested that loss of hedgerows, scrub and permanent grassland with livestock and the widespread installation of field drainage systems, all of which would act to reduce the availability of good quality foraging areas, have probably contributed to the decline of the Song Thrush in the UK. Similarly, it has been suggested that the species is unable to survive the winter in woodland, due to a lack of food, and a reduction of food supply in other habitat types has also been reported (Simms 1989). It is likely that a reduction in food supply would adversely affect the survival of juvenile birds to a greater extent than adult birds, as appears to be the case (Robinson et al. 2004). Furthermore survival is reduced during periods of long drought or cold weather when food is likely to be less available (Robinsoret al. 2007).

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). There is also some concern of the impact of overgrazing by deer (e.g. Gill & Beardall 2001) and canopy closure (Mason 2007), due to changes in woodland management (Hopkins & Kirby 2007) on the low woodland layers, although good evidence from the UK is sparse (but there are some experimental studies in America on different species which demonstrate this effect, e.g. McShea & Rappole 2000). Several papers (e.g. Gosler 1990, Perrins & Overall 2001, Perrins 2003) state that the understorey has declined in Britain, but few data are available to support this on a national scale. However, Amar et al. (2006) found a 27% increase in understorey in the RSPB sites used in the Repeat Woodland Bird Survey.

Robinson et al. (2004) suggested that predation was a candidate cause of reduced survival but there is conflicting evidence on the role of predators in Song Thrush decline, and further research is needed. Newson et al. (2010) found no evidence of effects of avian predators or grey squirrels on Song Thrushes.

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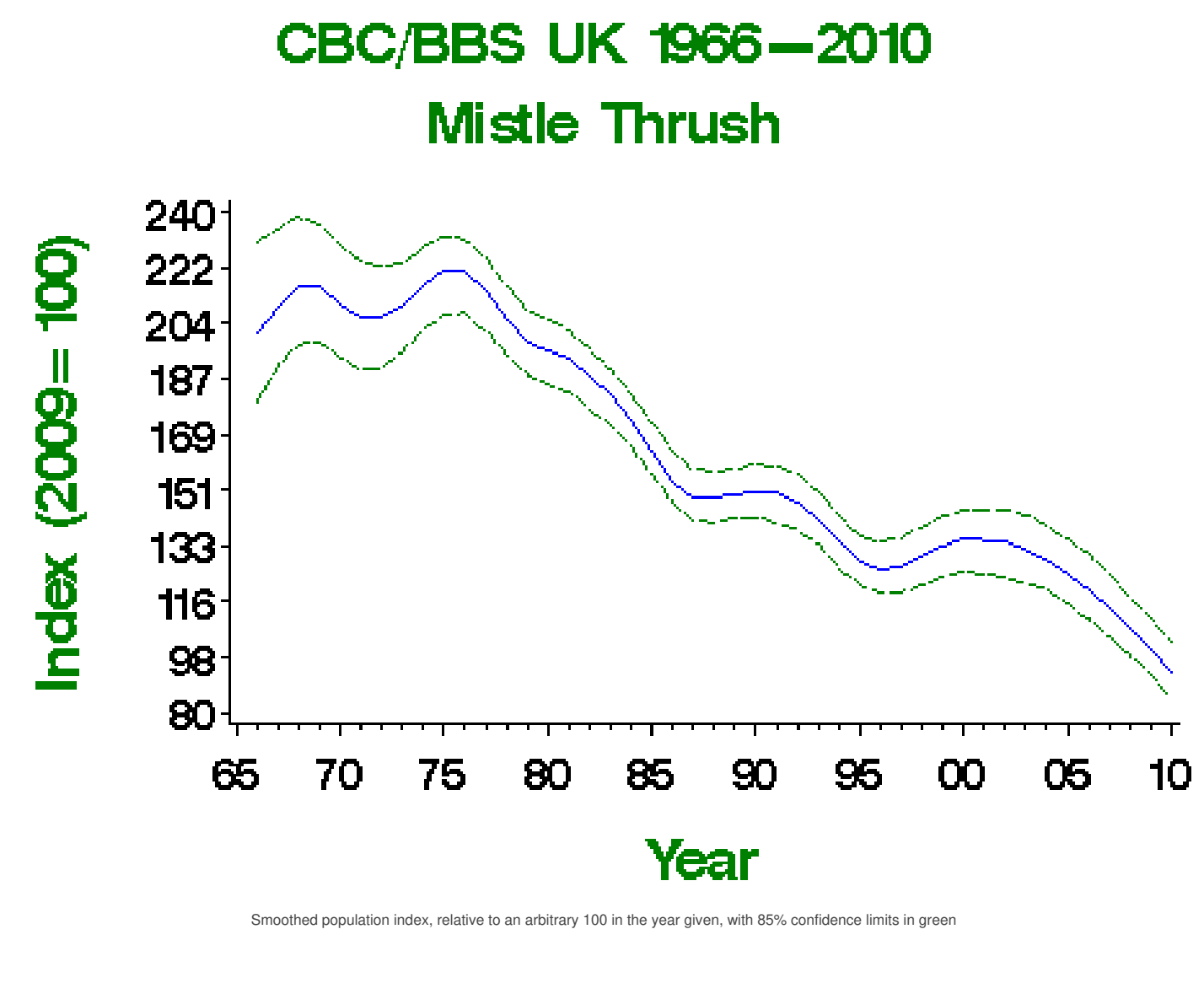
This report should be cited as: Baillie, S.R., Marchant, J.H., Leech, D.I., Renwick, A.R., Eglington, S.M., Joys, A.C., Noble, D.G., Barimore, C., Conway, G.J., Downie, I.S., Risely, K. & Robinson, R.A. (2012). *BirdTrends 2011*. BTO Research Report No. 609. BTO, Thetford. <https://www.bto.org/birdtrends>

Key facts

Conservation listings:	Europe: no SPEC category (concentrated in Europe, conservation status favourable) (BiE04) UK: amber (25-50% population decline) (BoCC3)
Long-term trend:	UK, England: rapid decline
Population size:	222,500 territories in 2000 (1988-91 Atlas estimate updated using CBC/BBS trend: BiE04, APEP06)

Status summary

Like those of Siriwardena et al. 1998). Numbers have shown moderate decline across Europe since 1980 (PECBMS 2011a).



Population changes in detail

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS UK	42	1967-2009	520	-52	-61	-43	>50	
	25	1984-2009	770	-42	-49	-35	>25	
	10	1999-2009	1290	-25	-29	-20		
CBC/BBS England	5	2004-2009	1373	-23	-26	-18		
	42	1967-2009	423	-57	-65	-47	>50	
	25	1984-2009	620	-49	-55	-43	>25	
	10	1999-2009	1018	-31	-35	-27	>25	

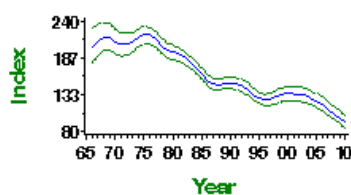
Source	Period (yrs)	2004-2009 Years	1080 Plots (n)	-23 Change (%)	-27 Lower limit	19 Upper limit	Alert	Comment
BBS UK	14	1995-2009	1771	-21	-27	14		
	10	1999-2009	1270	-25	-29	-19		
	5	2004-2009	1373	-22	-26	-18		
BBS England	14	1995-2009	918	-30	-36	-25	>25	
	10	1999-2009	983	-31	-34	-26	>25	
	5	2004-2009	1050	-23	-26	-19		
BBS Scotland	14	1995-2009	78	15	-14	56		
	10	1999-2009	86	-16	-32	6		
	5	2004-2009	102	-27	-42	-13	>25	
BBS Wales	14	1995-2009	100	2	-19	30		
	10	1999-2009	112	-4	-18	12		
	5	2004-2009	116	-3	-15	11		
BBS N.Ireland	14	1995-2009	59	-1	-48	72		
	10	1999-2009	69	-16	-33	3		
	5	2004-2009	74	-28	-39	-16	>25	

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



CBC/BBS UK 1966—2010

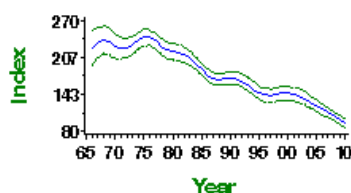
Mistle Thrush



CBC/BBS UK graph

CBC/BBS England 1966—2010

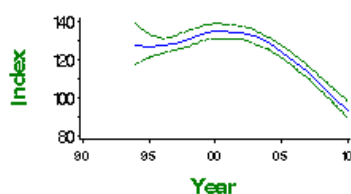
Mistle Thrush



CBC/BBS England graph

BBS UK 1994—2010

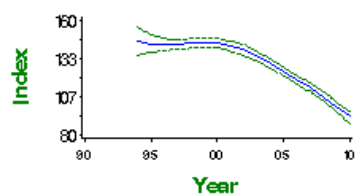
Mistle Thrush



BBS UK graph

BBS England 1994—2010

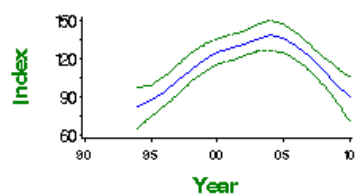
Mistle Thrush



BBS England graph

BBS Scotland 1994—2010

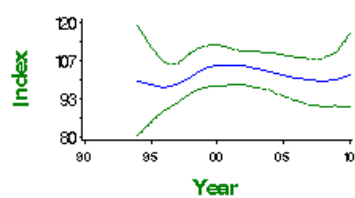
Mistle Thrush



BBS Scotland graph

BBS Wales 1994—2010

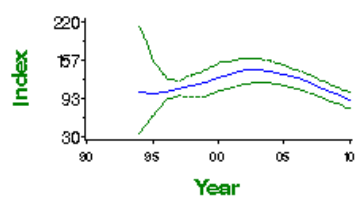
Mistle Thrush



BBS Wales graph

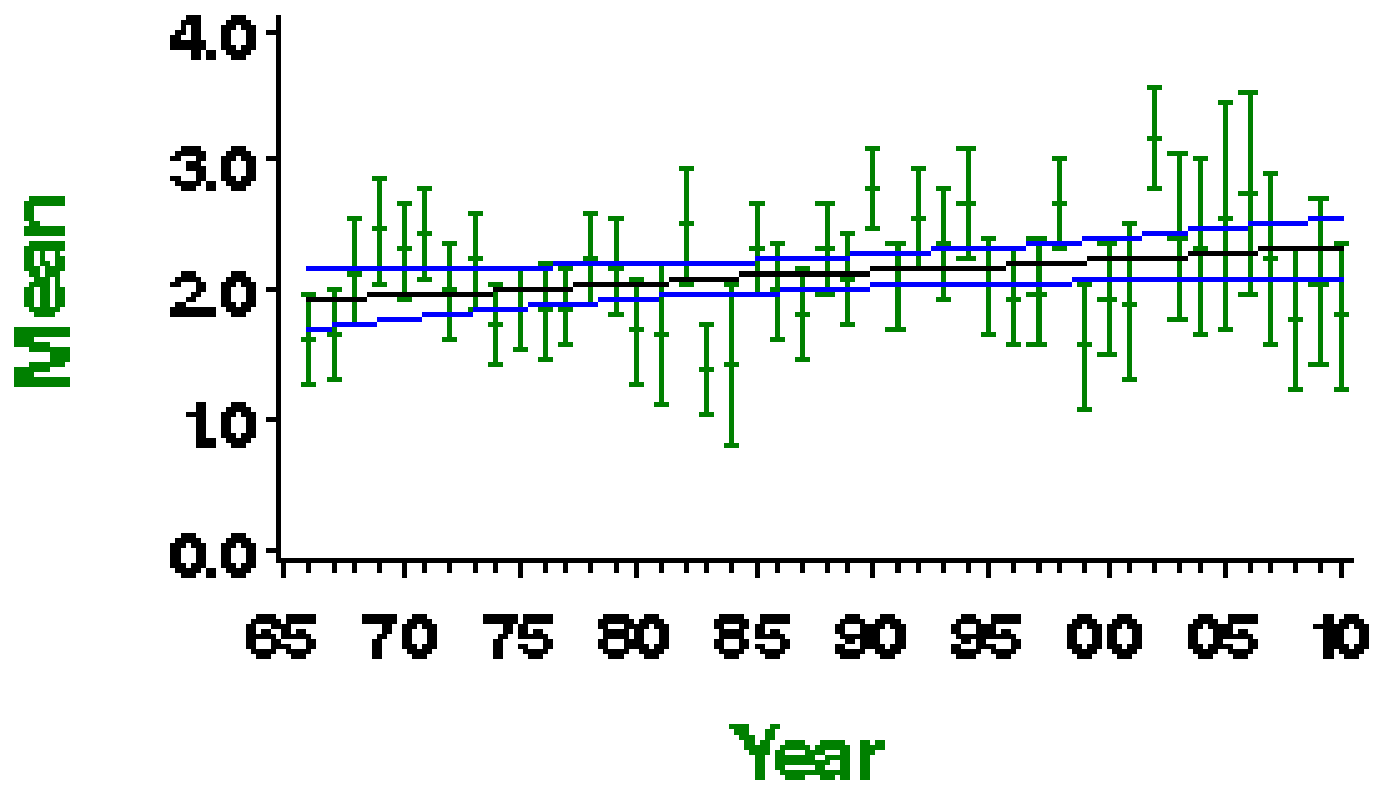
BBS N. Ireland 1994—2010

Mistle Thrush



BBS N.Ireland graph

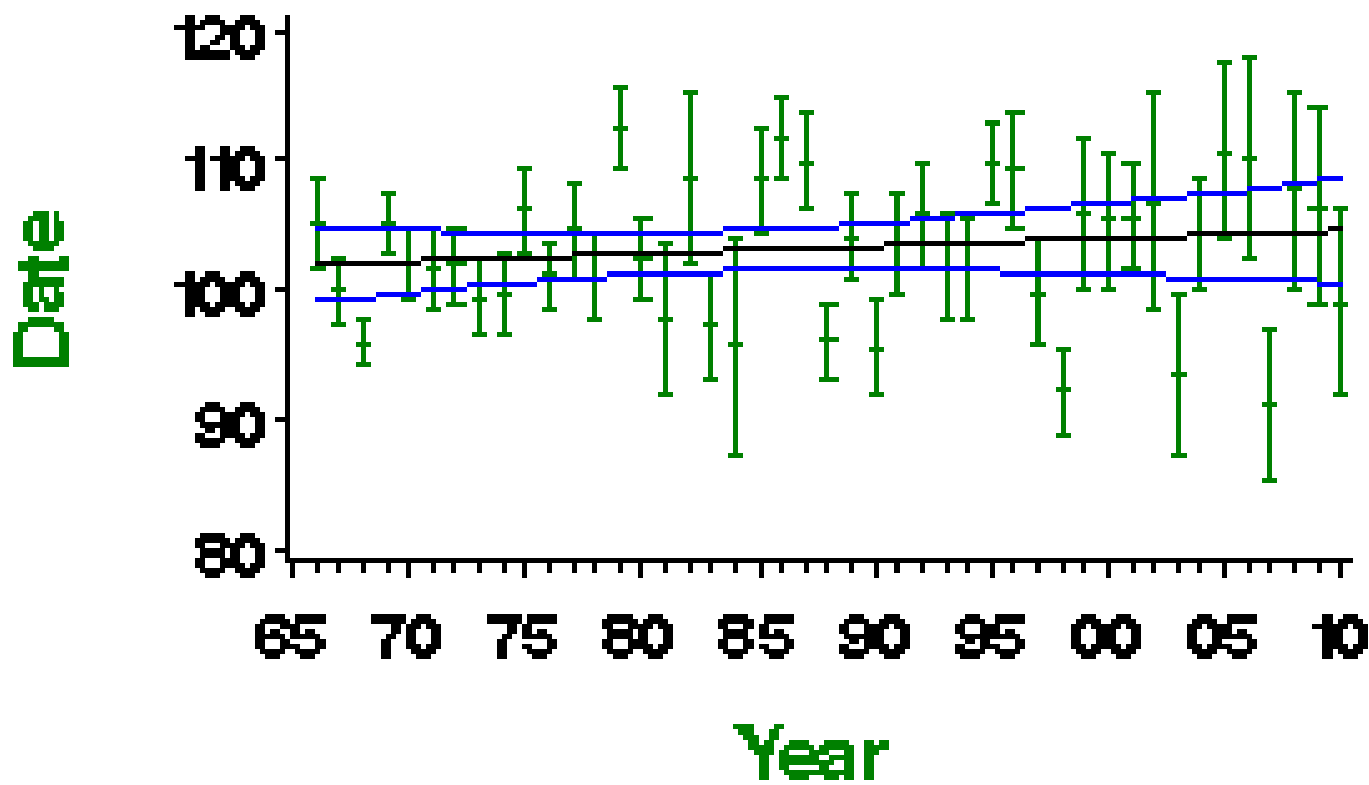
Fledglings per breeding attempt 1966–2010 Mistle Thrush



Mean number of fledglings produced per nest - green bars represent standard error and black line shows long-term trend

Laying date 1966—2010

Mistle Thrush



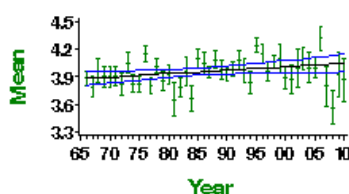
More on demographic trends

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Fledglings per breeding attempt	41	1968-2009	23	None					
Clutch size	41	1968-2009	33	Linear increase	3.89 eggs	4.04 eggs	3.9%		
Brood size	41	1968-2009	65	None					
Nest failure rate at egg stage	41	1968-2009	55	Linear decline	2.52% nests/day	1.68% nests/day	-33.3%		
Nest failure rate at chick stage	41	1968-2009	58	None					
Laying date	41	1968-2009	27	None			0 days		Small sample

For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).

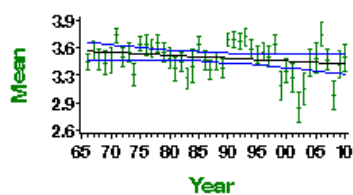
Clutch size 1966—2010

Mistle Thrush



Brood size 1966—2010

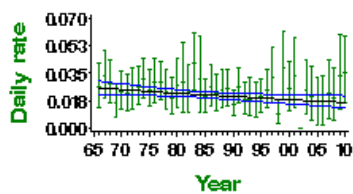
Mistle Thrush



Mean number of chicks per nest - green bars represent standard error and black line shows long-term trend

Egg stage nest failure rate

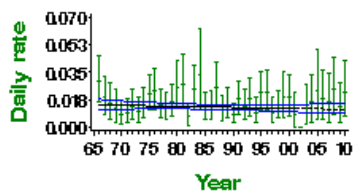
Mistle Thrush



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Chick stage nest failure rate

Mistle Thrush



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Spotted Flycatcher

Muscicapa striata

Key facts

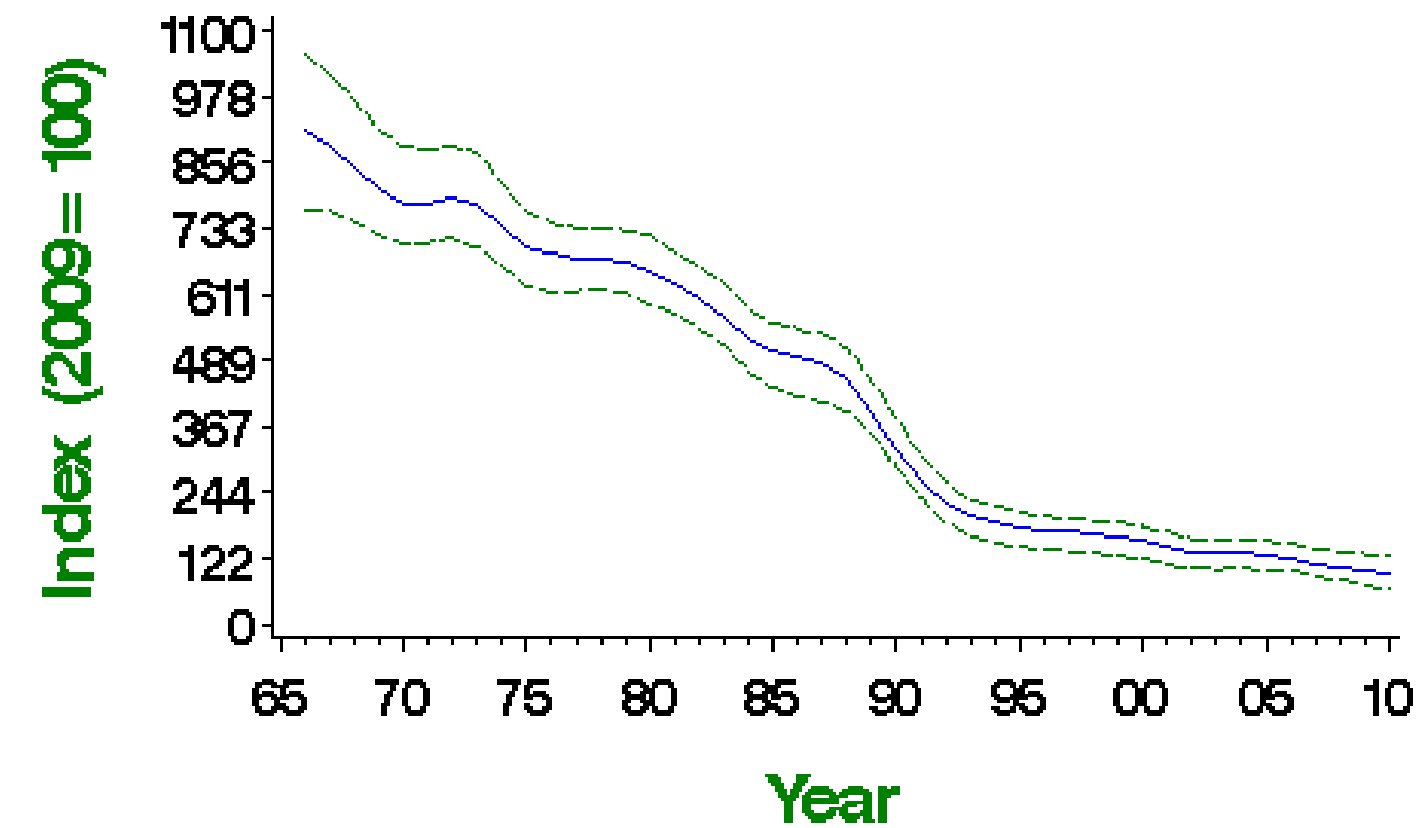
Conservation listings:	Europe: SPEC category 3 (declining) (BiE04) UK: red (>50% population decline) (BoCC3) UK Biodiversity Action Plan: click here, priority species
Long-term trend:	UK, England: rapid decline
Population size:	63,700 territories in 2000 (1988-91 Atlas estimate updated using CBC/BBS trend: BiE04, APEP06)
Migrant status:	Long-distance migrant
Nesting habitat:	Above-ground nester
Primary breeding habitat:	Woodland
Secondary breeding habitat:	
Breeding diet:	Animal
Winter diet:	Animal

Status summary

Spotted Flycatchers have declined rapidly and consistently since the 1960s. The Repeat Woodland Bird Survey, however, using a set of CBC woodland and RSPB sites, detected a significant increase between the 1980s and 2003-04 in southwest England (Amar et al. 2006, Hewson et al. 2007), suggesting that change has not been uniform across Britain. Numbers have shown widespread moderate decrease across Europe since 1980 (PECBMS 2011a).

CBC/BBS UK 1966–2010

Spotted Flycatcher



Smoothed population index, relative to an arbitrary 100 in the year given, with 85% confidence limits in green

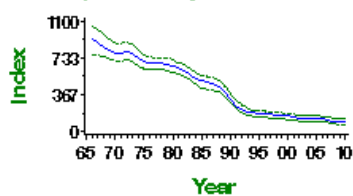
Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS UK	42	1967-2009	126	-89	-93	-84	>50	
	25	1984-2009	152	-81	-87	-74	>50	
	10	1999-2009	205	-38	-52	-14	>25	
	5	2004-2009	201	-24	-43	8		
CBC/BBS England	42	1967-2009	96	-91	-94	-86	>50	
	25	1984-2009	111	-84	-89	-78	>50	
	10	1999-2009	144	-47	-55	-37	>25	
	5	2004-2009	139	-33	-43	-20	>25	
BBS UK	14	1995-2009	199	-47	-60	-33	>25	
	10	1999-2009	199	-37	-52	-21	>25	
	5	2004-2009	201	-23	-42	-2		
BBS England	14	1995-2009	139	-52	-62	-41	>50	
	10	1999-2009	136	-44	-53	-34	>25	
	5	2004-2009	134	-31	-41	-20	>25	

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



CBC/BBS UK 1966—2010

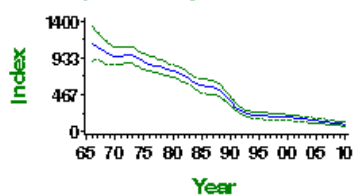
Spotted Flycatcher



CBC/BBS UK graph

CBC/BBS England 1966—2010

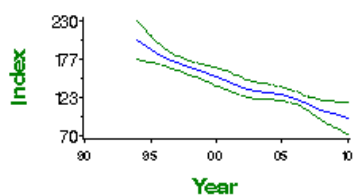
Spotted Flycatcher



CBC/BBS England graph

BBS UK 1994—2010

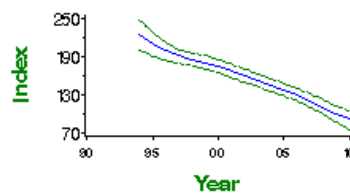
Spotted Flycatcher



BBS UK graph

BBS England 1994–2010

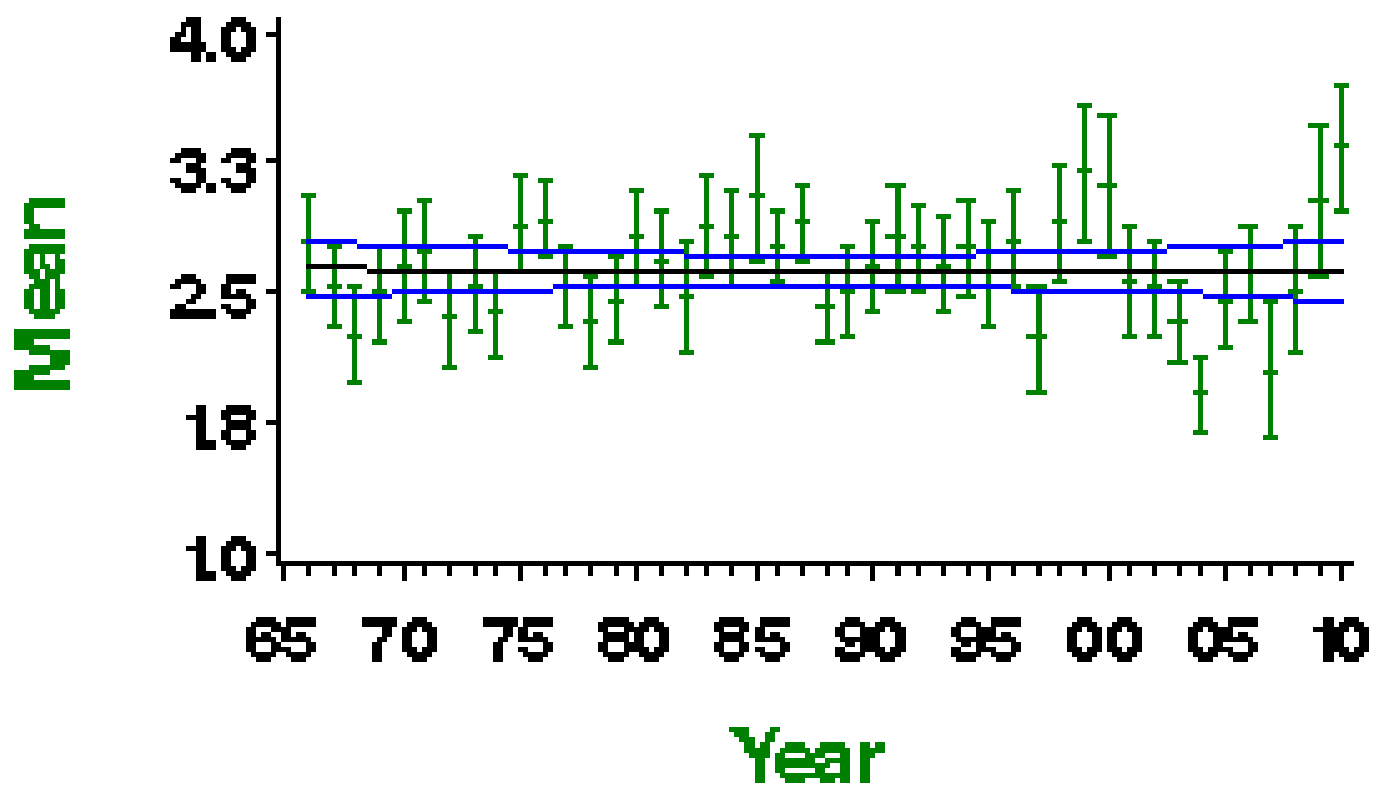
Spotted Flycatcher



BBS England graph

Demographic trends

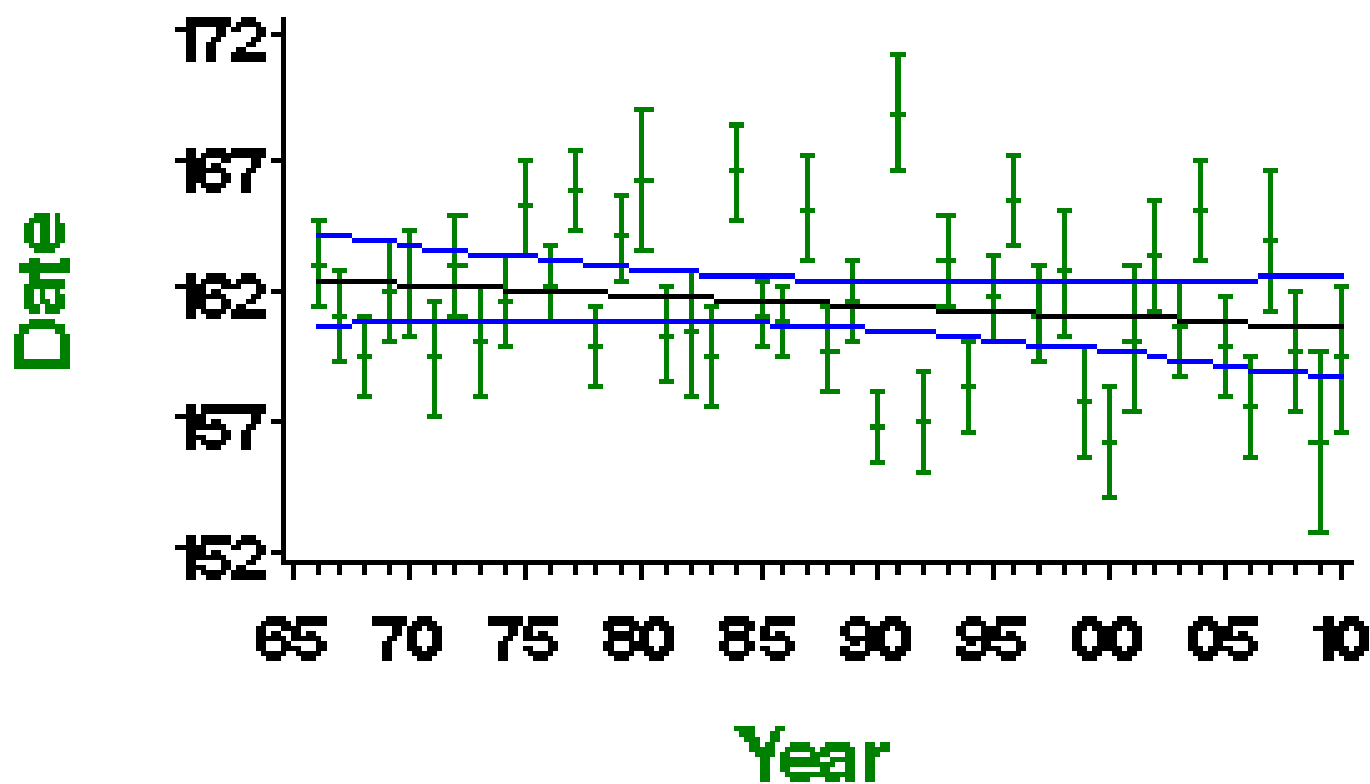
Fledglings per breeding attempt 1966–2010 Spotted Flycatcher



Mean number of fledglings produced per nest - green bars represent standard error and black line shows long-term trend

Laying date 1966—2010

Spotted Flycatcher



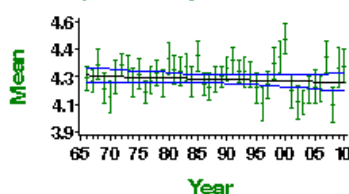
More on demographic trends

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Fledglings per breeding attempt	41	1968-2009	55	None					
Clutch size	41	1968-2009	78	None					
Brood size	41	1968-2009	129	Curvilinear	3.62 chicks	3.64 chicks	0.4%		
Nest failure rate at egg stage	41	1968-2009	116	Curvilinear	1.86% nests/day	1.85% nests/day	-0.5%		
Nest failure rate at chick stage	41	1968-2009	105	Linear increase	0.98% nests/day	1.46% nests/day	49.0%		
Laying date	41	1968-2009	71	None			0 days		

For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).

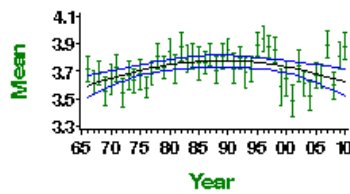
Clutch size 1966—2010

Spotted Flycatcher



Brood size 1966—2010

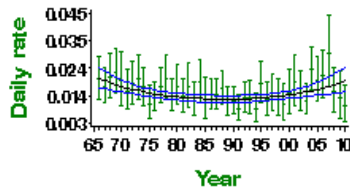
Spotted Flycatcher



Mean number of chicks per nest - green bars represent standard error and black line shows long-term trend

Egg stage nest failure rate

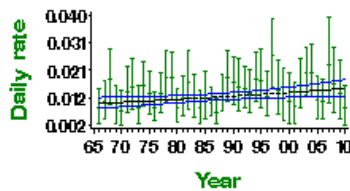
Spotted Flycatcher



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Chick stage nest failure rate

Spotted Flycatcher



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Causes of change

Demographic modelling provides evidence that a decrease in the annual survival rates of birds in their first year may have driven the decline. The ecological causes of the decline are uncertain as good-quality, direct evidence is sparse.

Change factor	Primary driver	Secondary driver
Demographic	Decreased survival	
Ecological	Unknown	

Further information on causes of change

Clutch size and brood size have both decreased slightly between 1968 and 2008 and daily failure rates have increased (see above). There has also been an increase in nest losses at the egg and chick stage while the number of fledglings per breeding attempt has decreased. 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. However, demographic modelling shows that decreases in the annual survival rates of birds in their first year of life are more likely to have driven the population decline than breeding parameters (Freeman & Crick 2003, Stevens et al. 2007). This effect on survival may operate in pre-migration period, during migration or in the wintering quarters. The number of adult Spotted Flycatchers caught at CES ringing sites was found to have declined drastically, providing further evidence that post-fledging and overwinter survival may be important factors in the population decline (Peach et al. 1998).

Evidence for the ecological causes of the decline is sparse. Fuller et al. (2005) hypothesise that declines in large flying insects that are food to the flycatcher, or conditions either on the wintering grounds or along migration routes may be involved. However, there is little detailed evidence to directly support any of these factors.

Data from the Repeat Woodland Bird Survey (Amaret al. 2006) showed that Spotted Flycatchers were more likely to have declined at sites with very open or very closed foliage conditions. Smart et al. (2007) also suggest this. However, overall, Amar et al. (2006) did not find that changes in habitat were significant in explaining population declines for this species. Stevens et al. (2007) found that nests in gardens more successful than those in farmland or woodland and nests in gardens fledged twice as many chicks as those in either woodland or farmland. The proximate cause of lower success in farmland and woodland was higher nest predation rates. In terms of nesting success, farmland and woodland appear to be suboptimal when compared with gardens, providing evidence of a problem on the breeding grounds for this species, in at least these two habitats (Stevens et al. 2007).

In Leicestershire, Stoate & Szczur (2006) found that the removal of nest predators prompted an increase in Spotted Flycatcher breeding success, especially in woodland, where nest success was lower overall than in gardens. However, Carpenter et al. (2009) found no link between presence/absence, abundance and population change of the species and avian predator abundance.

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Key facts

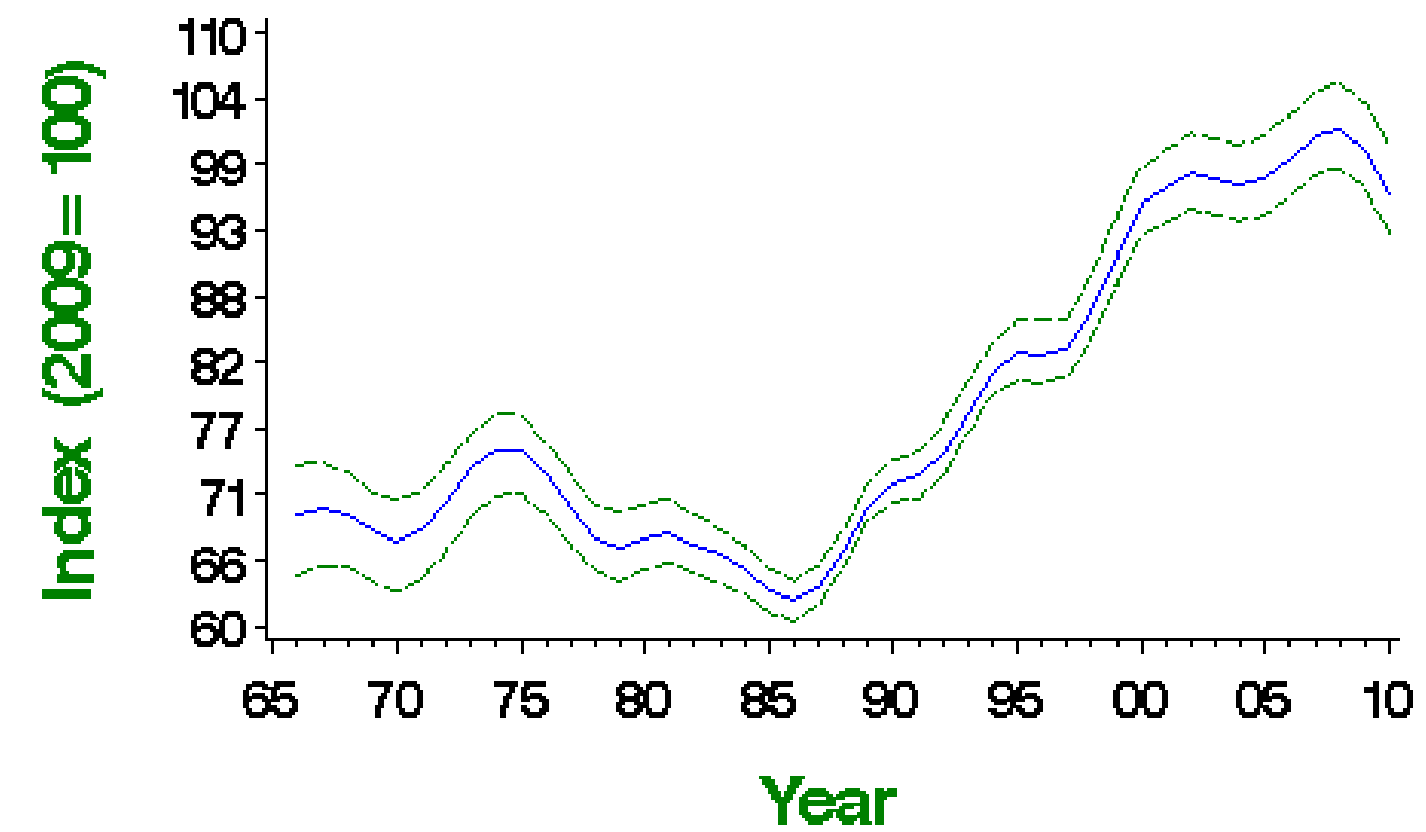
Conservation listings:	Europe: no SPEC category (concentrated in Europe, conservation status favourable) (BiE04) UK: green (BoCC3)
Long-term trend:	UK: shallow increase England: moderate increase
Population size:	5,895,000 territories in 2000 (1988-91 Atlas estimate updated using CBC/BBS trend: BiE04, 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 moderate increase has been evident widely across Europe since 1980 (PECBMS 2011a).

CBC/BBS UK 1966–2010

Robin



Smoothed population index, relative to an arbitrary 100 in the year given, with 85% confidence limits in green

Population changes in detail

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS UK	42	1967-2009	963	43	32	60		
	25	1984-2009	1467	54	46	65		
	10	1999-2009	2549	10	6	12		

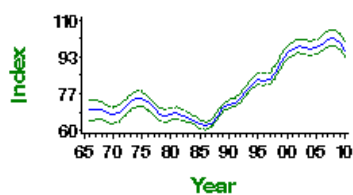
Source	Period (yrs)	2004-2009 Years	2845 Plots	3 Change	1 Lower limit	5 Upper limit	Alert	Comment
CBC/BBS England		1967-2009	771	56	49	74		
	25	1984-2009	1166	66	56	78		
	10	1999-2009	2006	17	14	19		
	5	2004-2009	2244	5	3	7		
CES adults	25	1984-2009	93	39	17	65		
	10	1999-2009	107	0	-9	11		
	5	2004-2009	103	-6	-13	1		
CES juveniles	25	1984-2009	98	7	-22	48		
	10	1999-2009	111	-11	-23	0		
	5	2004-2009	106	0	-11	10		
BBS UK	14	1995-2009	2279	19	16	23		
	10	1999-2009	2514	10	7	13		
	5	2004-2009	2845	2	0	4		
BBS England	14	1995-2009	1778	24	21	28		
	10	1999-2009	1952	16	13	19		
	5	2004-2009	2205	4	2	6		
BBS Scotland	14	1995-2009	195	16	4	28		
	10	1999-2009	210	3	-8	13		
	5	2004-2009	249	-3	-8	3		
BBS Wales	14	1995-2009	191	6	-3	14		
	10	1999-2009	216	1	-5	8		
	5	2004-2009	230	-8	-14	-4		
BBS N.Ireland	14	1995-2009	85	19	0	37		
	10	1999-2009	98	-6	-15	4		
	5	2004-2009	106	9	1	17		

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



CBC/BBS UK 1966–2010

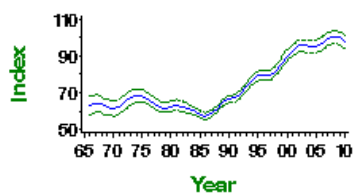
Robin



CBC/BBS UK graph

CBC/BBS England 1966–2010

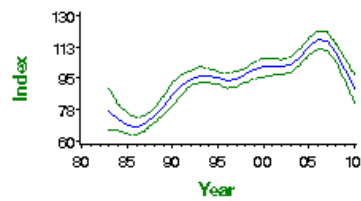
Robin



CBC/BBS England graph

CES adult abundance 1983–2010

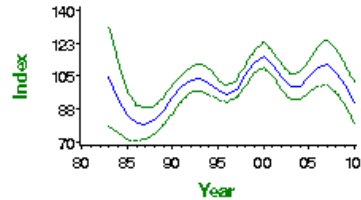
Robin



CES adults graph

CES juvenile abundance 1983–2010

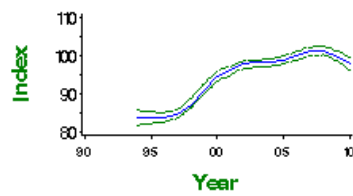
Robin



CES juveniles graph

BBS UK 1994–2010

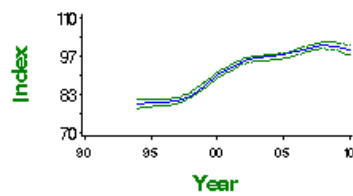
Robin



BBS UK graph

BBS England 1994–2010

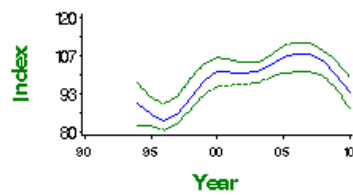
Robin



BBS England graph

BBS Scotland 1994–2010

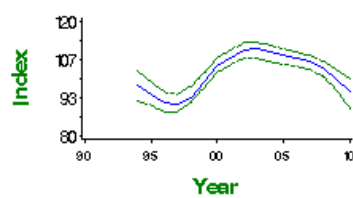
Robin



BBS Scotland graph

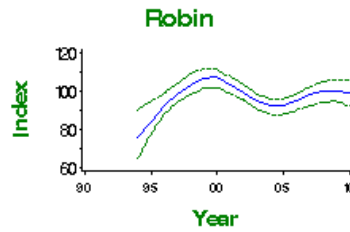
BBS Wales 1994–2010

Robin



BBS Wales graph

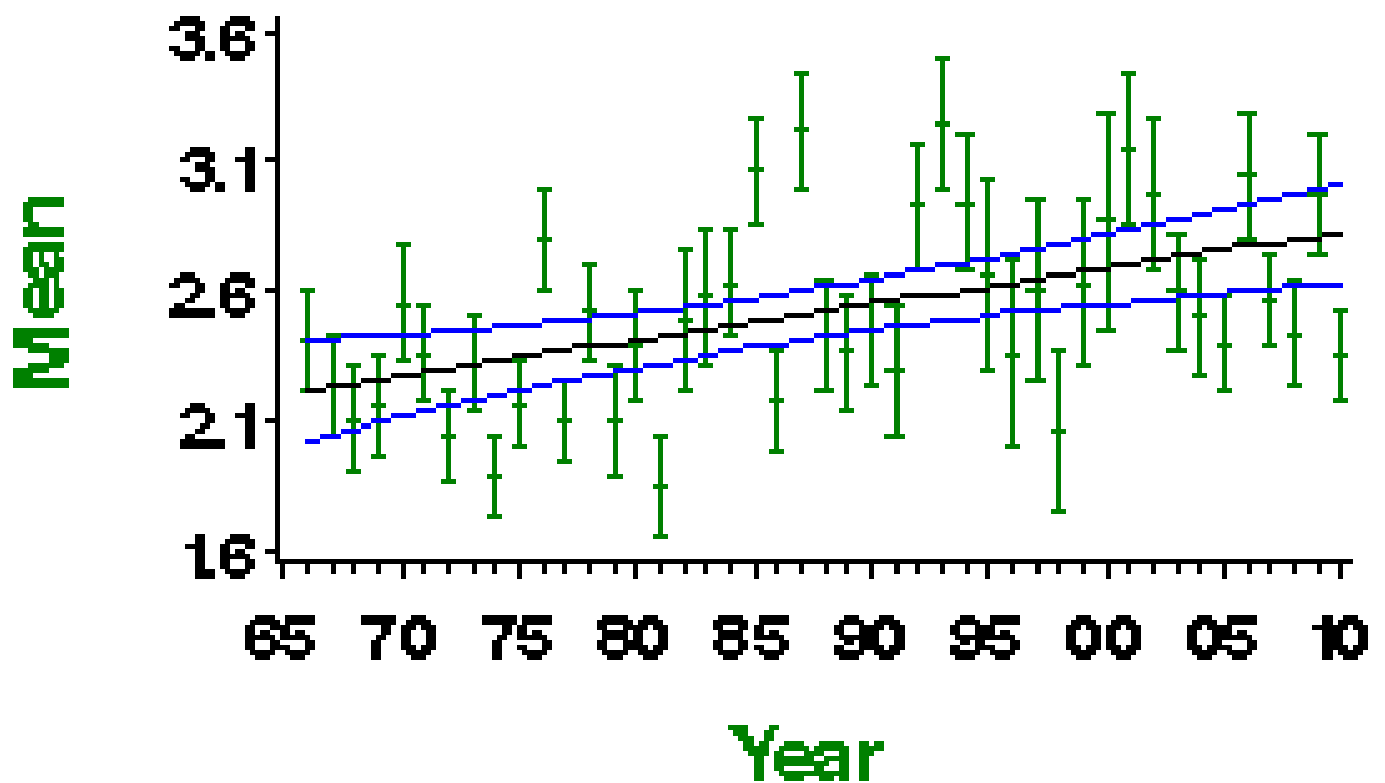
BBS N. Ireland 1994–2010



BBS N.Ireland graph

Demographic trends

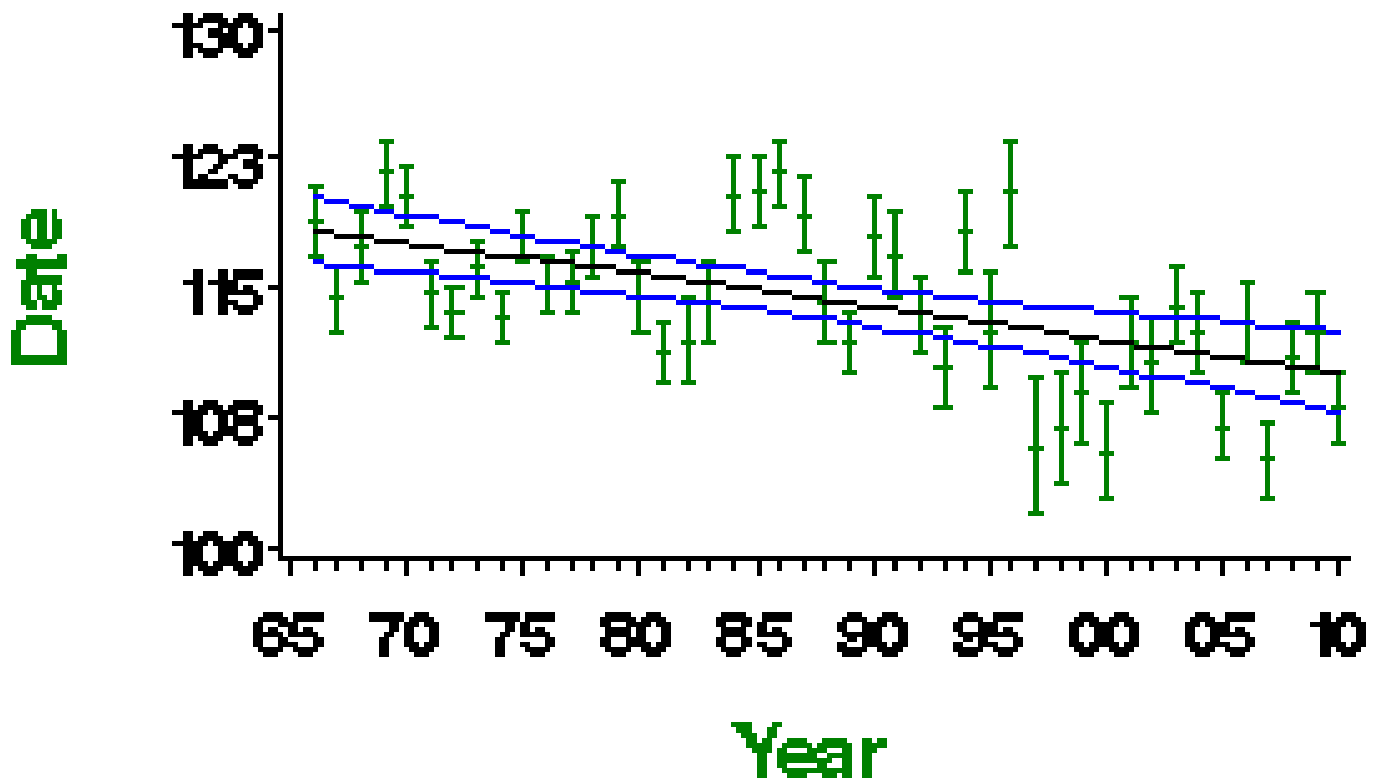
Fledglings per breeding attempt 1966–2010 Robin



Mean number of fledglings produced per nest - green bars represent standard error and black line shows long-term trend

Laying date 1966–2010

Robin



Mean laying date in Julian days (1st April = Day 90) - green bars represent standard error and black line shows long-term trend

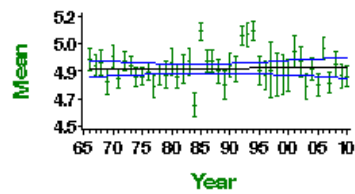
More on demographic trends

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Fledglings per breeding attempt	41	1968-2009	89	Linear increase	2.25 fledglings	2.81 fledglings	25.2%		
Clutch size	41	1968-2009	138	None					
Brood size	41	1968-2009	203	Curvilinear	4.39 chicks	4.31 chicks	-2.0%		
Nest failure rate at egg stage	41	1968-2009	202	Linear decline	2.30% nests/day	1.10% nests/day	-52.2%		
Nest failure rate at chick stage	41	1968-2009	187	None					
Laying date	41	1968-2009	132	Linear decline	Apr 28	Apr 20	-8 days		
Juvenile to Adult ratio (CES)	25	1984-2009	102	Smoothed trend	109 Index value	100 Index value	-9%		
Juvenile to Adult ratio (CES)	10	1999-2009	114	Smoothed trend	119 Index value	100 Index value	-16%		
Juvenile to Adult ratio (CES)	5	2004-2009	109	Smoothed trend	93 Index value	100 Index value	7%		

For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).

Clutch size 1966—2010

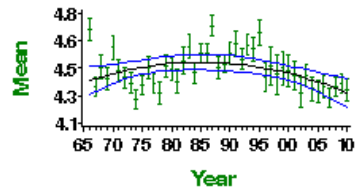
Robin



Mean number of eggs per nest - green bars represent standard error and black line shows long-term trend

Brood size 1966—2010

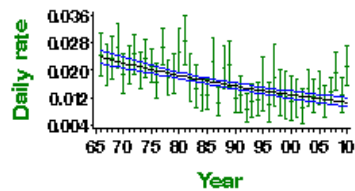
Robin



Mean number of chicks per nest - green bars represent standard error and black line shows long-term trend

Egg stage nest failure rate

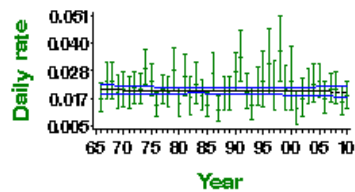
Robin



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Chick stage nest failure rate

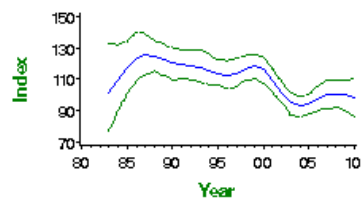
Robin



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

CES productivity 1983—2010

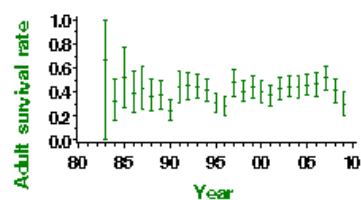
Robin



Smoothed long-term trend in ratio of juvenile:adult birds caught - green lines indicate 85% confidence limits

CES survival 1983—2009

Robin



Proportion of adult birds surviving to following year - green bars represent 95% confidence limits

This report should be cited as: Baillie, S.R., Marchant, J.H., Leech, D.I., Renwick, A.R., Eglinton, S.M., Joys, A.C., Noble, D.G., Barimore, C., Conway, G.J., Downie, I.S., Risely, K. & Robinson, R.A. (2012). BirdTrends 2011. BTO Research Report No. 609. BTO, Thetford. <https://www.bto.org/birdtrends>

Nightingale

Luscinia megarhynchos

Key facts

Conservation listings:	Europe: no SPEC category (concentrated in Europe, conservation status favourable) (BiE04) UK: amber (25-50% distribution decline) (BoCC3)
Long-term trend:	England: decline
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 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 suggested 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 moderate decline across Europe since 1980 (PECBMS 2011a); this overall trend masks a marked contrast between severe decreases in southern and western Europe and increases in the east of the range (PECBMS 2007).

BTO is organising a new Nightingale Survey across Britain in 2012: for more details [click here](#)). Using a combination of daytime and night-time fieldwork, this survey will investigate how many singing males are paired, as well as recording their current numbers and distribution.

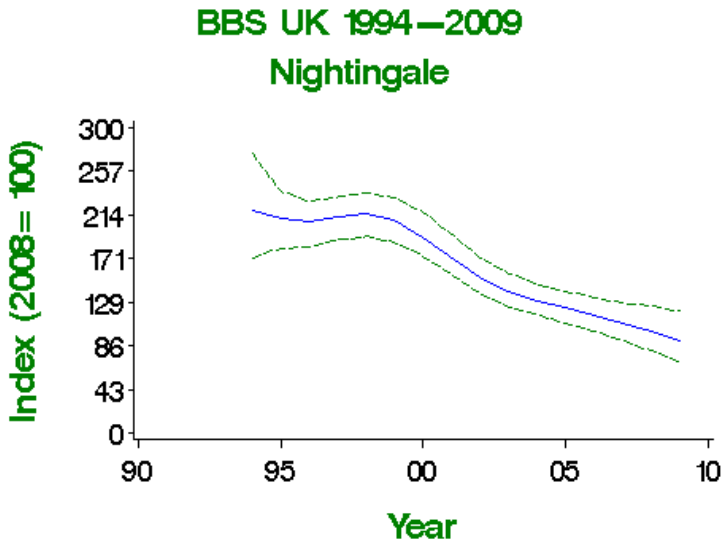
Population changes in detail

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
BBS England	14	1995-2009	30	-57	-70	-32	>50	
	10	1999-2009	32	-59	-70	-41	>50	
	5	2004-2009	32	-34	-49	-9	>25	

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.

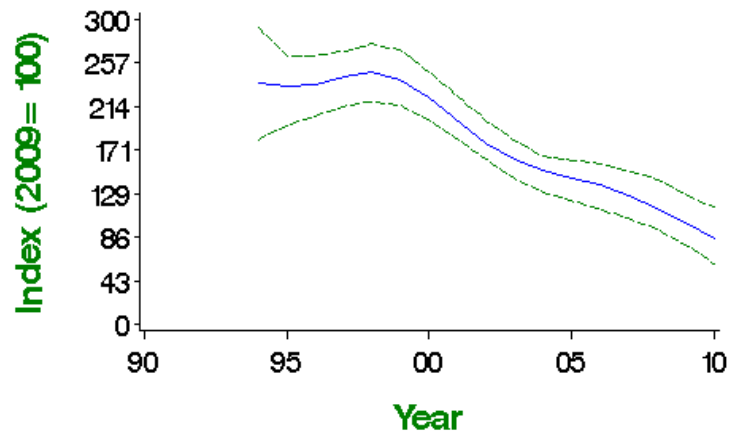


No CBC/BBS UK trend is available for this species. Smoothed CBC/BBS England trend graph



No long-term CBC/BBS trends available for this species. Smoothed BBS UK trend graph

BBS England 1994–2010 Nightingale



No long-term CBC/BBS trends available for this species. Smoothed BBS England trend graph

Demographic trends

Productivity and survival trends for this species are not currently produced by BTO

This report should be cited as: Baillie, S.R., Marchant, J.H., Leech, D.I., Renwick, A.R., Eglington, S.M., Joys, A.C., Noble, D.G., Barimore, C., Conway, G.J., Downie, I.S., Risely, K. & Robinson, R.A. (2012). BirdTrends 2011. BTO Research Report No. 609. BTO, Thetford. <https://www.bto.org/birdtrends>

Pied Flycatcher

Ficedula hypoleuca

Key facts

Conservation listings:	Europe: no SPEC category (concentrated in Europe, conservation status favourable) (BiE04) UK: amber (25-50% decline) (BoCC3)
Long-term trend:	UK: decline
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)

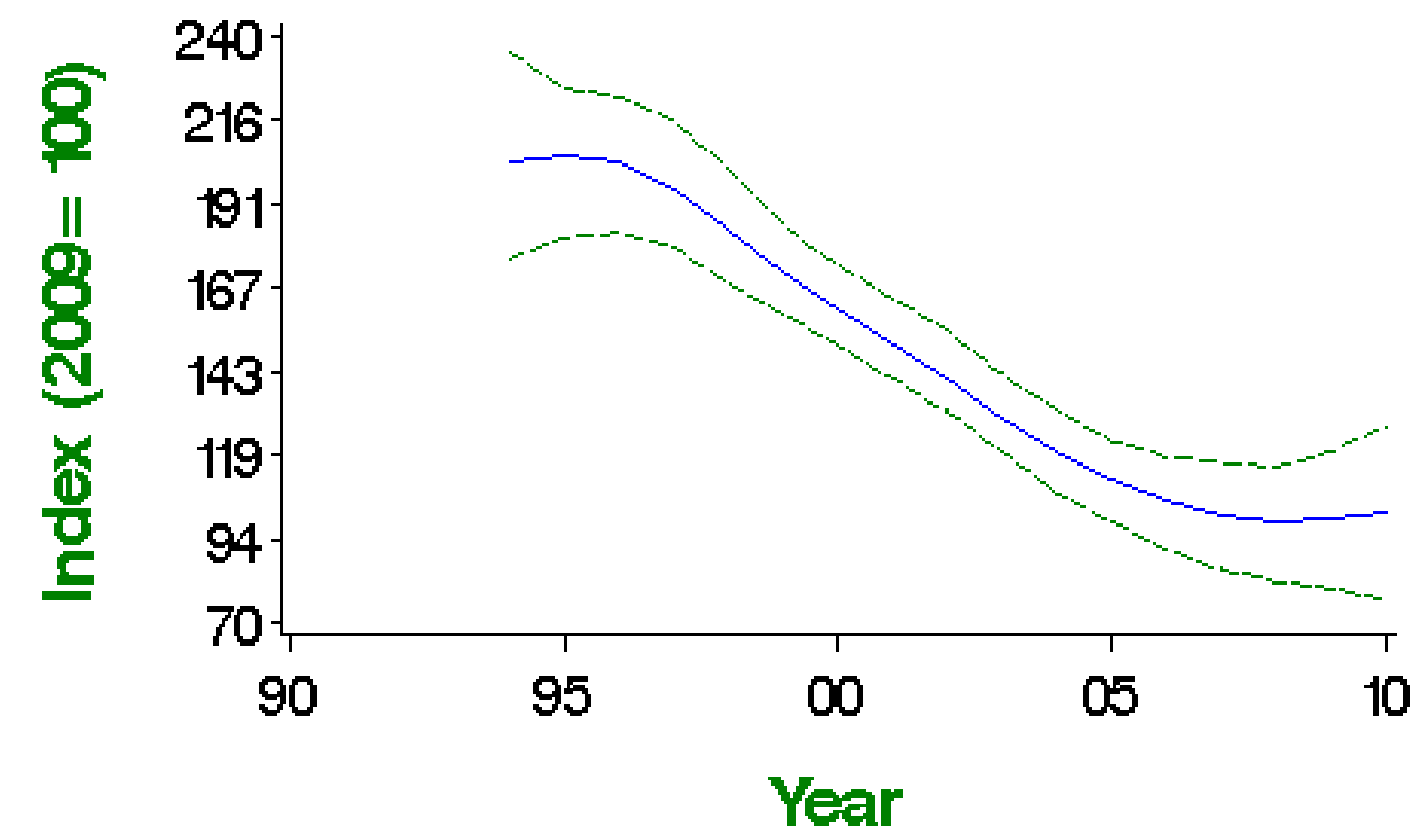
Migrant status:	Long-distance migrant
Nesting habitat:	Above-ground nester
Primary breeding habitat:	Woodland
Secondary breeding habitat:	
Breeding diet:	Animal
Winter diet:	Animal

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 from 1968-72, aided by the provision of nest boxes in new areas (Gibbons et al. 1993). BBS indicates, however, 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. Numbers have shown widespread moderate decline across Europe since 1980 (PECBMS 2011a).

BBS UK 1994–2010

Pied Flycatcher

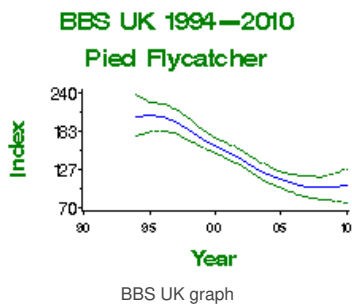


Smoothed population index, relative to an arbitrary 100 in the year given, with 85% confidence limits in green

Population changes in detail

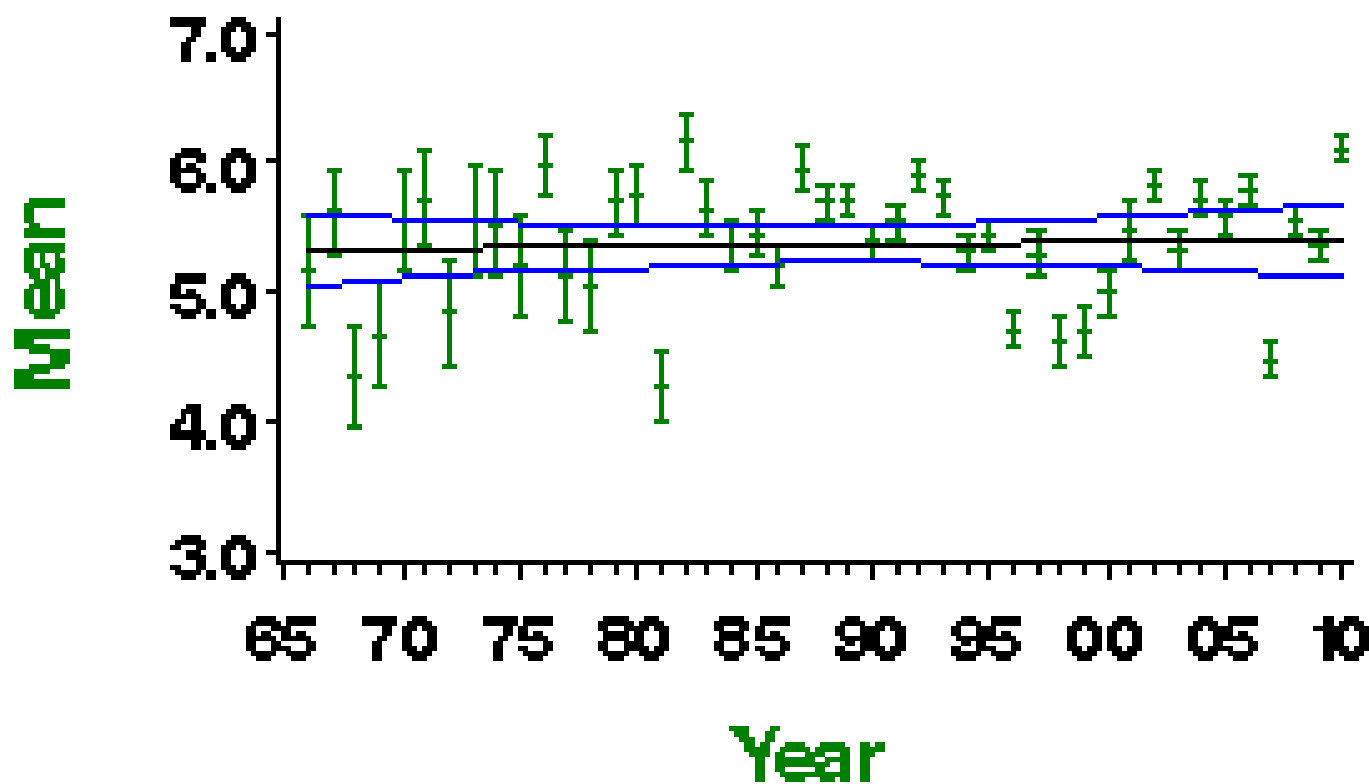
Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
BBS UK	14	1995-2009	41	-51	-65	-33	>50	
	10	1999-2009	40	-42	-58	-24	>25	

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See here for more information.



Demographic trends

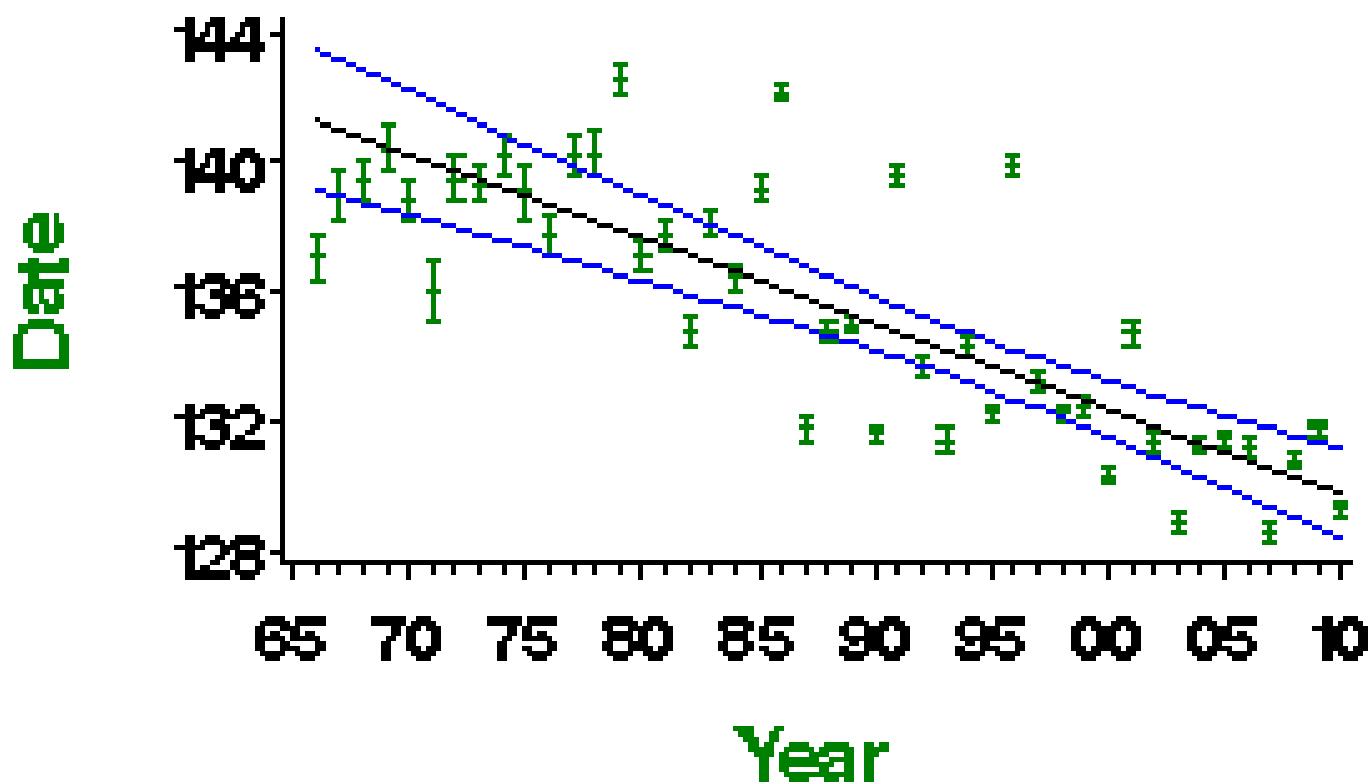
Fledglings per breeding attempt 1966 –2010 Pied Flycatcher



Mean number of fledglings produced per nest - green bars represent standard error and black line shows long-term trend

Laying date 1966—2010

Pied Flycatcher



Mean laying date in Julian days (1st April = Day 90) - green bars represent standard error and black line shows long-term trend

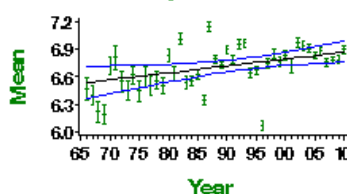
More on demographic trends

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Fledglings per breeding attempt	41	1968-2009	248	None					
Clutch size	41	1968-2009	336	Linear increase	6.55 eggs	6.86 eggs	4.7%		
Brood size	41	1968-2009	367	None					
Nest failure rate at egg stage	41	1968-2009	409	Curvilinear	0.60% nests/day	0.29% nests/day	-51.7%		
Nest failure rate at chick stage	41	1968-2009	332	Linear increase	0.35% nests/day	0.71% nests/day	102.9%		
Laying date	41	1968-2009	416	Linear decline	May 21	May 10	-11 days		

For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).

Clutch size 1966—2010

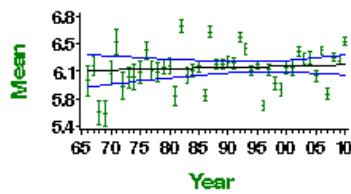
Pied Flycatcher



Mean number of eggs per nest - green bars represent standard error and black line shows long-term trend

Brood size 1966—2010

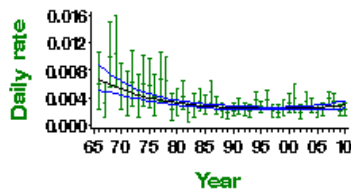
Pied Flycatcher



Mean number of chicks per nest - green bars represent standard error and black line shows long-term trend

Egg stage nest failure rate

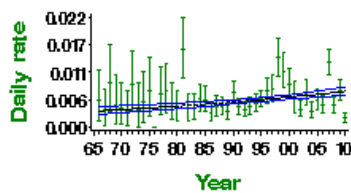
Pied Flycatcher



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Chick stage nest failure rate

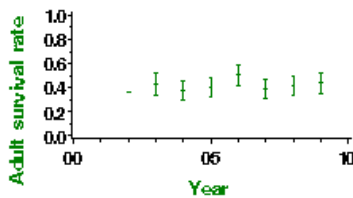
Pied Flycatcher



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

RAS survival 2002—2009

Pied Flycatcher



Proportion of adult birds surviving to following year - error bars represent 95% confidence limits

Causes of change

The reasons for this decline are unknown, but there is good evidence that they lie at least partly outside the breeding season and are thought to be linked to changing conditions on wintering grounds and migration.

Change factor	Primary driver	Secondary driver
Demographic	Overwinter survival	
Ecological	Changes on wintering grounds	

Further information on causes of change

The reasons for this decline are unknown, but there is good evidence that they lie at least partly outside the breeding season (Goodenough et al. 2009). No trends are evident in the number of fledglings per breeding attempt (see above). There has been a linear increase in clutch size but although the failure rate at the egg stage has shown a decrease, failure rate at the chick stage has increased.

There is good evidence that declines are related to conditions outside the breeding season. Goodenough et al. (2009) found that decreasing breeding performance is contributing to decline, but that non-breeding factors are more important. Winter NAO index is a strong predictor of breeding population, probably because the North Atlantic oscillation influences food abundance in Africa and at migratory stopover points. Long-term autumn bird monitoring data from Russia was related to monthly mean temperatures in the West African wintering grounds; the positive relationship suggests that increasing bird numbers are explained by increasing mean November

temperatures. Precipitation and European autumn, spring and breeding-range temperatures did not show a strong relationship (Chernetsov & Huettmann 2005). Thingstad et al. (2006) found that weather conditions at the flycatcher's wintering areas in western Africa were suspected to be responsible for the decrease in Scandinavia, although the breeding success of the sink populations was significantly correlated to June temperatures.

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 to compensate for the change in food supply by breeding earlier (Both 2002, Both et al. 2006). A more recent paper found that timing of spring migration has responded flexibly to climate change as recovery dates during spring migration in North Africa advanced by ten days between 1980 and 2002, which was explained by improving Sahel rainfall and a phenotypic effect of birth date. However, there was no advance in arrival dates on the breeding grounds, most likely due to environmental constraints during migration (Both 2010). Furthermore, declines were found to be stronger in forests, as these were more seasonal habitats whereas less seasonal marshes showed less steep declines (Both et al. 2009).

Species references

Both, C. (2002) Nemen Bonte Vliegenvangers *Ficedula hypoleuca* af door klimaatsverandering? [Decrease of European Pied Flycatchers due to climate change?] *Limosa* 75: 73-78.

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Key facts

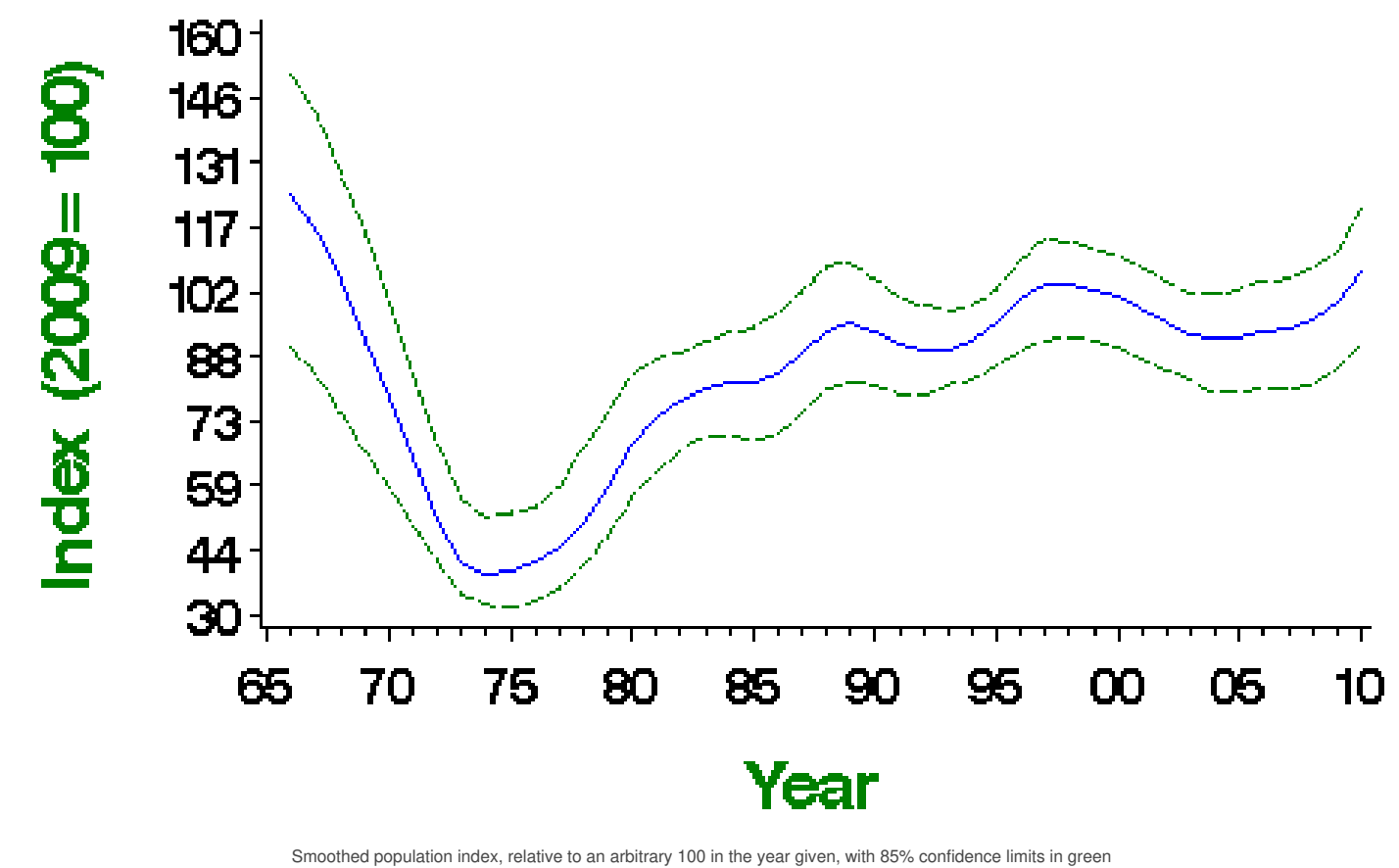
Conservation listings:	Europe: SPEC category 2 (depleted) (BiE04) UK: amber (European status) (BoCC3)
Long-term trend:	UK, England: probable shallow decline
Population size:	at least 101,000 pairs in 2000 (1988-91 Atlas estimate updated using CBC/BBS trend: BiE04, APEP06)

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). There has been widespread moderate increase across Europe since 1980 (PECBMS 2011a).

CBC/BBS UK 1966–2010

Redstart



Smoothed population index, relative to an arbitrary 100 in the year given, with 85% confidence limits in green

Population changes in detail

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS UK	42	1967-2009	72	-13	-39	38		Small CBC sample
	25	1984-2009	106	23	-2	55		Small CBC sample
	10	1999-2009	166	-2	-14	9		
	5	2004-2009	177	9	-2	21		

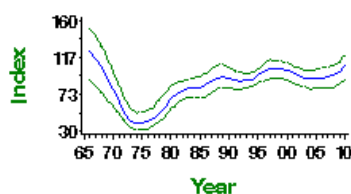
CBC/BBS England Source	42 Period (5s)	1967-2009 Years 1984-2009	44 Plots (3)	-19 Change (%)	-47 Lower limit	28 Upper limit	Alert	Small CBC sample Comment Small CBC sample
	10	1999-2009	94	-12	-23	0		
	5	2004-2009	103	2	-11	16		
BBS UK	14	1995-2009	154	7	-7	23		
	10	1999-2009	162	-3	-14	8		
	5	2004-2009	177	9	-3	21		
BBS England	14	1995-2009	86	-3	-14	2		
	10	1999-2009	91	-13	-17	-1		
	5	2004-2009	103	0	-10	2		
BBS Wales	14	1995-2009	55	10	-11	33		
	10	1999-2009	58	6	-11	25		
	5	2004-2009	59	19	-2	44		

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



CBC/BBS UK 1966—2010

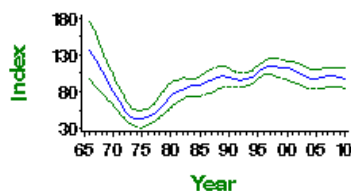
Redstart



CBC/BBS UK graph

CBC/BBS England 1966—2010

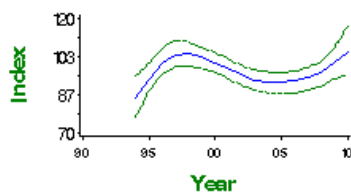
Redstart



CBC/BBS England graph

BBS UK 1994—2010

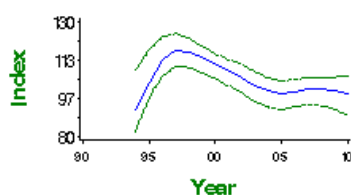
Redstart



BBS UK graph

BBS England 1994—2010

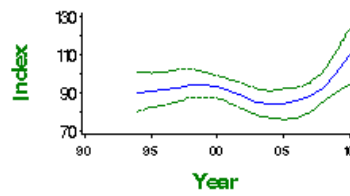
Redstart



BBS England graph

BBS Wales 1994–2010

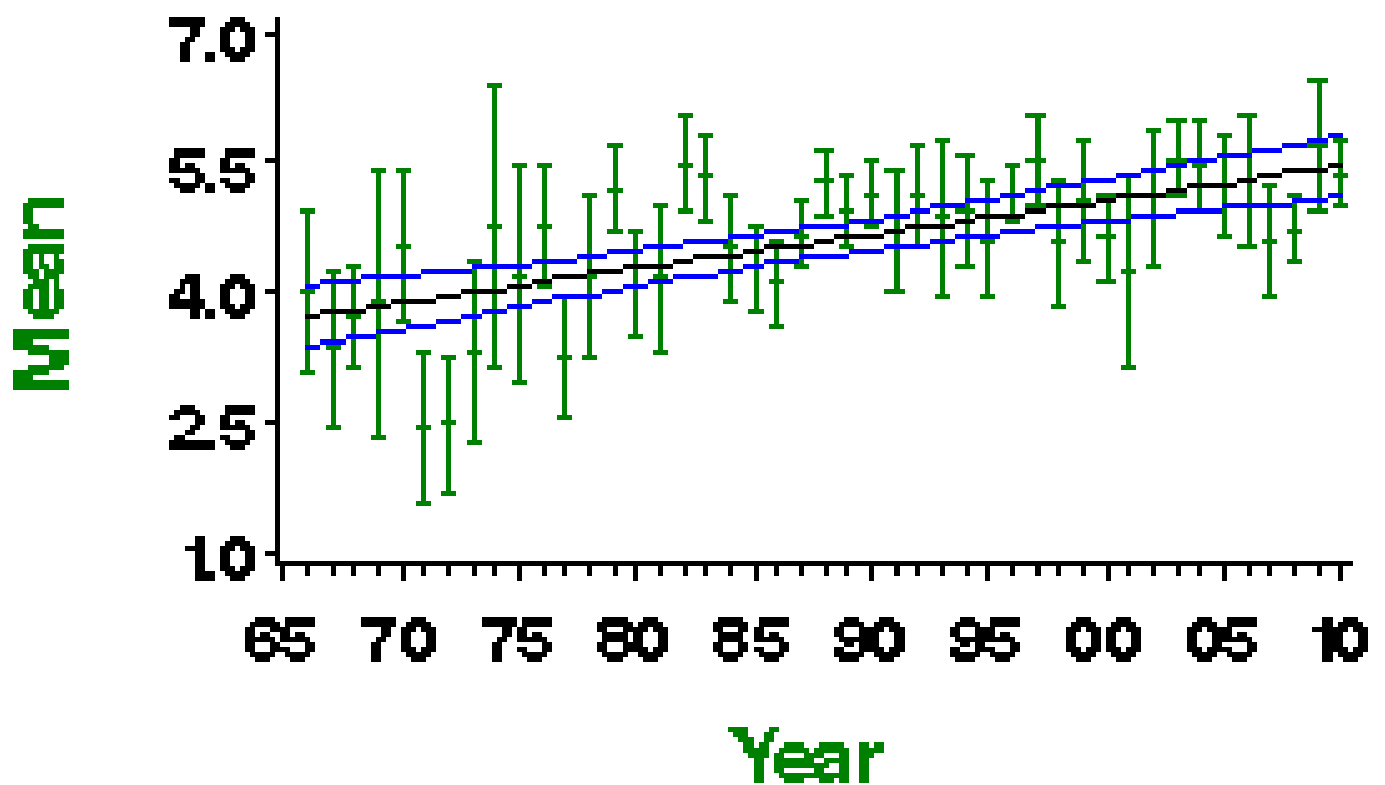
Redstart



BBS Wales graph

Demographic trends

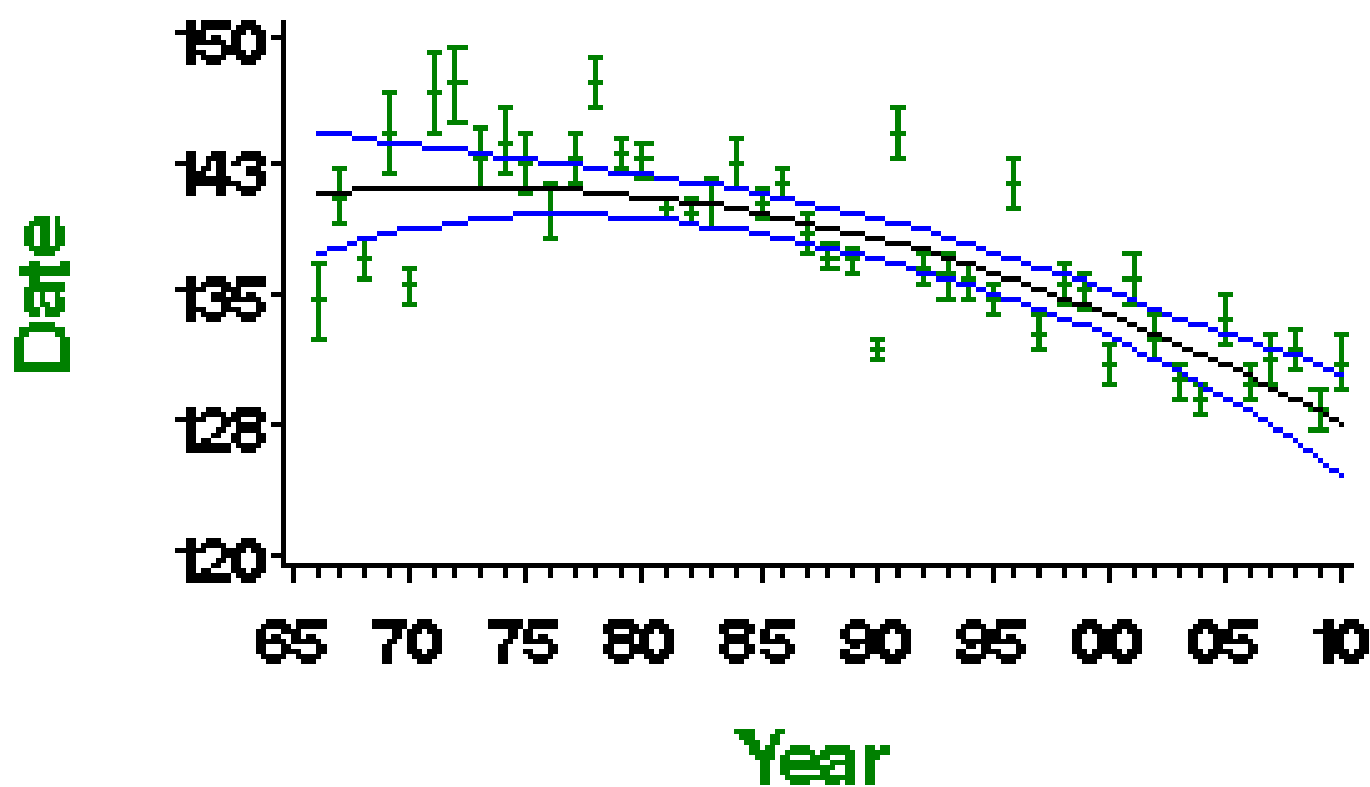
Fledglings per breeding attempt 1966–2010 Redstart



Mean number of fledglings produced per nest - green bars represent standard error and black line shows long-term trend

Laying date 1966—2010

Redstart



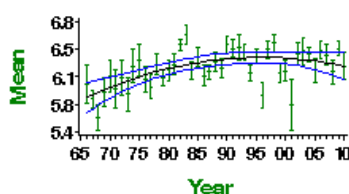
More on demographic trends

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Fledglings per breeding attempt	41	1968-2009	34	Linear increase	3.80 fledglings	5.42 fledglings	42.6%		
Clutch size	41	1968-2009	48	Curvilinear	5.90 eggs	6.25 eggs	5.9%		
Brood size	41	1968-2009	86	Curvilinear	5.14 chicks	5.57 chicks	8.5%		
Nest failure rate at egg stage	41	1968-2009	73	Linear decline	1.11% nests/day	0.23% nests/day	-79.3%		
Nest failure rate at chick stage	41	1968-2009	52	Linear decline	1.23% nests/day	0.34% nests/day	-72.4%		
Laying date	41	1968-2009	62	Curvilinear	May 21	May 8	-13 days		

For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).

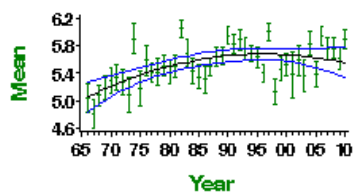
Clutch size 1966—2010

Redstart



Brood size 1966—2010

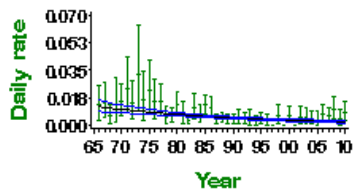
Redstart



Mean number of chicks per nest - green bars represent standard error and black line shows long-term trend

Egg stage nest failure rate

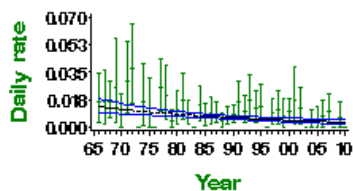
Redstart



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Chick stage nest failure rate

Redstart



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Saxicola rubetra

Conservation listings:	Europe: no SPEC category (concentrated in Europe, conservation status favourable) (BiE04) UK: amber (25-50% decline) (BoCC3)
Long-term trend:	UK: decline
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)

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 have taken place since 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 shown moderate decline across Europe since 1980 (PECBMS 2011a). 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).

BTO is conducting a survey of Whinchats, Stonechats and Wheatears in 2012 in sample 1-km squares in Wales. The survey will estimate breeding numbers and distribution and record habitat choice by territorial males.



Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
BBS UK	14	1995-2009	77	-55	-67	-41	>50	
	10	1999-2009	72	-46	-60	-33	>25	

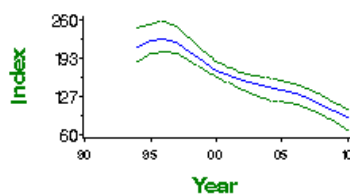
Source	Period (yrs)	2004-2009 Years	Plots (n)	Change (%)	Lower limit	Upper limit	>25 Alert	Comment
BBS England	14	1995-2009	33	-45	-3	71		
	10	1999-2009	32	-40	-5	45		
	5	2004-2009	34	-22	0	28		

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



BBS UK 1994—2010

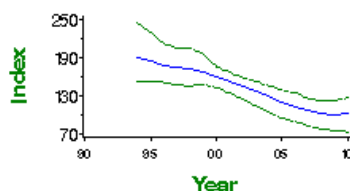
Whinchat



BBS UK graph

BBS England 1994—2010

Whinchat



BBS England graph

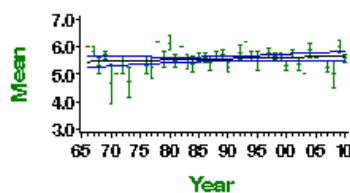
Demographic trends

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Clutch size	41	1968-2009	12	None					Small sample
Brood size	41	1968-2009	37	None					
Nest failure rate at egg stage	41	1968-2009	14	None					Small sample
Nest failure rate at chick stage	41	1968-2009	25	None					Small sample
Laying date	41	1968-2009	27	Linear decline	May 30	May 25	-5 days		Small sample

For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).

Clutch size 1966—2010

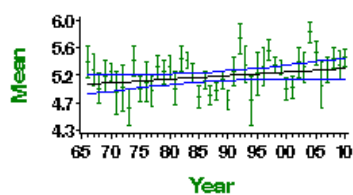
Whinchat



Mean number of eggs per nest - green bars represent standard error and black line shows long-term trend

Brood size 1966—2010

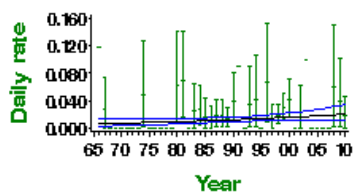
Whinchat



Mean number of chicks per nest - green bars represent standard error and black line shows long-term trend

Egg stage nest failure rate

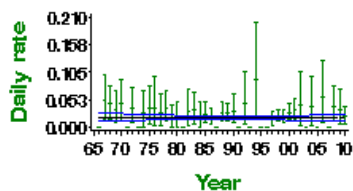
Whinchat



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Chick stage nest failure rate

Whinchat



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

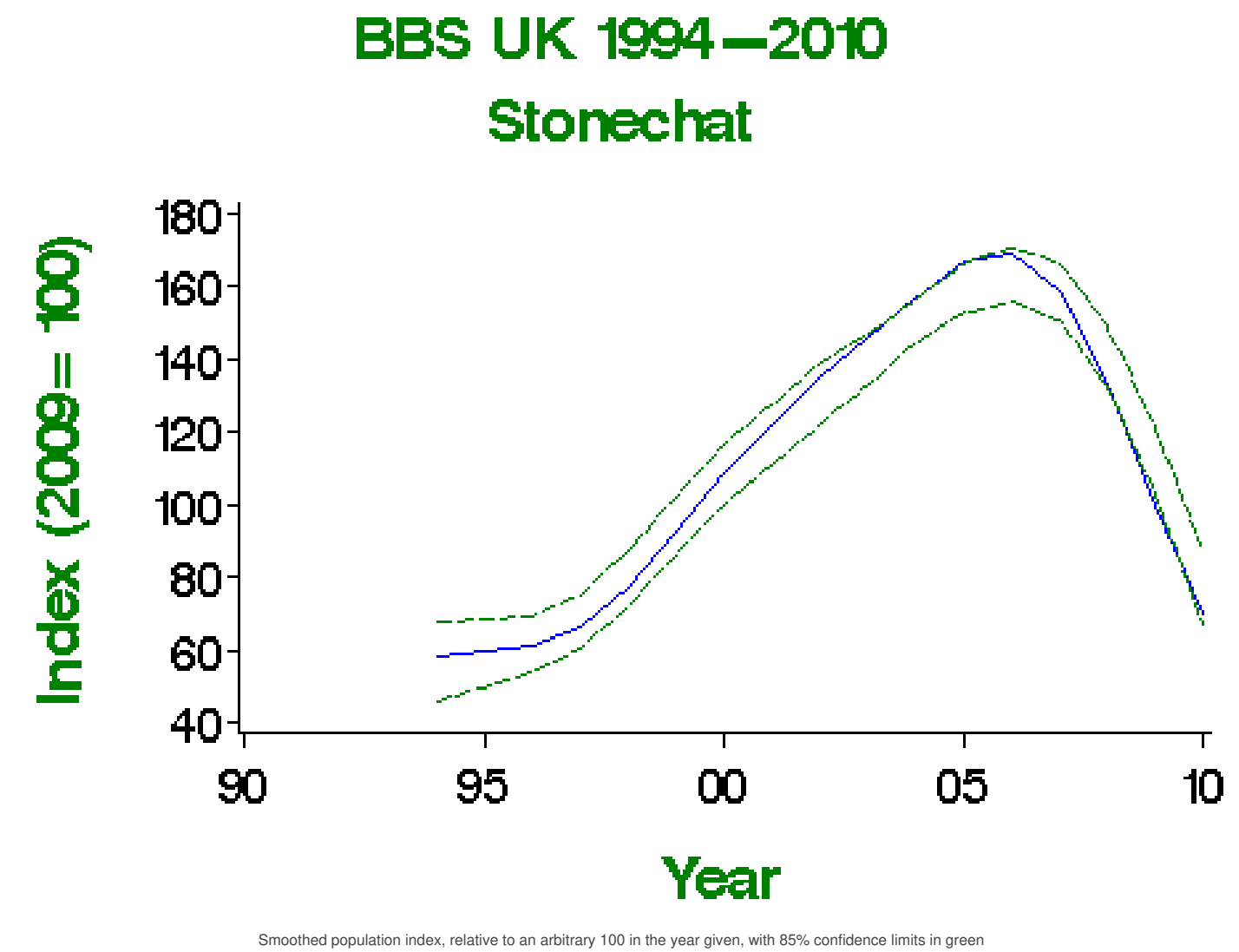
Key facts

Conservation listings:	Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe) (BiE04) UK: green (BoCC3)
Long-term trend:	UK: probably fluctuating, with no long-term trend
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 strongly increasing BBS trend to 2006 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). UK data now indicate a sharp decrease, however, in response to recent snowy winters.

BTO is conducting a survey of Stonechats, Whinchats and Wheatears in 2012 in sample 1-km squares in Wales. The survey will estimate breeding numbers and distribution and record habitat choice by territorial males.



Population changes in detail

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
BBS UK	14	1995-2009	164	68	48	138		

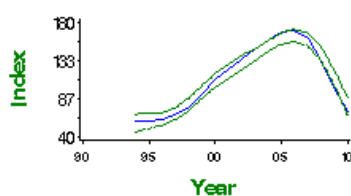
Source	10 Period (yrs)	1999-2009 Years	206 Plots	8 Change (%)	0 Lower limit	43 Upper limit	Alert >25	Comment
BBS England	14	1995-2009	72	43	-26	-19		
	10	1999-2009	91	2	-14	-7		
	5	2004-2009	120	-45	-13	-7	>25	
BBS Scotland	14	1995-2009	37	62	44	221		
	10	1999-2009	46	14	9	87		
	5	2004-2009	58	-41	-36	-4	>25	
BBS Wales	14	1995-2009	37	141	51	278		
	10	1999-2009	46	27	-14	77		
	5	2004-2009	52	-19	-33	0		

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



BBS UK 1994—2010

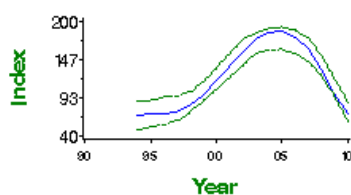
Stonechat



BBS UK graph

BBS England 1994—2010

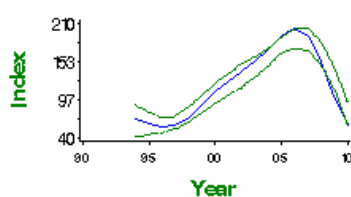
Stonechat



BBS England graph

BBS Scotland 1994—2010

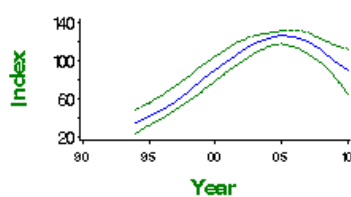
Stonechat



BBS Scotland graph

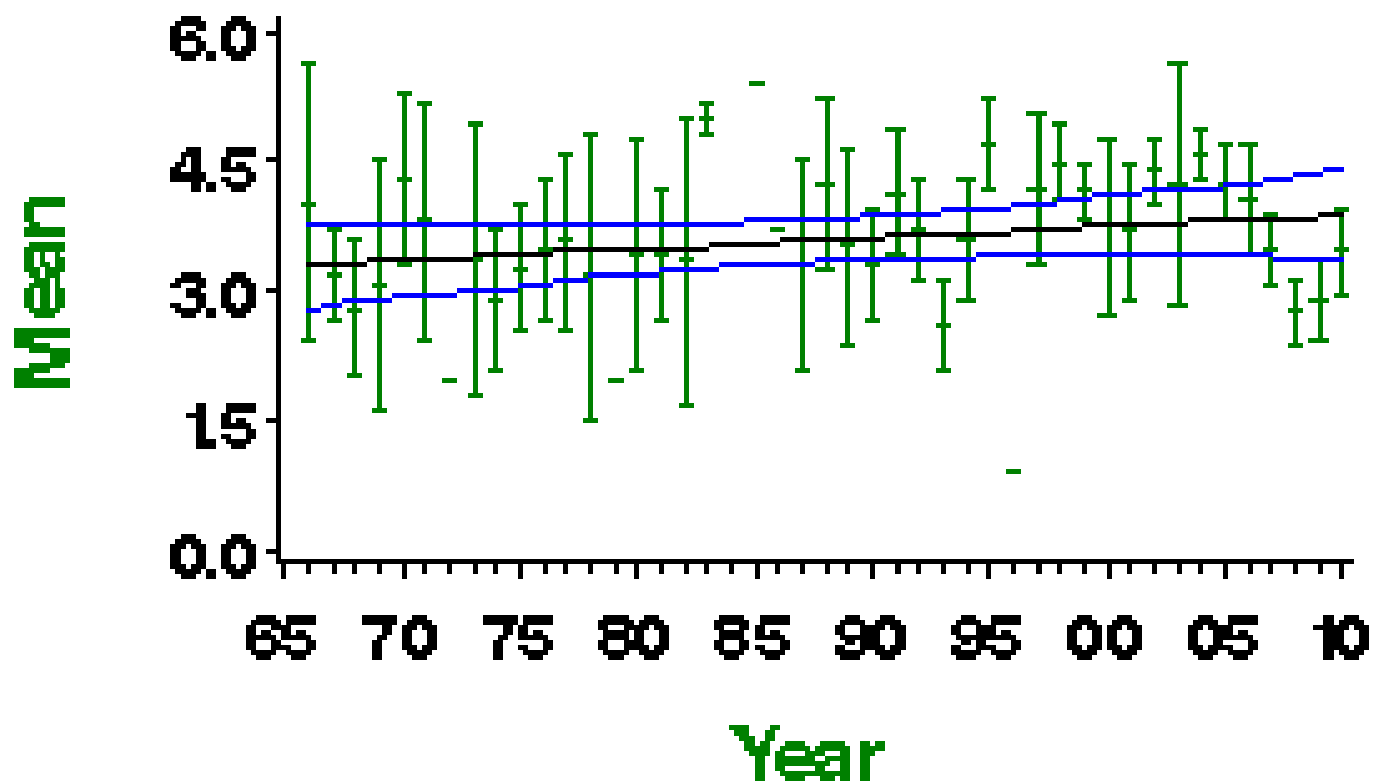
BBS Wales 1994—2010

Stonechat



BBS Wales graph

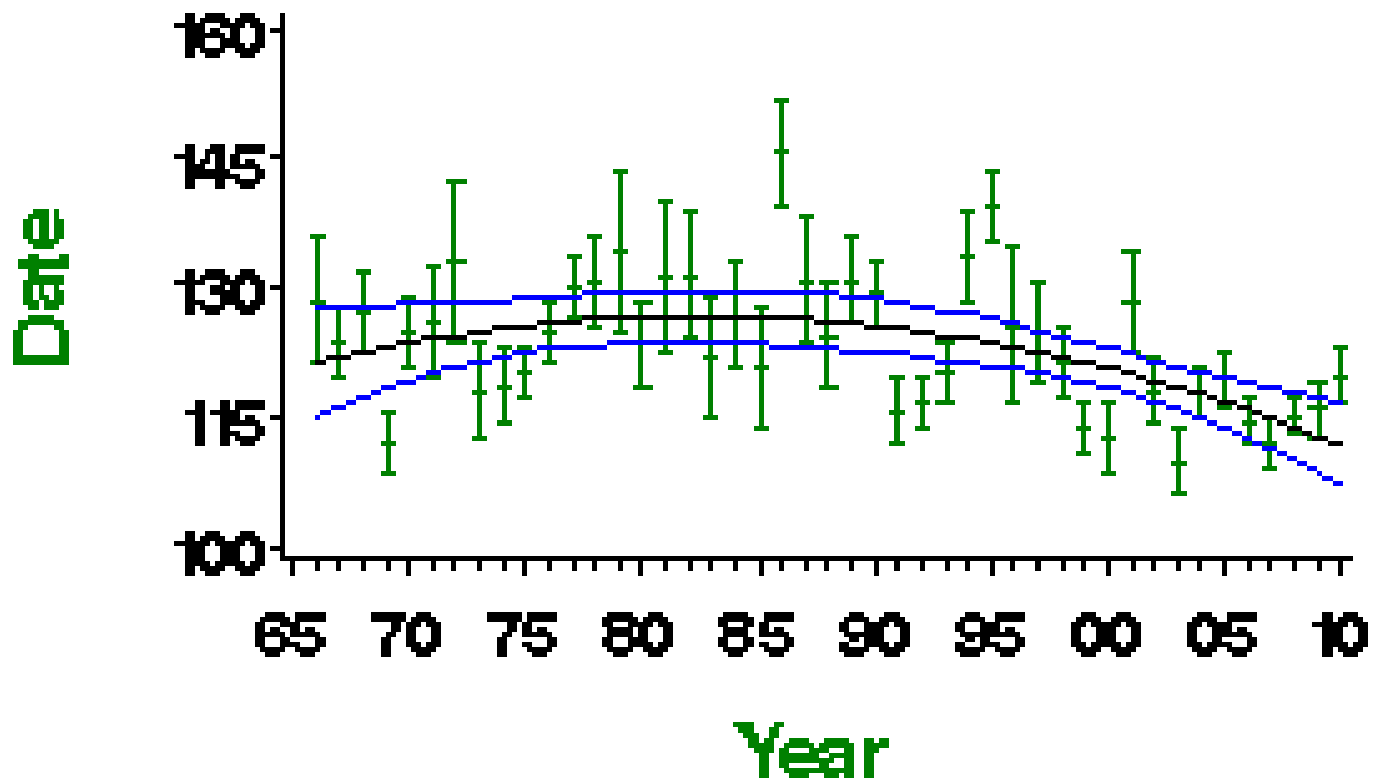
Fledglings per breeding attempt 1966–2010 Stonechat



Mean number of fledglings produced per nest - green bars represent standard error and black line shows long-term trend

Laying date 1966—2010

Stonechat



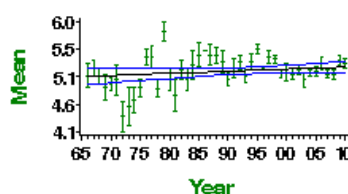
More on demographic trends

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Fledglings per breeding attempt	41	1968-2009	23	None					
Clutch size	41	1968-2009	33	None					
Brood size	41	1968-2009	65	Curvilinear	4.64 chicks	4.74 chicks	2.2%		
Nest failure rate at egg stage	41	1968-2009	37	None					
Nest failure rate at chick stage	41	1968-2009	59	None					
Laying date	41	1968-2009	40	Curvilinear	May 3	Apr 23	-10 days		

For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).

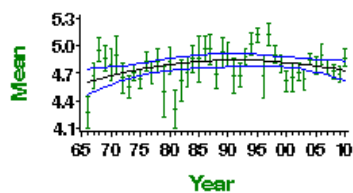
Clutch size 1966—2010

Stonechat



Brood size 1966—2010

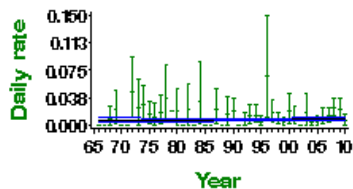
Stonechat



Mean number of chicks per nest - green bars represent standard error and black line shows long-term trend

Egg stage nest failure rate

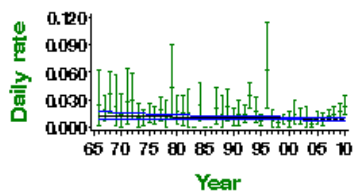
Stonechat



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Chick stage nest failure rate

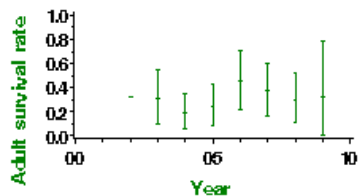
Stonechat



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

RAS survival 2002—2009

Stonechat



Proportion of adult birds surviving to following year - error bars represent 95% confidence limits

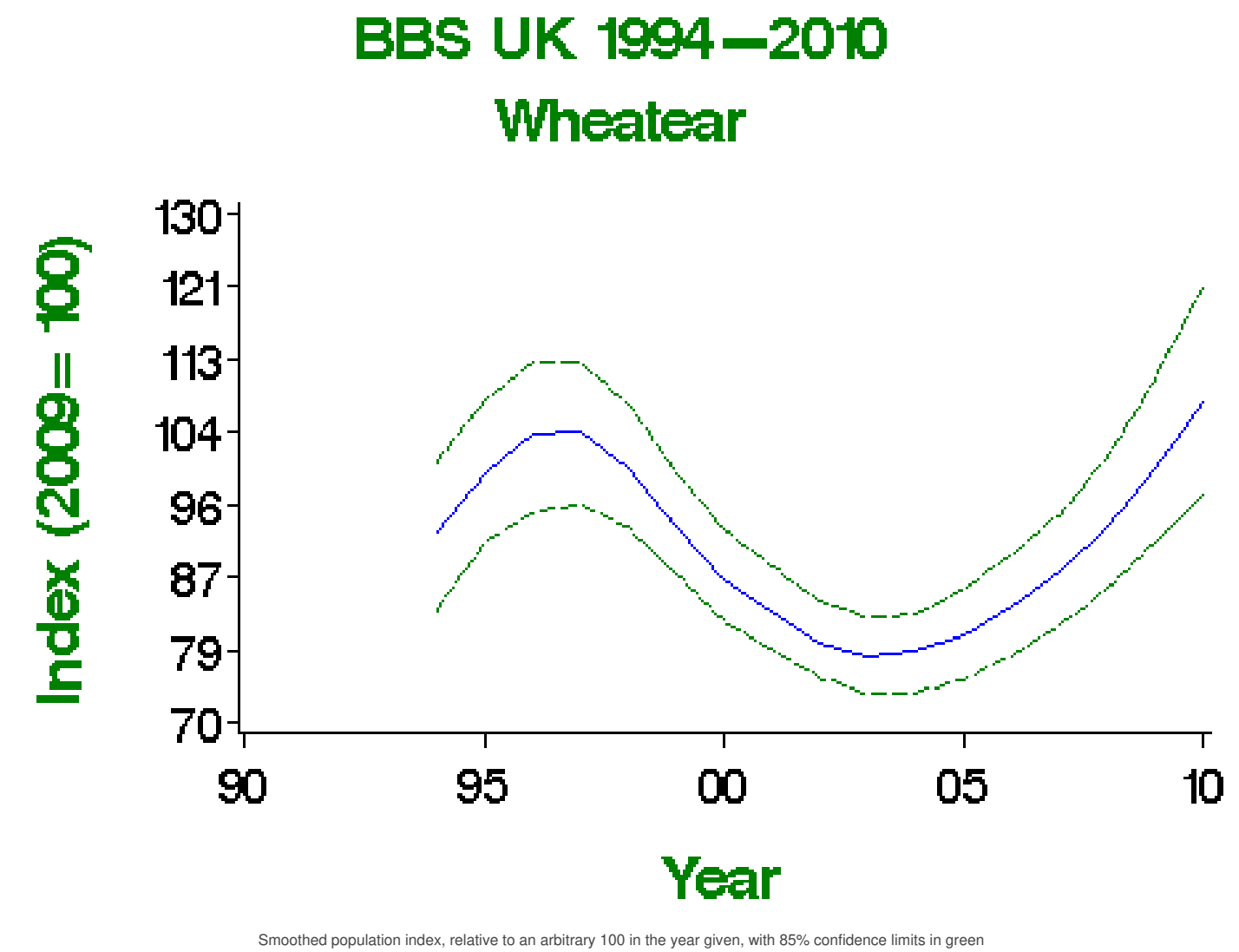
Key facts

Conservation listings:	Europe: SPEC category 3 (declining) (BiE04) UK: amber (species level and nominate race oenanthe, European status) (BoCC3)
Long-term trend:	UK: possible decline
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 trends show wide fluctuations, with little indication of directional change. 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 shown moderate decline across Europe since 1980 (PECBMS 2011a). 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).

BTO is conducting a survey of Wheatears, Whinchats and Stonechats in 2012 in sample 1-km squares in Wales. The survey will estimate breeding numbers and distribution and record habitat choice by territorial males.



Population changes in detail

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
BBS UK	14	1995-2009	310	1	-17	21		

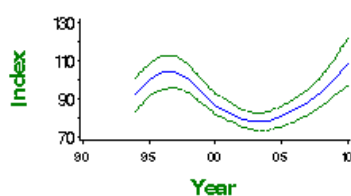
Source	10 Period (yrs)	1999-2009 Years 2004-2009	333 Plots 990	7 Change (%)	-9 Lower limit	27 Upper limit	Alert	Comment
BBS England	14	1995-2009	167	7	-3	71		
	10	1999-2009	185	10	-5	45		
	5	2004-2009	230	26	0	28		
BBS Scotland	14	1995-2009	78	3	-21	41		
	10	1999-2009	75	6	-16	35		
	5	2004-2009	83	24	8	46		
BBS Wales	14	1995-2009	52	-15	-35	6		
	10	1999-2009	58	1	-22	27		
	5	2004-2009	60	20	-5	54		

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



BBS UK 1994—2010

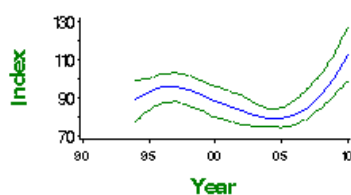
Wheatear



BBS UK graph

BBS England 1994—2010

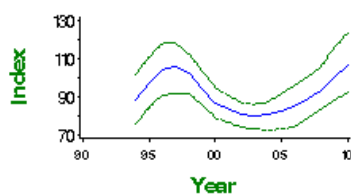
Wheatear



BBS England graph

BBS Scotland 1994—2010

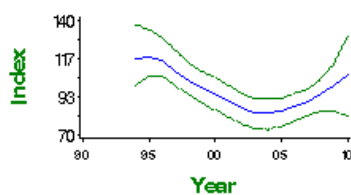
Wheatear



BBS Scotland graph

BBS Wales 1994—2010

Wheatear

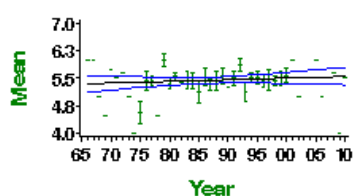


BBS Wales graph

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Clutch size	41	1968-2009	11	None					Small sample
Brood size	41	1968-2009	57	None					
Nest failure rate at egg stage	41	1968-2009	16	Curvilinear	0.79% nests/day	0.02% nests/day	-97.5%		Small sample
Nest failure rate at chick stage	41	1968-2009	38	None					
Laying date	41	1968-2009	12	None			0 days		Small sample

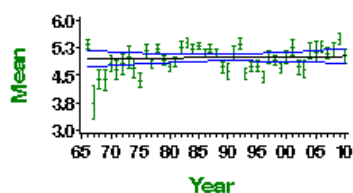
For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).

Clutch size 1966—2010 Wheatear



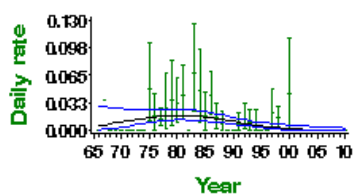
Mean number of eggs per nest - green bars represent standard error and black line shows long-term trend

Brood size 1966—2010 Wheatear



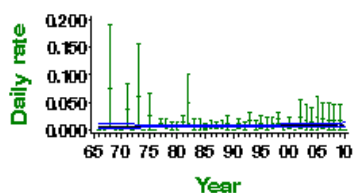
Mean number of chicks per nest - green bars represent standard error and black line shows long-term trend

Egg stage nest failure rate Wheatear



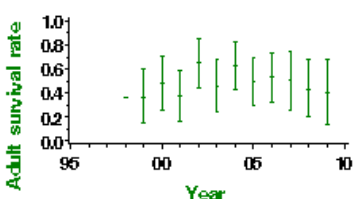
Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Chick stage nest failure rate Wheatear



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

RAS survival 1998—2009 Wheatear



Proportion of adult birds surviving to following year - error bars represent 95% confidence limits

This report should be cited as: Baillie, S.R., Marchant, J.H., Leech, D.I., Renwick, A.R., Eglinton, S.M., Joys, A.C., Noble, D.G., Barimore, C., Conway, G.J., Downie, I.S., Risely, K. & Robinson, R.A. (2012). BirdTrends 2011. BTO Research Report No. 609. BTO, Thetford. <https://www.bto.org/birdtrends>

Key facts

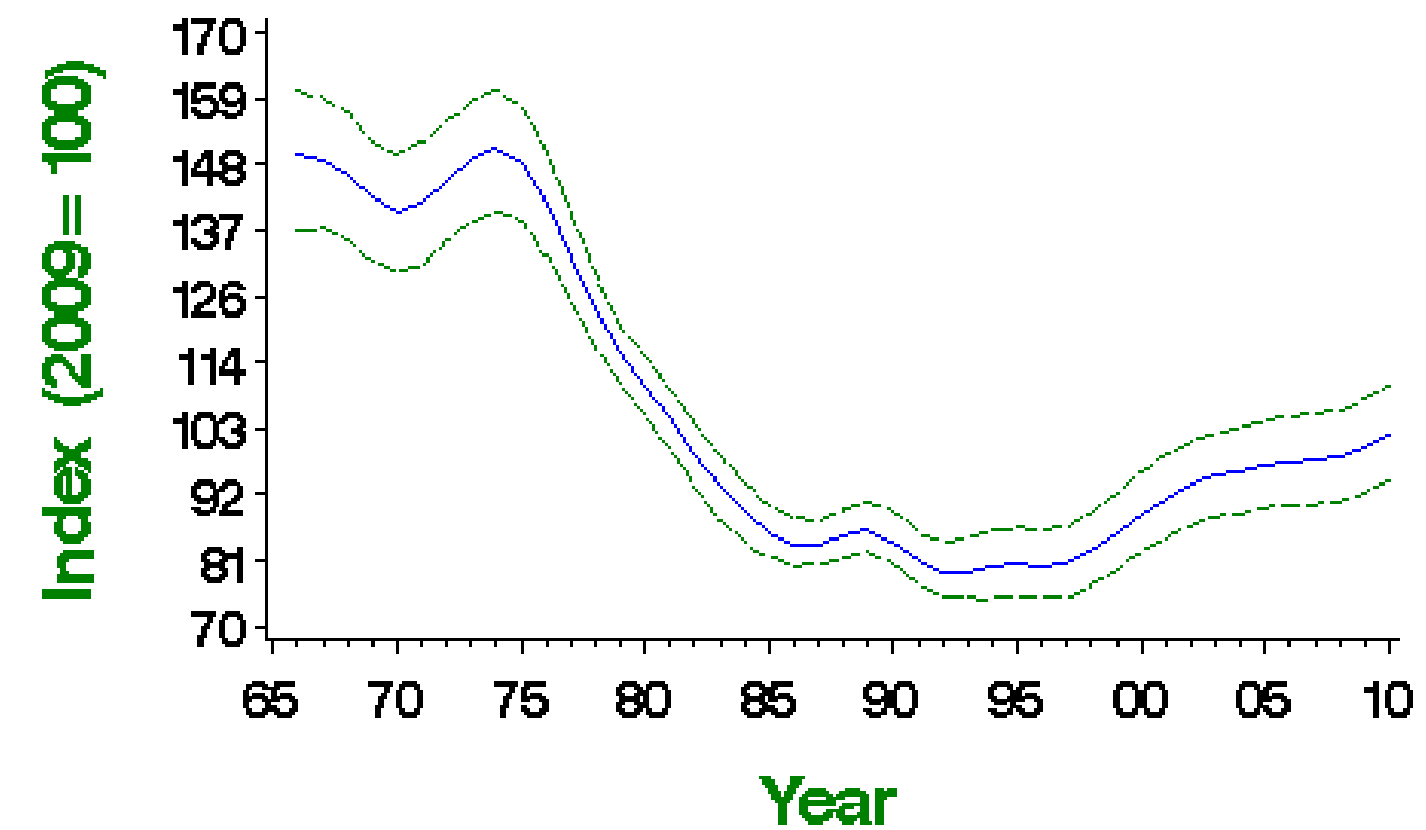
Conservation listings:	Europe: no SPEC category (concentrated in Europe, conservation status favourable) (BiE04) UK: amber (species level, race <i>occidentalis</i> , 25-50% population decline; race <i>hebridium</i> , >20% of European breeders) (BoCC3) UK Biodiversity Action Plan: priority species
Long-term trend:	UK, England: moderate decline
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. Nest failure rates are currently increasing, and are of NRS concern (Leech & Barimore 2008). Numbers have shown widespread moderate decrease across Europe since 1980 (PECBMS 2011a).

CBC/BBS UK 1966–2010

Dunnock



Smoothed population index, relative to an arbitrary 100 in the year given, with 85% confidence limits in green

Population changes in detail

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS UK	42	1967-2009	846	-33	-42	-21	>25	
	25	1984-2009	1274	12	-1	26		
	10	1999-2009	2210	17	13	20		

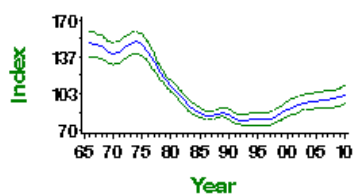
Source	5 Period (yrs)	2004-2009 Years	2460 Plots	4 Change (%)	1 Lower limit	7 Upper limit	Alert >25	Comment
CBC/BBS England		1967-2009	698	(3%)				
	25	1984-2009	1046	6	-8	21		
	10	1999-2009	1793	15	11	19		
	5	2004-2009	1999	3	1	6		
CES adults	25	1984-2009	97	-13	-28	-1		
	10	1999-2009	109	-2	-12	7		
	5	2004-2009	105	-13	-20	-5		
CES juveniles	25	1984-2009	94	-28	-46	6		
	10	1999-2009	106	-5	-20	12		
	5	2004-2009	101	-10	-21	3		
BBS UK	14	1995-2009	1971	24	18	30		
	10	1999-2009	2179	17	12	20		
	5	2004-2009	2460	4	2	7		
BBS England	14	1995-2009	1594	18	13	23		
	10	1999-2009	1750	16	12	19		
	5	2004-2009	1973	4	1	6		
BBS Scotland	14	1995-2009	137	56	35	79		
	10	1999-2009	152	27	11	41		
	5	2004-2009	177	11	0	22		
BBS Wales	14	1995-2009	149	38	16	61		
	10	1999-2009	169	22	8	37		
	5	2004-2009	182	3	-5	11		
BBS N.Ireland	14	1995-2009	68	95	26	130		
	10	1999-2009	80	2	-11	20		
	5	2004-2009	87	0	-10	11		

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



CBC/BBS UK 1966–2010

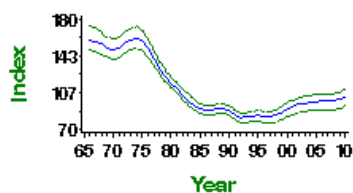
Dunnock



CBC/BBS UK graph

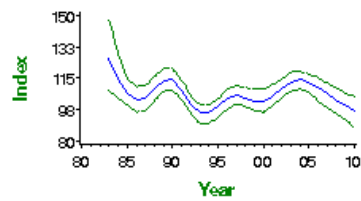
CBC/BBS England 1966–2010

Dunnock



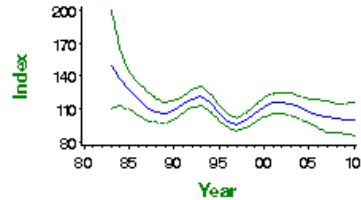
CBC/BBS England graph

CES adult abundance 1983–2010
Dunnock



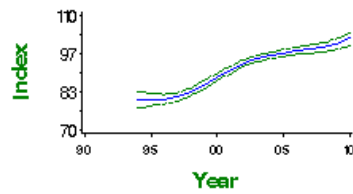
CES adults graph

CES juvenile abundance 1983–2010
Dunnock



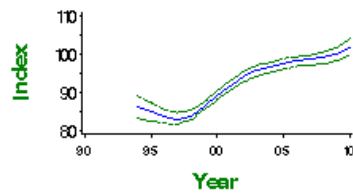
CES juveniles graph

BBS UK 1994–2010
Dunnock



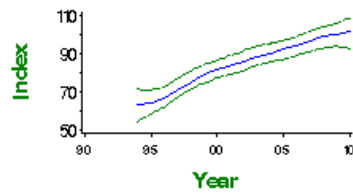
BBS UK graph

BBS England 1994–2010
Dunnock



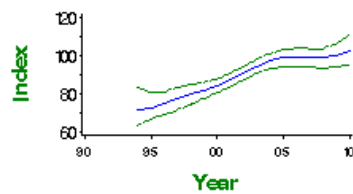
BBS England graph

BBS Scotland 1994–2010
Dunnock



BBS Scotland graph

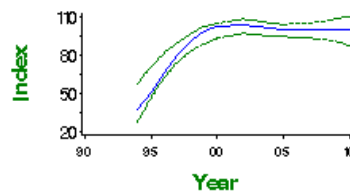
BBS Wales 1994–2010
Dunnock



BBS Wales graph

BBS N. Ireland 1994—2010

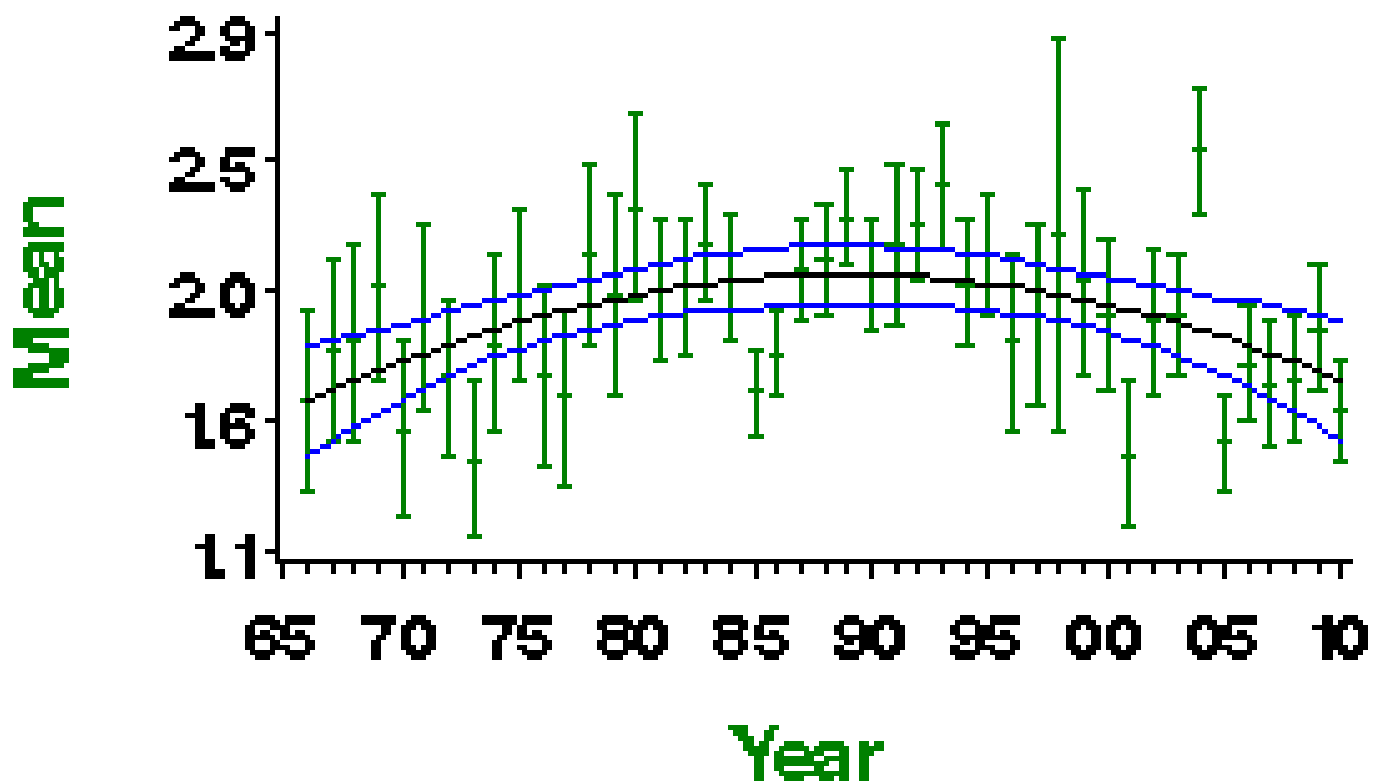
Dunnoek



BBS N.Ireland graph

Demographic trends

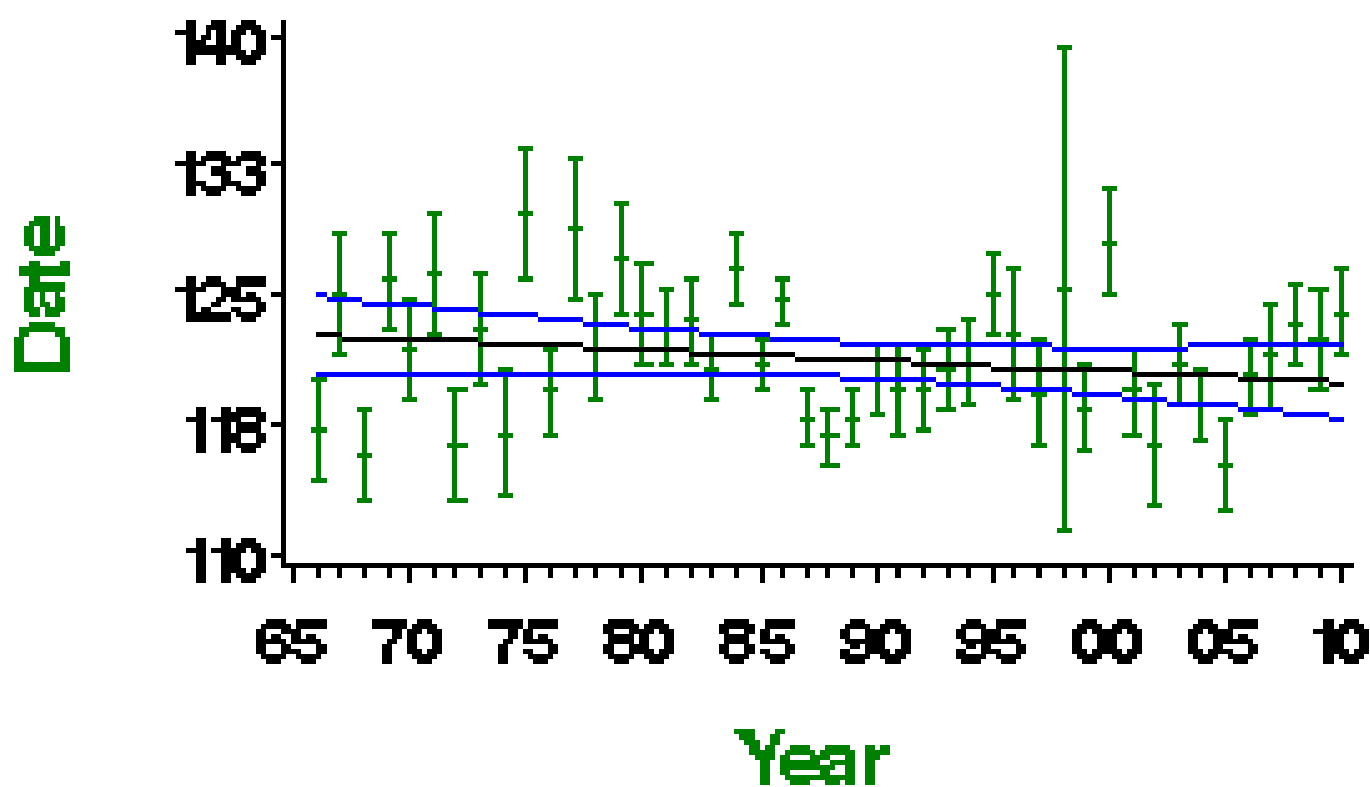
Fledglings per breeding attempt 1966—2010 Dunnoek



Mean number of fledglings produced per nest - green bars represent standard error and black line shows long-term trend

Laying date 1966–2010

Dunnock



Mean laying date in Julian days (1st April = Day 90) - green bars represent standard error and black line shows long-term trend

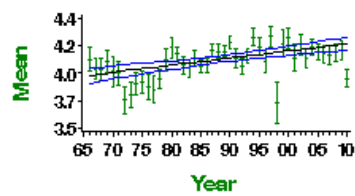
More on demographic trends

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Fledglings per breeding attempt	41	1968-2009	57	Curvilinear	1.68 fledglings	1.72 fledglings	2.0%		
Clutch size	41	1968-2009	100	Linear increase	3.94 eggs	4.18 eggs	6.0%		
Brood size	41	1968-2009	109	Curvilinear	3.41 chicks	3.53 chicks	3.4%		
Nest failure rate at egg stage	41	1968-2009	140	Curvilinear	2.61% nests/day	2.37% nests/day	-9.2%		
Nest failure rate at chick stage	41	1968-2009	114	Curvilinear	2.43% nests/day	2.71% nests/day	11.5%		
Laying date	41	1968-2009	79	None			0 days		
Juvenile to Adult ratio (CES)	25	1984-2009	101	Smoothed trend	104 Index value	100 Index value	-4%		
Juvenile to Adult ratio (CES)	10	1999-2009	112	Smoothed trend	111 Index value	100 Index value	-10%		
Juvenile to Adult ratio (CES)	5	2004-2009	107	Smoothed trend	98 Index value	100 Index value	2%		

For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).

Clutch size 1966—2010

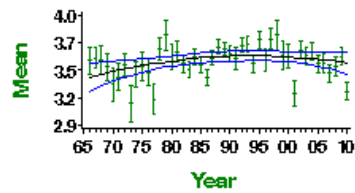
Dunnock



Mean number of eggs per nest - green bars represent standard error and black line shows long-term trend

Brood size 1966—2010

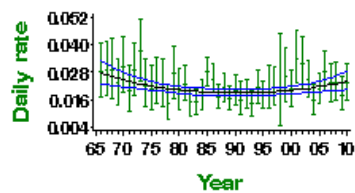
Dunnock



Mean number of chicks per nest - green bars represent standard error and black line shows long-term trend

Egg stage nest failure rate

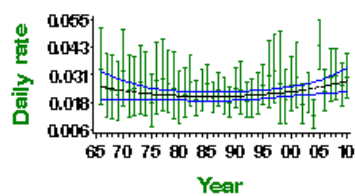
Dunnock



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Chick stage nest failure rate

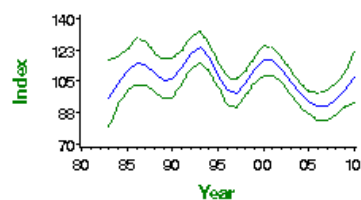
Dunnock



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

CES productivity 1983—2010

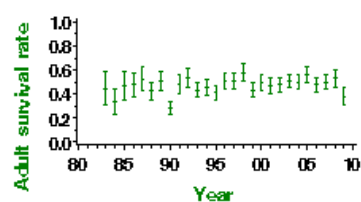
Dunnock



Smoothed long-term trend in ratio of juvenile:adult birds caught - green lines indicate 85% confidence limits

CES survival 1983—2009

Dunnock



Proportion of adult birds surviving to following year - green bars represent 95% confidence limits

This report should be cited as: Baillie, S.R., Marchant, J.H., Leech, D.I., Renwick, A.R., Eglinton, S.M., Joys, A.C., Noble, D.G., Barimore, C., Conway, G.J., Downie, I.S., Risely, K. & Robinson, R.A. (2012). BirdTrends 2011. BTO Research Report No. 609. BTO, Thetford. <https://www.bto.org/birdtrends>

House Sparrow

Passer domesticus

Key facts

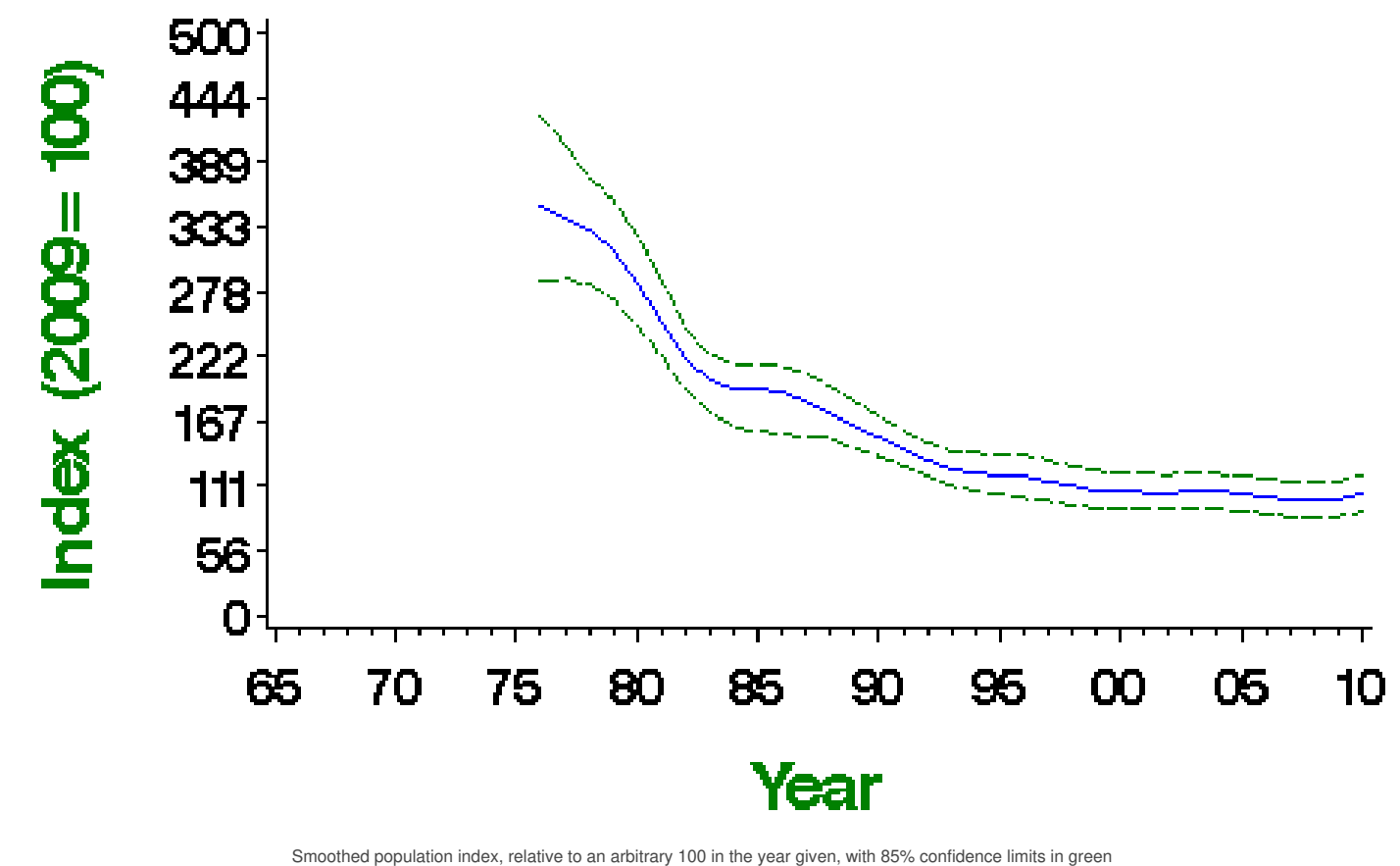
Conservation listings:	Europe: SPEC category 3 (declining) (BiE04) UK: red (>50% population decline) (BoCC3) UK Biodiversity Action Plan: priority species
Long-term trend:	England: rapid decline
Population size:	2,100,000-3,675,000 pairs in 2000 (1988-91 Atlas estimate updated using CBC/BBS trend: BiE04, APEP06); about 6 million pairs in Britain (Robinson <i>et al.</i> 2005b)
Migrant status:	Resident
Nesting habitat:	Cavity nester
Primary breeding habitat:	Human habitats
Secondary breeding habitat:	
Breeding diet:	Vegetation
Winter diet:	Vegetation

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). 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 and GBFS data: Robinson *et al.* 2005b). BBS suggests increases recently in Wales, Northern Ireland and Scotland. A change in the listing criteria resulted in the admission of the species, green-listed until 2002, to the red list. The European status of this species is no longer considered 'secure' (BirdLife International 2004), following widespread moderate decline across Europe since 1980 (PECBMS 2011a).

CBC/BBS England 1976—2010

House Sparrow



Population changes in detail

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS England	32	1977-2009	618	-71	-79	-60	>50	
	25	1984-2009	780	-49	-61	-28	>25	
	10	1999-2009	1374	-7	-12	-2		
	5	2004-2009	1520	-6	-9	-1		
BBS UK	14	1995-2009	1534	-6	-12	0		
	10	1999-2009	1657	1	-3	7		
	5	2004-2009	1839	0	-4	4		
BBS England	14	1995-2009	1266	-18	-23	-13		
	10	1999-2009	1357	-8	-13	-4		
	5	2004-2009	1506	-5	-8	-1		
BBS Scotland	14	1995-2009	88	44	5	85		
	10	1999-2009	93	37	8	62		
	5	2004-2009	106	8	-11	30		
BBS Wales	14	1995-2009	119	87	51	131		
	10	1999-2009	136	35	18	55		
	5	2004-2009	147	12	0	23		
BBS N.Ireland	14	1995-2009	50	50	-8	120		
	10	1999-2009	59	32	3	64		
	5	2004-2009	65	12	-8	33		

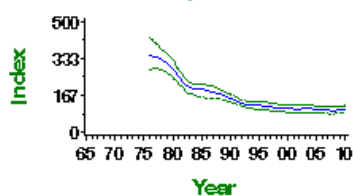
Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



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

CBC/BBS England 1976–2010

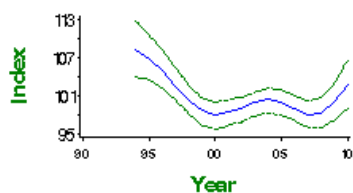
House Sparrow



CBC/BBS England graph

BBS UK 1994–2010

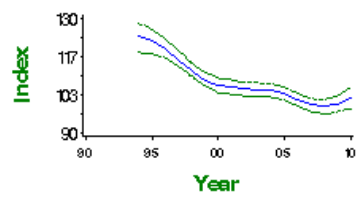
House Sparrow



BBS UK graph

BBS England 1994—2010

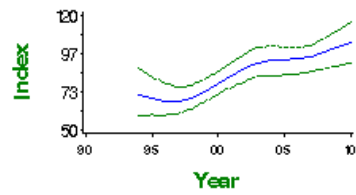
House Sparrow



BBS England graph

BBS Scotland 1994—2010

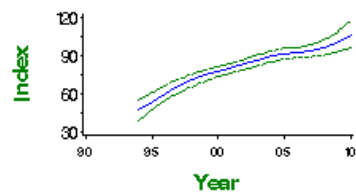
House Sparrow



BBS Scotland graph

BBS Wales 1994—2010

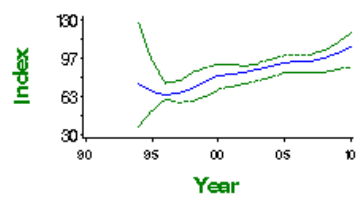
House Sparrow



BBS Wales graph

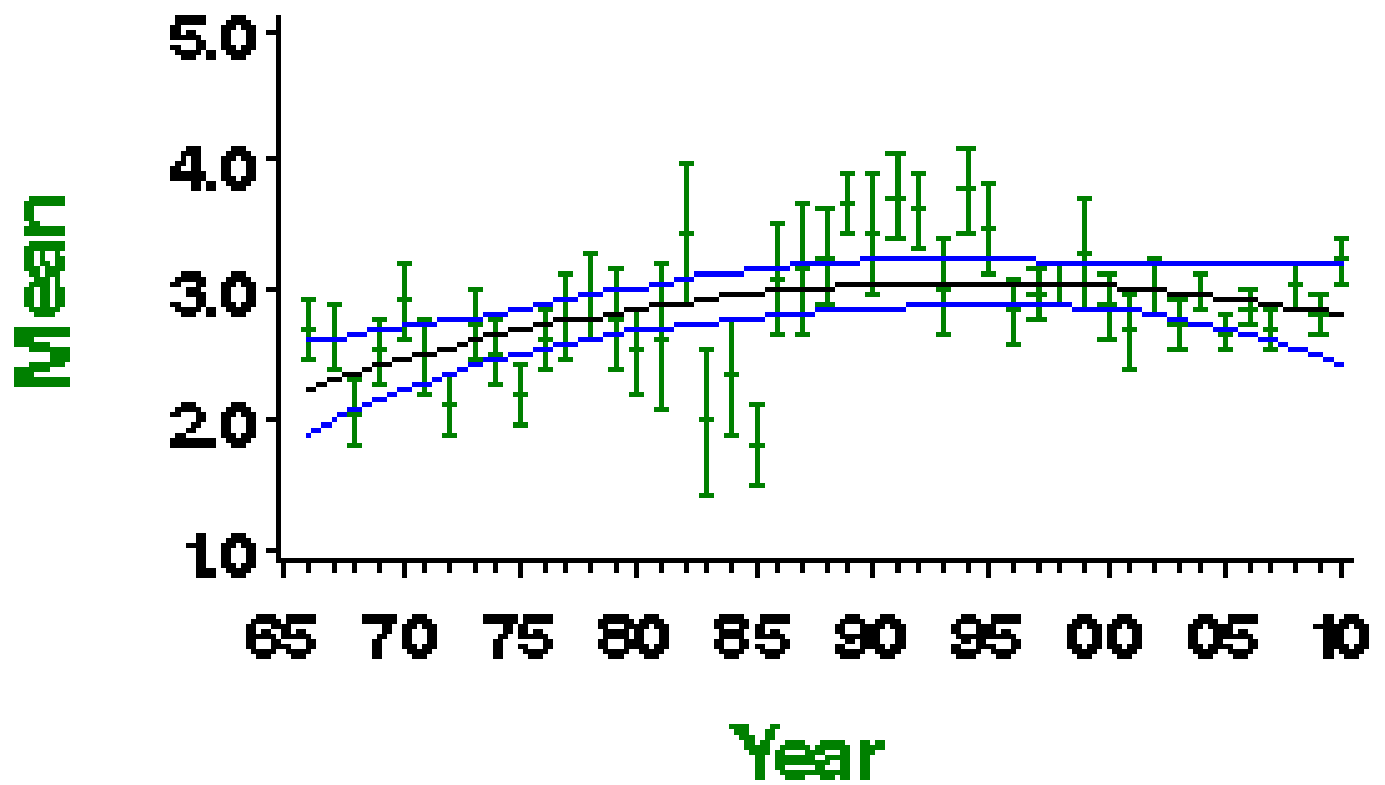
BBS N. Ireland 1994—2010

House Sparrow



BBS N.Ireland graph

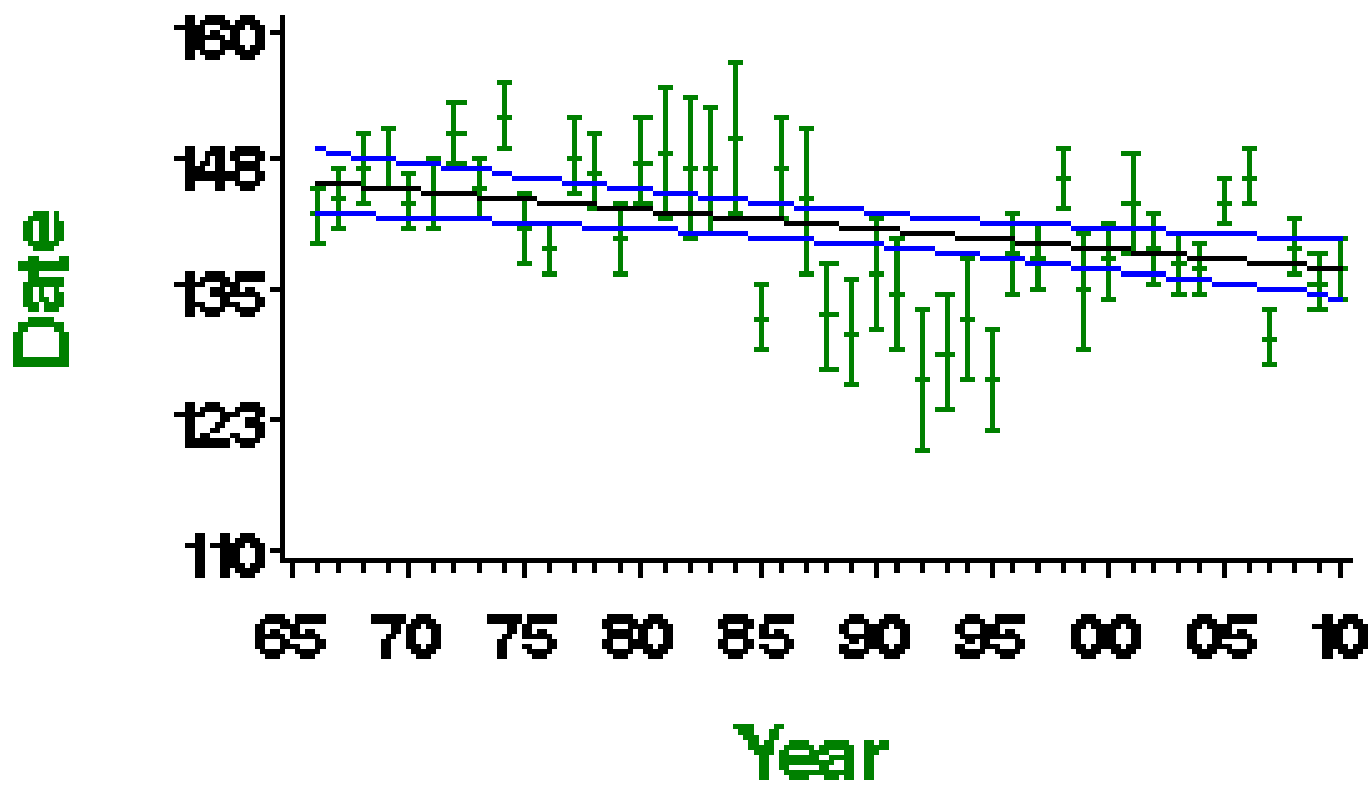
Fledglings per breeding attempt 1966–2010 House Sparrow



Mean number of fledglings produced per nest - green bars represent standard error and black line shows long-term trend

Laying date 1966—2010

House Sparrow



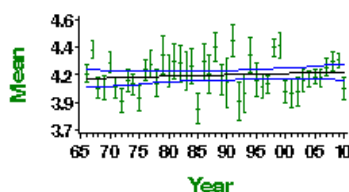
More on demographic trends

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Fledglings per breeding attempt	41	1968-2009	57	Curvilinear	2.36 fledglings	2.84 fledglings	20.3%		
Clutch size	41	1968-2009	79	None					
Brood size	41	1968-2009	140	Linear decline	3.48 chicks	3.06 chicks	-11.9%		
Nest failure rate at egg stage	41	1968-2009	109	Linear decline	1.10% nests/day	0.40% nests/day	-63.6%		
Nest failure rate at chick stage	41	1968-2009	102	Curvilinear	1.44% nests/day	0.71% nests/day	-50.7%		
Laying date	41	1968-2009	62	Linear decline	May 25	May 17	-8 days		

For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).

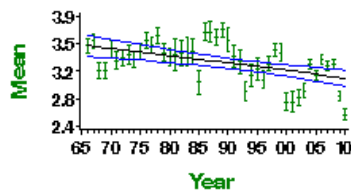
Clutch size 1966—2010

House Sparrow



Brood size 1966–2010

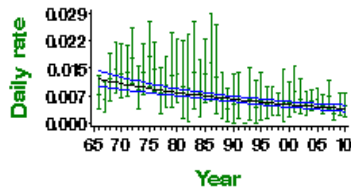
House Sparrow



Mean number of chicks per nest - green bars represent standard error and black line shows long-term trend

Egg stage nest failure rate

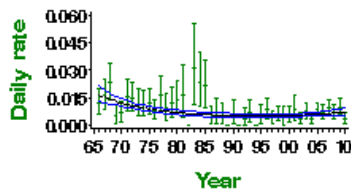
House Sparrow



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Chick stage nest failure rate

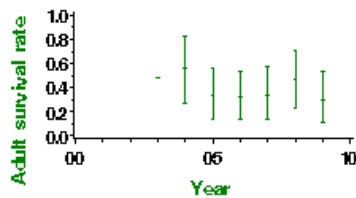
House Sparrow



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

RAS survival 2003–2009

House Sparrow



Proportion of adult birds surviving to following year - error bars represent 95% confidence limits

Causes of change

There is evidence that changes in survival rates due to lack of resources, because of agricultural intensification, are the main driver of House Sparrow declines in farmland, although changes in breeding performance may also have played a role. Different processes have affected House Sparrows in towns, where breeding performance could be the most important driver of declines, although the evidence for the ecological causes is less clear.

Change factor	Primary driver	Secondary driver
Demographic	Decreased survival	Decreased breeding performance
Ecological	Agricultural intensification	

Further information on causes of change

A temporary drop in first-year survival coincided with the period of steepest decline, but changes in breeding performance, especially reduced nest failure rates at the chick stage, appear to have driven a levelling-off in the long-term population trend (Freeman & Crick 2002). Over the period 1968-2009, brood size has decreased (see above) but there has also been a decrease in nest failure rates at the egg and chick stage, so the number of fledglings per breeding attempt has shown a net increase. Further evidence for the role of changing survival in House Sparrow declines has been provided by Hole et al. (2002), who found no evidence of significant differences in most breeding-ecology parameters in declining and stable populations in a farm-scale comparison, while Siriwardena et al. (1999) found that national survival rates were lower during the period of decline in the CBC index. Crick & Siriwardena (2002) used NRS analysis to show that breeding performance per nesting attempt has increased and was positively correlated with population growth rate in the wider countryside (although there was no such correlation in gardens).

There appear to be different processes affecting urban and agricultural populations. On farmland, changes in farming practices due to intensification of agriculture and the tidying of farmyards have reduced the winter seed available to farmland populations of House Sparrows, which has resulted in a reduction in survival rates (Siriwardena et al. 1999, Chamberlain et al. 2007, Hole 2001), specifically of first-year birds (Crick et al. 2002). This is supported by a positive effect of supplementary seed in winter on farmland House Sparrow population trends in a landscape-scale experiment in East Anglia (Siriwardena et al. 2007). House Sparrows have probably been deleteriously affected by the decrease in the amount of grain spilt around farm buildings and during the process of harvesting in recent years (O'Connor & Shrubbs 1986). The decrease in spring-sown cereals has meant that cereal stubble has become much rarer, reducing food resources over winter, although Robinson et al. (2001) found no influence of spring cereal on House Sparrow abundance in predominantly pastoral farmland. Conversely, breeding performance is worse where there is more spring cereal (Crick & Siriwardena 2002), although this may reflect geographical associations with areas where spring sowing remains in the UK (the west and north) rather than direct effects of cropping.

Recent declines have been particularly severe in urban areas (Robinson et al. 2005, Chamberlain et al. 2007). Increased predation by cats and Sparrowhawks, lack of nest sites, loss of food supplies, pollution and disease have all been cited as factors possibly depressing populations in towns (Crick et al. 2002), but supporting evidence for these is mixed. Within urban areas, Shaw et al. (2008) reviewed available evidence and hypothesised that House Sparrows have disappeared from more affluent areas, where changes to habitat structure such as planting of ornamental shrubs and increased demand for off-street parking is likely to reduce the amount of habitat available to House Sparrows and influenced foraging and predation risk. The conversion of private gardens to continuous housing has also had a negative effect on House Sparrow abundance (Chamberlain et al. 2007). Vincent (2005) found that annual productivity among suburban and rural human habitation in Leicestershire was lower than that measured on farmland House Sparrows in Oxfordshire, the main cause of the difference being starvation of chicks. Low body masses at fledging, and consequently low post-fledging survival, were also recorded in Leicestershire. Although only a two-year study, Peach et al. (2008) measured reproductive success in a declining House Sparrow population along an urbanisation gradient in Leicester and also found that a year in which reproductive success was too low to sustain the population was characterised by lower chick survival and body mass at fledging (a predictor of post-fledging survival). However, there is no direct evidence that invertebrate food supplies have declined in these areas and variation in survival has not been investigated.

Negative correlations between indices of Sparrowhawk presence during its recolonisation of the UK and House Sparrow abundance from the Garden Bird Feeding Survey have been interpreted as evidence that increasing predation rates are depressing House Sparrow populations (Bell et al. 2010). However, more sophisticated analyses of large-scale and extensive national monitoring data provide no evidence that House Sparrow population declines were linked to increases in Sparrowhawks (Newson et al. 2010).

Species references

Bell, C.P., Baker, S.W., Parkes, N.G., Brooke, M. de L. & Chamberlain, D.E. (2010) The role of the Eurasian Sparrowhawk (*Accipiter nisus*) in the decline of the House Sparrow (*Passer domesticus*) in Britain. *Auk* 127: 411-420.

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Chamberlain, D.E., Toms, M.P., Cleary-McHarg, R. & Banks, A.N. (2007) House Sparrow (*Passer domesticus*) habitat use in urbanized landscapes. *Journal of Ornithology* 148: 453-462.

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Tree Sparrow

Passer montanus

Key facts

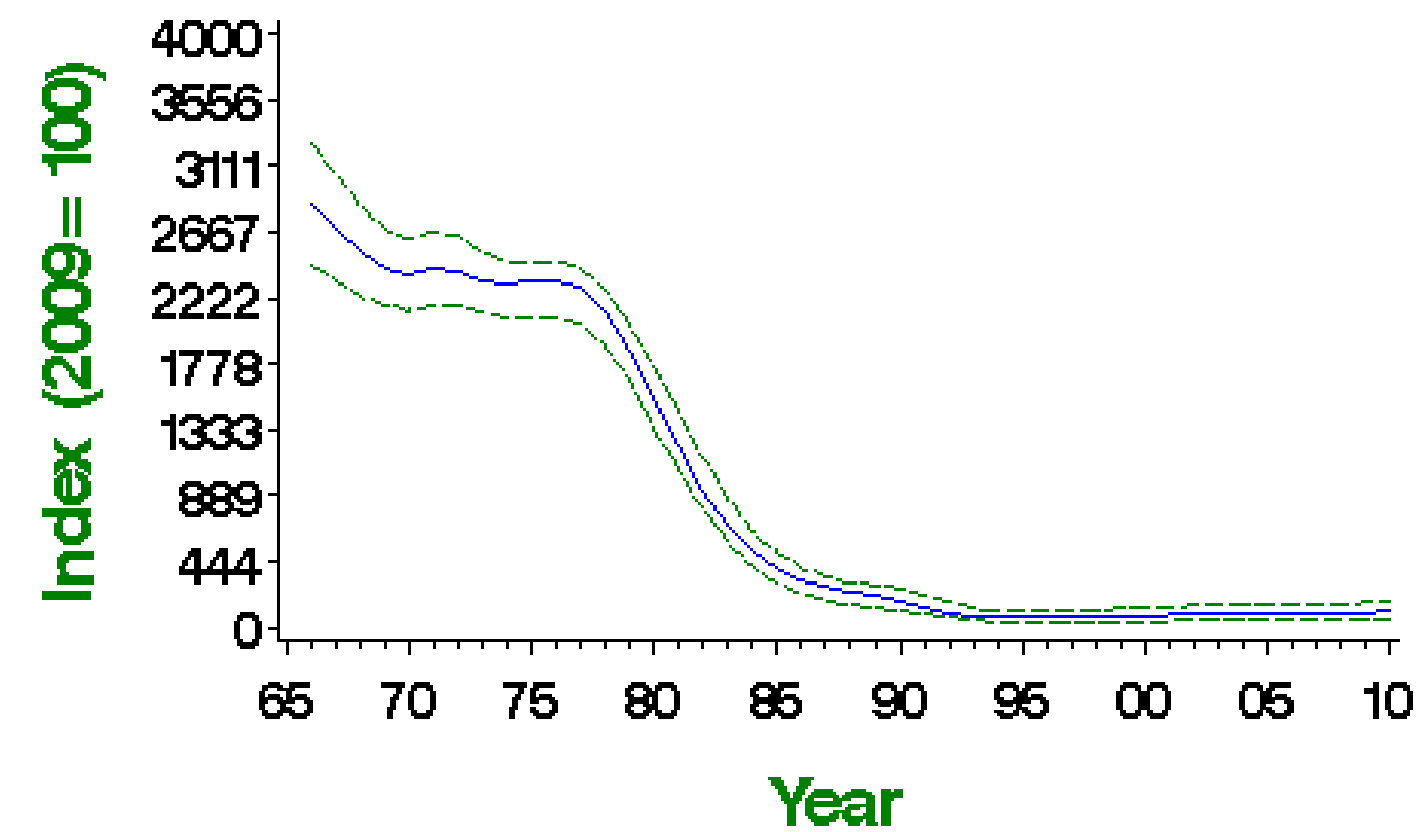
Conservation listings:	Europe: SPEC category 3 (declining) (BiE04) UK: red (>50% population decline) (BoCC3) UK Biodiversity Action Plan: click here , priority species
Long-term trend:	England: rapid decline
Population size:	68,000 territories in 2000 (1988-91 Atlas estimate updated using CBC/BBS trend: BiE04, APEP06)
Migrant status:	Resident
Nesting habitat:	Cavity nester
Primary breeding habitat:	Farmland
Secondary breeding habitat:	
Breeding diet:	Vegetation
Winter diet:	Vegetation

Status summary

Tree Sparrow abundance crashed spectacularly in the UK between the late 1970s and the early 1990s. BBS data indicate a 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. 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 moderate decrease across Europe since 1980 (PECBMS 2011a).

CBC/BBS England 1966—2010

Tree Sparrow



Smoothed population index, relative to an arbitrary 100 in the year given, with 85% confidence limits in green

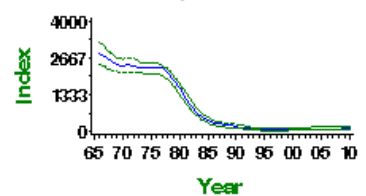
Population changes in detail

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS England	42	1967-2009	89	-96	-98	-93	>50	
	25	1984-2009	92	-81	-91	-64	>50	
	10	1999-2009	139	35	7	66		
	5	2004-2009	153	11	-5	32		
BBS UK	14	1995-2009	162	73	38	118		
	10	1999-2009	173	64	28	102		
	5	2004-2009	194	26	-2	61		
BBS England	14	1995-2009	131	37	8	70		
	10	1999-2009	137	29	6	58		
	5	2004-2009	152	10	-6	29		

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See here for more information.

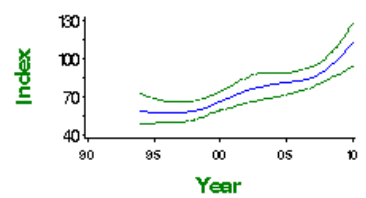


CBC/BBS England 1966–2010
Tree Sparrow



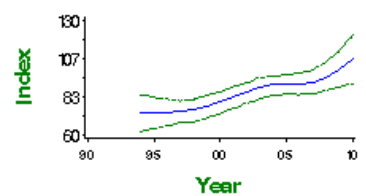
CBC/BBS England graph

BBS UK 1994–2010
Tree Sparrow



BBS UK graph

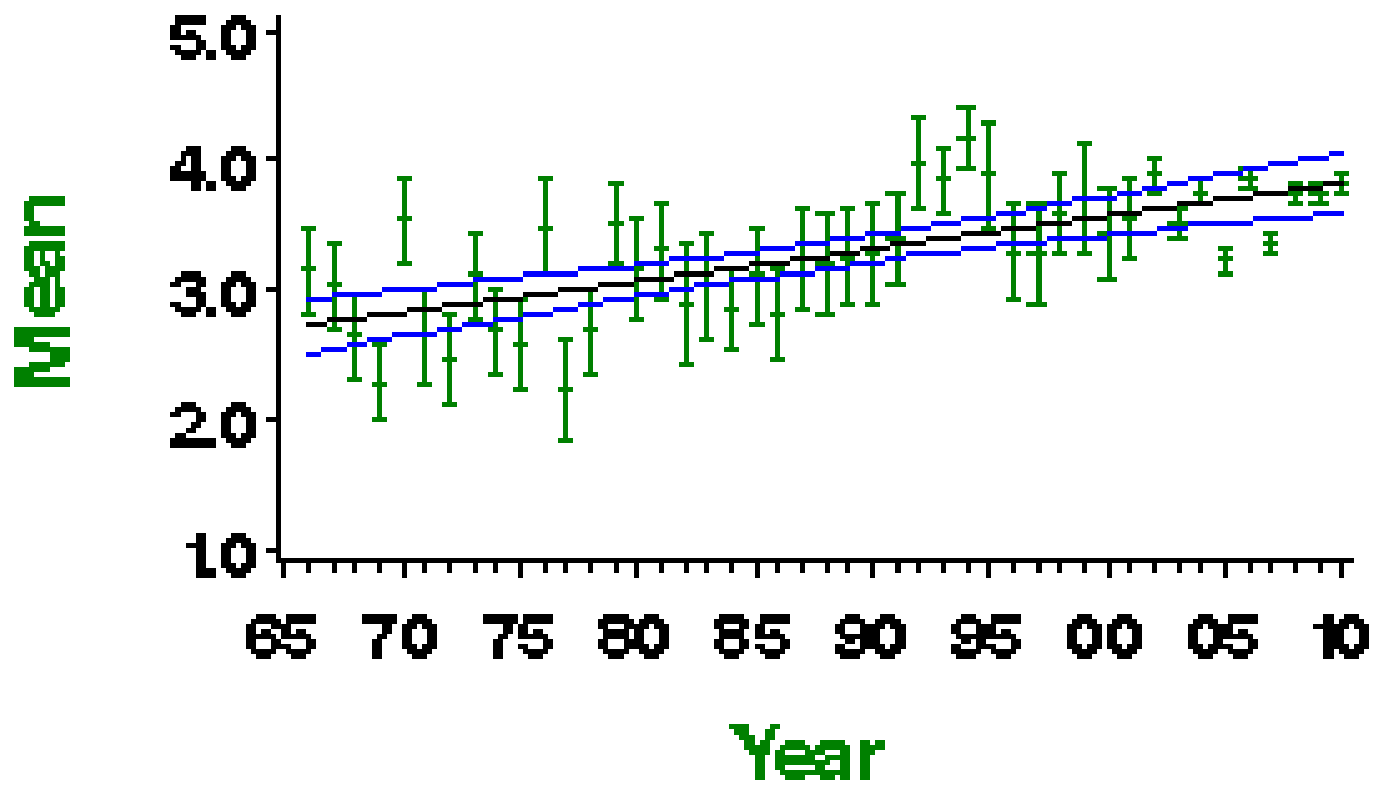
BBS England 1994–2010
Tree Sparrow



BBS England graph

Demographic trends

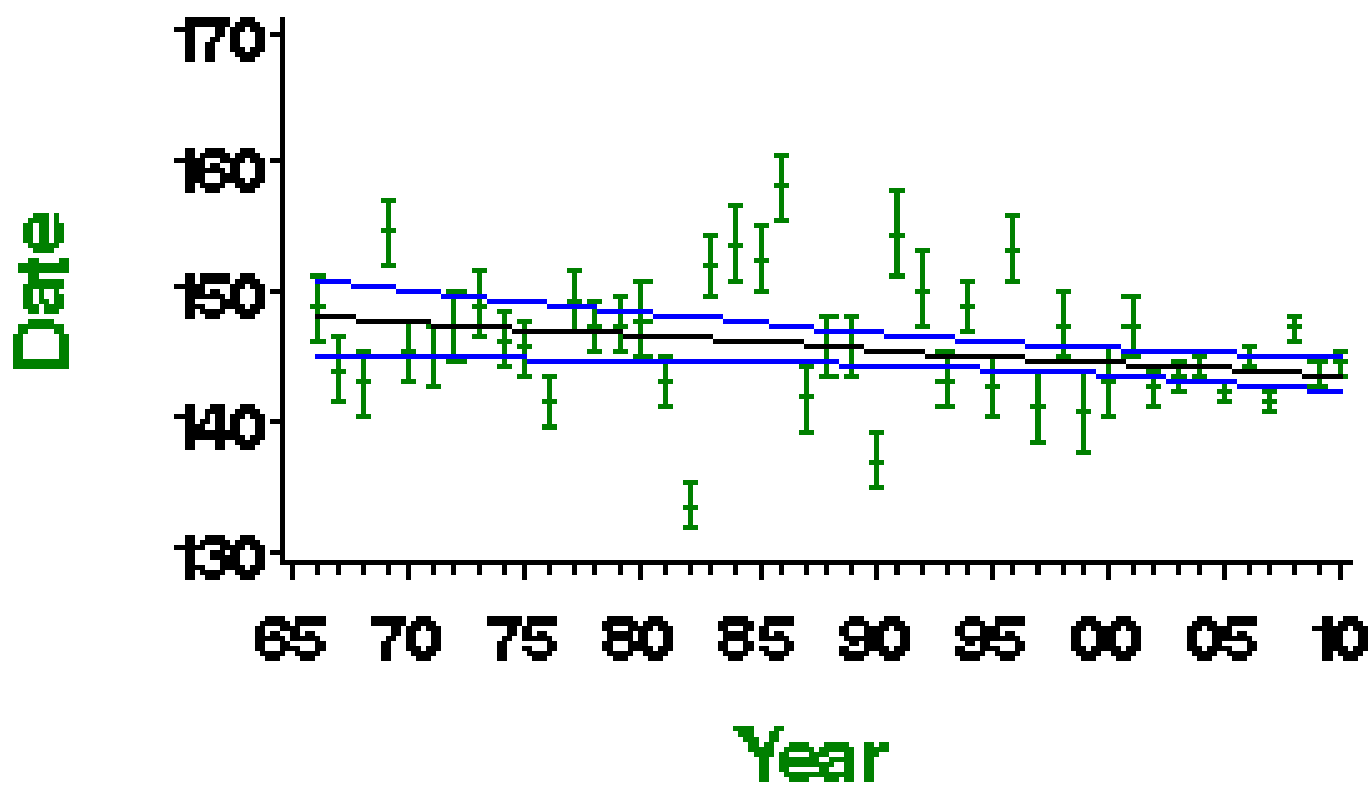
Fledglings per breeding attempt 1966–2010 Tree Sparrow



Mean number of fledglings produced per nest - green bars represent standard error and black line shows long-term trend

Laying date 1966—2010

Tree Sparrow



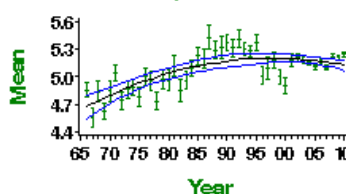
More on demographic trends

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Fledglings per breeding attempt	41	1968-2009	179	Linear increase	2.77 fledglings	3.80 fledglings	37.0%		
Clutch size	41	1968-2009	247	Curvilinear	4.74 eggs	5.14 eggs	8.4%		
Brood size	41	1968-2009	327	Curvilinear	3.76 chicks	4.15 chicks	10.4%		
Nest failure rate at egg stage	41	1968-2009	326	Linear decline	0.86% nests/day	0.34% nests/day	-60.5%		
Nest failure rate at chick stage	41	1968-2009	222	Linear decline	1.50% nests/day	0.56% nests/day	-62.7%		
Laying date	41	1968-2009	251	Linear decline	May 28	May 24	-4 days		

For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).

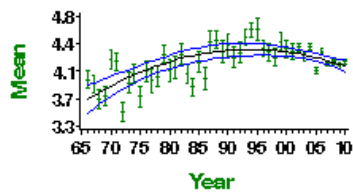
Clutch size 1966—2010

Tree Sparrow



Brood size 1966–2010

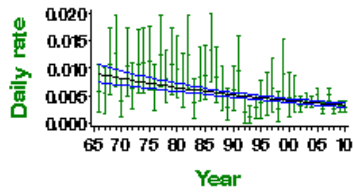
Tree Sparrow



Mean number of chicks per nest - green bars represent standard error and black line shows long-term trend

Egg stage nest failure rate

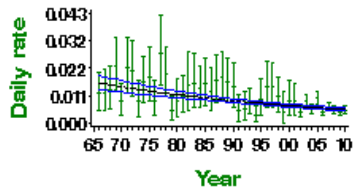
Tree Sparrow



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Chick stage nest failure rate

Tree Sparrow



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Causes of change

The mechanisms underlying the decline in this species are largely unknown, although demographic trends suggest that factors operating during the breeding season are not the main driver.

Change factor	Primary driver	Secondary driver
Demographic	Decreased survival?	
Ecological	Agricultural intensification	

Further information on causes of change

The mechanisms underlying the decline in this species are largely unknown. The number of fledglings per breeding attempt has improved substantially as population sizes have decreased (see above), suggesting that decreases in productivity were not responsible for the decline. This has been driven by a decline in daily failure rates at both the nest and chick stage and increases in clutch and brood size. It is thus more likely that survival has been the critical demographic measure, although ring-recovery analyses have produced equivocal results, perhaps because of small sample sizes (Siriwardena et al. 1998, 2000).

Components of agricultural intensification, such as reductions in winter stubble, have been implicated in the decline, although direct evidence supporting this is largely incidental. Tree Sparrows aggregate in areas where seed food is available during the winter and they have declined at the same time as other farmland seed-eaters (Siriwardena et al. 1998), providing circumstantial evidence for the decline. In winter in Scotland (Hancock & Wilson 2003), the highest densities of Tree Sparrows were recorded in cereal stubble fields (undersown with grass) and weedy fodder brassica crops. These habitats remain relatively seed-rich but have declined in area in the UK (Fuller 2000, Hancock & Wilson 2003). Field & Anderson (2004) also state that anecdotal evidence suggests that many Tree Sparrow colonies are strongly associated with winter seed food sources, and provision of new seed sources is frequently associated with the establishment of new breeding colonies. Although Siriwardena et al. (2007) did not find a significant positive relationship between winter food supply and breeding population trajectory in Bird Aid-fed areas, this may be due to the fact that latest BBS trends for this species are increasing, so winter food may not currently be limiting as the remaining population is in small remnants of suitable habitat and many are subject to active conservation action (e.g. nestboxes).

During the breeding season, Field & Anderson (2004) found that wetland edge habitats played a key role in providing invertebrate prey to allow successful chick rearing throughout the long breeding season and suggest that it is possible that large areas of formerly occupied farmland in the UK no longer provide these invertebrate resources due to the effects of intensification in the late 20th century.

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Yellow Wagtail

Motacilla flava

Key facts

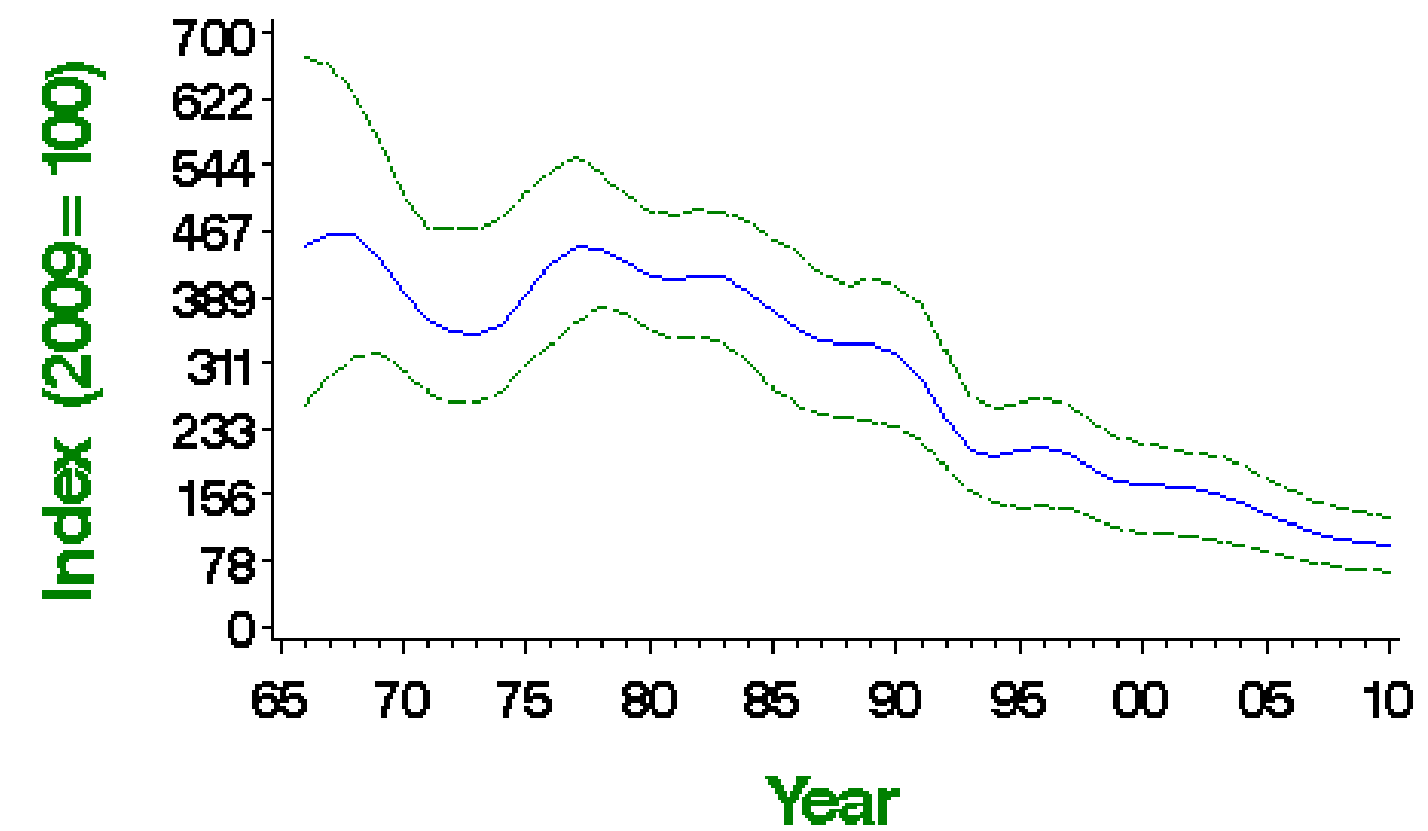
Conservation listings:	Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe) (BiE04) UK: red (species level, races flavissima and flava) (BoCC3) UK Biodiversity Action Plan: priority species
Long-term trend:	UK, England: rapid decline
Population size:	11,500-26,500 territories in 2000 (1988-91 Atlas estimate updated using CBC/BBS and WBS trends: BiE04, APEP06)
Migrant status:	Long-distance migrant
Nesting habitat:	Ground nester
Primary breeding habitat:	Farmland
Secondary breeding habitat:	
Breeding diet:	Animal
Winter diet:	Animal

Status summary

Britain holds almost the entire population of the distinctive race flavissima, so population changes in the UK are of global conservation significance. 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. The European trend, which includes other races of the species, has also been moderately downward since 1980 (PECBMS 2011a).

CBC/BBS UK 1966–2010

Yellow Wagtail



Smoothed population index, relative to an arbitrary 100 in the year given, with 85% confidence limits in green

Population changes in detail

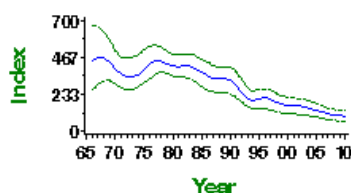
Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS UK	42	1967-2009	76	-78	-89	-52	>50	
	25	1984-2009	106	-75	-84	-64	>50	Small CBC sample
	10	1999-2009	155	-42	-52	-31	>25	
	5	2004-2009	156	-31	-42	-20	>25	
CBC/BBS England	42	1967-2009	75	-77	-90	-51	>50	
	25	1984-2009	104	-74	-84	-61	>50	Small CBC sample
	10	1999-2009	151	-42	-51	-32	>25	
	5	2004-2009	153	-32	-42	-20	>25	
WBS/WBBS waterways	34	1975-2009	24	-94	-98	-89	>50	
	25	1984-2009	23	-93	-98	-88	>50	
	10	1999-2009	26	-57	-79	-25	>50	
	5	2004-2009	25	-21	-53	32		
BBS UK	14	1995-2009	156	-55	-62	-47	>50	
	10	1999-2009	152	-42	-51	-34	>25	
	5	2004-2009	155	-31	-40	-22	>25	
BBS England	14	1995-2009	153	-55	-63	-46	>50	
	10	1999-2009	148	-43	-52	-32	>25	
	5	2004-2009	152	-32	-41	-19	>25	

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



CBC/BBS UK 1966—2010

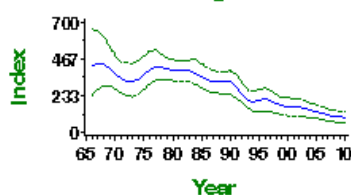
Yellow Wagtail



CBC/BBS UK graph

CBC/BBS England 1966—2010

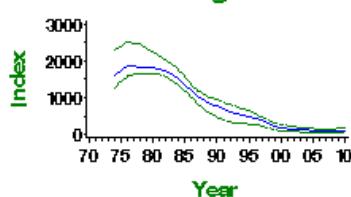
Yellow Wagtail



CBC/BBS England graph

WBS/WBBS 1974—2010

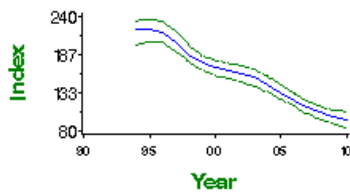
Yellow Wagtail



WBS/WBBS waterways graph

BBS UK 1994—2010

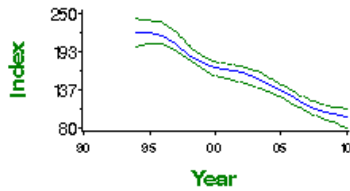
Yellow Wagtail



BBS UK graph

BBS England 1994—2010

Yellow Wagtail



BBS England graph

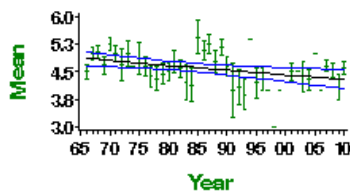
Demographic trends

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Brood size	41	1968-2009	12	Linear decline	4.83 chicks	4.31 chicks	-10.9%		Small sample

For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).

Brood size 1966—2010

Yellow Wagtail



Mean number of chicks per nest - green bars represent standard error and black line shows long-term trend

Causes of change

Agricultural intensification is the ultimate cause of population declines. However, the mechanisms underlying the decline remain unclear.

Change factor	Primary driver	Secondary driver
Demographic	Unknown	
Ecological	Agricultural intensification	

Further information on causes of change

Sufficient data are available to produce a demographic trend only relating to brood size, which was found to have decreased by 9% since 1966 (see above) and the species is listed as being of NRS concern (Leech & Barimore 2008).

Changes in agricultural practices have been proposed as the main reason for declines via their impact on the quality of foraging and breeding habitats. The magnitude of Yellow Wagtail decline appears to vary between habitats, being especially dramatic in wet grassland and marginal upland areas (Henderson et al. 2004, Wilson & Vickery 2005). Chamberlain & Fuller (2000, 2001) found that there were greater range contractions in regions dominated by pastoral agriculture. The decline in pastoral habitats has been proposed to be due to agricultural intensification, specifically farmland drainage, the conversion of pasture to arable land, changes in grazing and cutting regimes the loss of insects associated with cattle and changes to grassland ecosystems in marginal upland areas (Gibbons et al. 1993, Chamberlain & Fuller 2000, 2001, Flyckt 1999, Vickery et al. 2001, Nelson et al. 2003, Bradbury & Bradter 2004, Henderson et al. 2004). Such changes are likely to have reduced the quality of grasslands as a

nesting and foraging habitat. A detailed study on Yellow Wagtail breeding ecology by Bradbury & Bradter (2004) provided good evidence of the species' breeding requirements on grassland. Territories were associated with a greater proportion of bare earth in the sward, the presence of shallow-edged ponds or wet ditches in the field, and a greater probability of a prolonged winter/spring flood, although the relative importance of these and how they impact upon demographic processes was not deciphered.

Data from the East of England suggest a strong avoidance of grassland and preference for spring-sown crops (Mason & Macdonald 2000). A detailed autecological study by Gilroy et al. (2008) provides good evidence that, on arable land, soil penetrability had a significant influence on the abundance of Yellow Wagtails, together with crop type and soil type, as these influenced invertebrate capture rates. There was a strong relationship between Yellow Wagtails and soil penetrability, suggesting a potential causative link between soil degradation and population decline (Gilroy et al. 2008). Breeding-season length may also be limited in cereal-dominated areas, as Yellow Wagtails avoid autumn-sown cereals late in the season (Gilroy et al. 2009, 2010). Predation was also considered and it was found that predation rate was closer nearer to tramlines and field-edges (Morris & Gilroy 2008). It is uncertain how important nest predation in tramlines is as a limiting factor for Yellow Wagtail populations but no studies have reported predation as a major driver of population decline for this species. Work carried out by Benton et al. (2002) showed that, in Scotland, arthropod abundance was significantly related to agricultural change and that this was also linked to measures of farmland bird density. Although Yellow Wagtail was not a species they considered specifically, it is an obligate insectivore, so this evidence adds support to the hypothesis that reduced food availability due to agricultural change may have contributed to the declines in this species.

Yellow Wagtails are long-distance migrants, moving to wintering grounds in western Africa south of the Sahara. Factors relating to conditions on the wintering grounds may also play a role (Bradbury & Bradter 2004, Heldbjerg & Fox 2008, Stevens et al. 2010) but evidence for this is lacking.

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Key facts

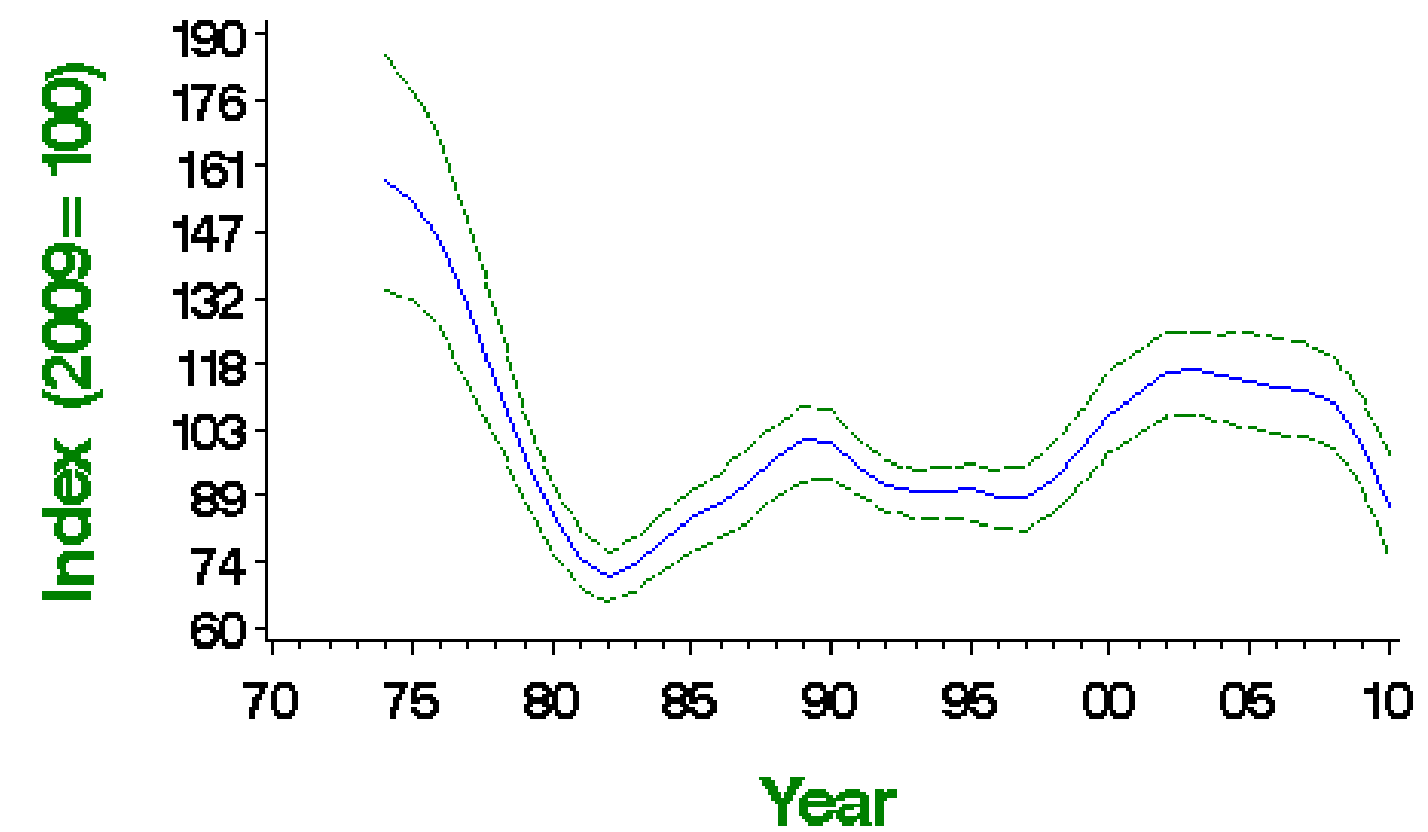
Conservation listings:	Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe) (BiE04) UK: amber (25-50% population decline) (BoCC3)
Long-term trend:	UK waterways: moderate decline
Population size:	38,400-46,200 pairs in 2000 (1988-91 Atlas estimate updated using 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, some increase since the late 1990s, and another recent fall. The species was moved from the green to the amber list in 2002, because of a 41% decline recorded between 1975 and 1999. BBS figures showed an initial ten-year phase of increase, which has now been eroded by recent losses. The trends for Grey Wagtail are very similar to those for Leech & Barimore 2008). Nest failure rates have dropped substantially, and there has been linear increase in the number of fledglings per breeding attempt.

WBS/WBBS 1974–2010

Grey Wagtail



Smoothed population index, relative to an arbitrary 100 in the year given, with 85% confidence limits in green

Population changes in detail

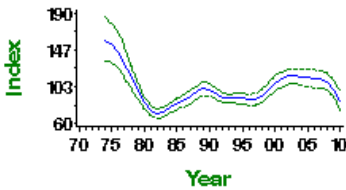
Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
WBS/WBBS waterways	34	1975-2009	95	-35	-50	-15	>25	
	25	1984-2009	112	26	9	49		
	10	1999-2009	178	1	-9	13		
	5	2004-2009	186	-13	-19	-7		

BBS UK Source	14 Period (yrs)	1995-2009 Years 1999-2009	227 Plots 284	15 Change (%)	-1 Lower limit 22	32 Upper limit	Alert	Comment
	5	2004-2009	300	-23	-29	-14		
BBS England	14	1995-2009	149	23	109	392		
	10	1999-2009	174	6	68	187		
	5	2004-2009	201	-17	29	76		

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.

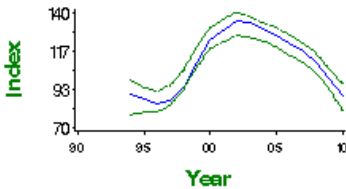


WBS/WBBS 1974–2010
Grey Wagtail



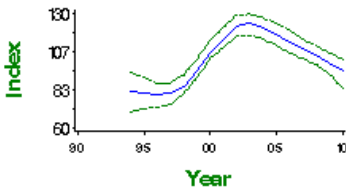
WBS/WBBS waterways graph

BBS UK 1994–2010
Grey Wagtail



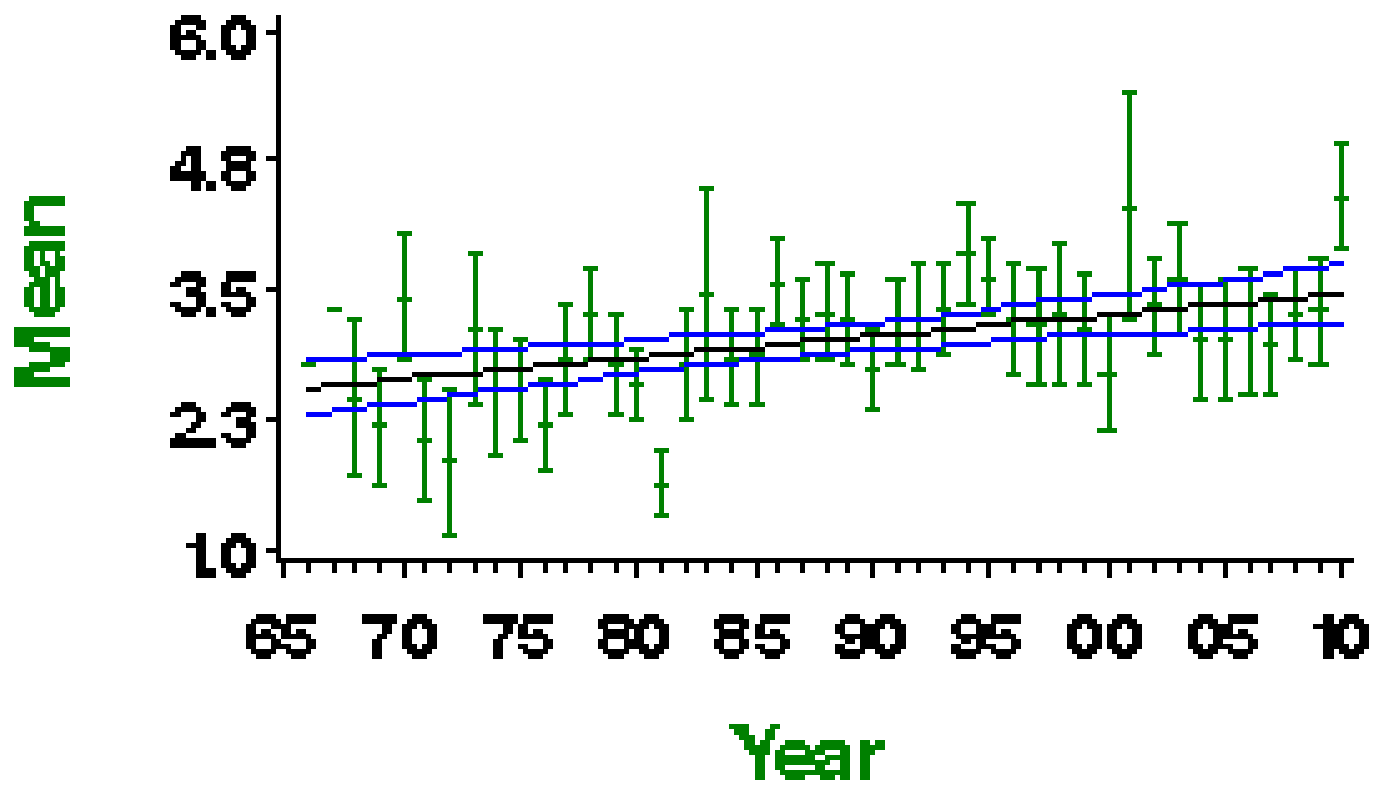
BBS UK graph

BBS England 1994–2010
Grey Wagtail



BBS England graph

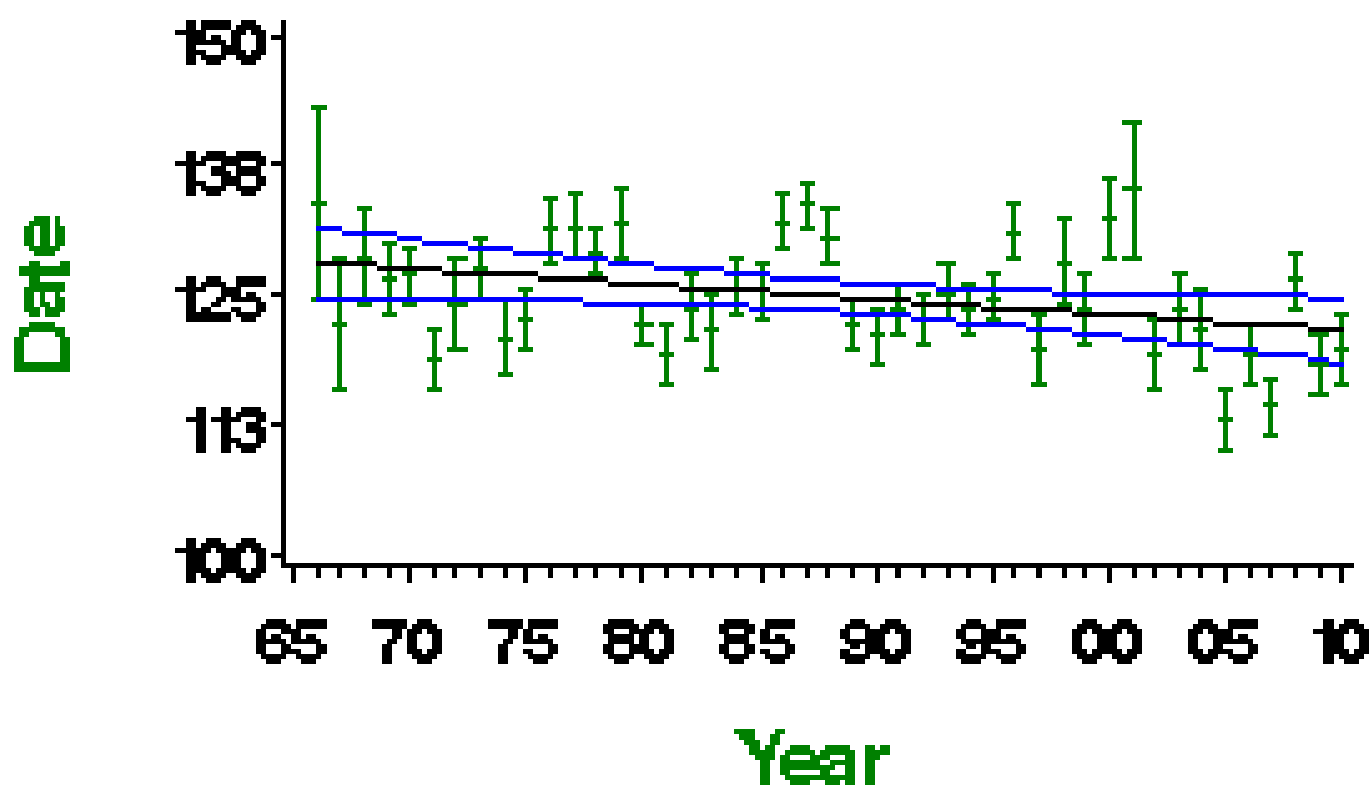
Fledglings per breeding attempt 1966–2010 Grey Wagtail



Mean number of fledglings produced per nest - green bars represent standard error and black line shows long-term trend

Laying date 1966—2010

Grey Wagtail



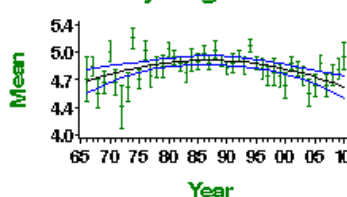
More on demographic trends

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Fledglings per breeding attempt	41	1968-2009	26	Linear increase	2.61 fledglings	3.45 fledglings	32.4%		
Clutch size	41	1968-2009	38	Curvilinear	4.73 eggs	4.64 eggs	-1.8%		
Brood size	41	1968-2009	81	Curvilinear	4.01 chicks	4.07 chicks	1.4%		
Nest failure rate at egg stage	41	1968-2009	58	Linear decline	1.76% nests/day	1.02% nests/day	-42.0%		
Nest failure rate at chick stage	41	1968-2009	57	Linear decline	2.11% nests/day	0.84% nests/day	-60.2%		
Laying date	41	1968-2009	60	Linear decline	May 8	May 2	-6 days		

For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).

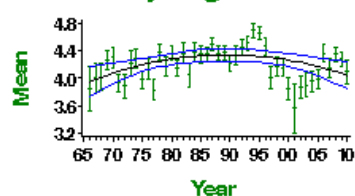
Clutch size 1966—2010

Grey Wagtail



Brood size 1966—2010

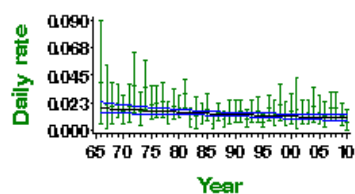
Grey Wagtail



Mean number of chicks per nest - green bars represent standard error and black line shows long-term trend

Egg stage nest failure rate

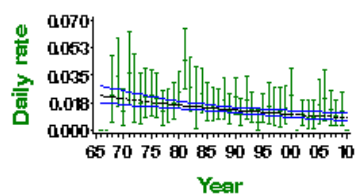
Grey Wagtail



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Chick stage nest failure rate

Grey Wagtail



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Key facts

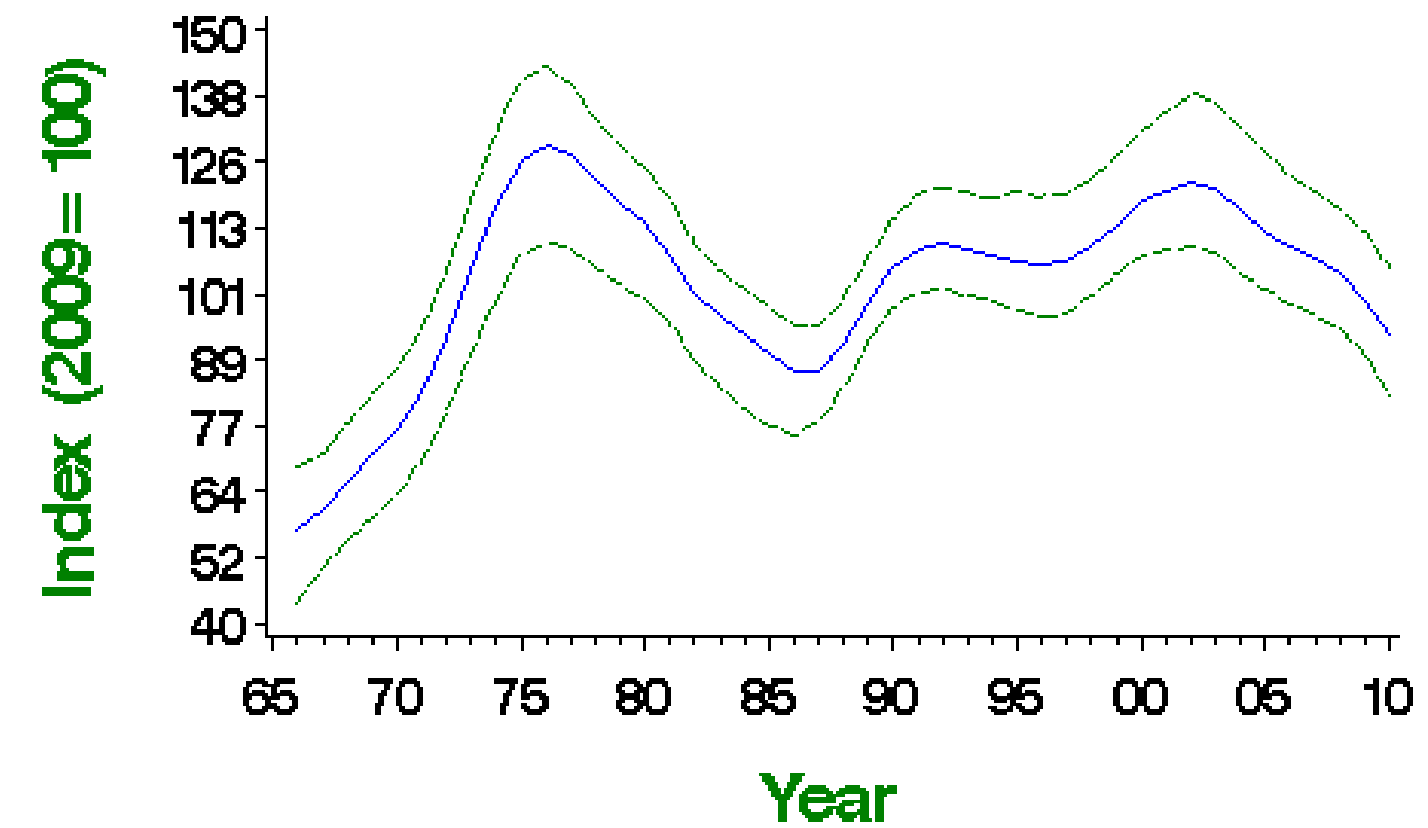
Conservation listings:	Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe) (BiE04) UK: green (species level); amber (race <i>yarrellii</i> , >20% of European breeders) (BoCC3)
Long-term trend:	UK: uncertain
Population size:	272,000-352,000 territories in 2000 (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 rapid decline, perhaps suggesting the influence of factors specific to linear waterways. The long-term trend in abundance is similar to those shown by 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.

CBC/BBS UK 1966–2010

Pied Wagtail



Smoothed population index, relative to an arbitrary 100 in the year given, with 85% confidence limits in green

Population changes in detail

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS UK	42	1967-2009	498	63	24	125		
	25	1984-2009	776	7	-11	47		
	10	1999-2009	1386	-12	-18	-5		
	5	2004-2009	1521	-14	-20	-7		

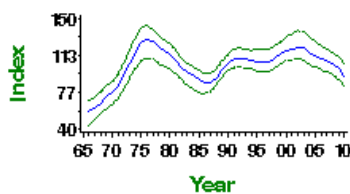
CBC/BBS England Source	Period (yrs)	1967-2009 Years	Posts (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
	25	1984-2009	593	8	-19	49		
	10	1999-2009	1059	-15	-20	-10		
	5	2004-2009	1165	-18	-21	-14		
WBS/WBBS waterways	34	1975-2009	110	-67	-76	-59	>50	
	25	1984-2009	126	-45	-55	-35	>25	
	10	1999-2009	200	-30	-37	-21	>25	
	5	2004-2009	211	-26	-32	-17	>25	
BBS UK	14	1995-2009	1249	-5	-13	3		
	10	1999-2009	1374	-13	-19	-6		
	5	2004-2009	1521	-15	-21	-8		
BBS England	14	1995-2009	952	-5	26	41		
	10	1999-2009	1049	-15	20	30		
	5	2004-2009	1165	-18	-2	4		
BBS Scotland	14	1995-2009	130	-10	-28	5		
	10	1999-2009	131	-16	-32	1		
	5	2004-2009	142	-11	-28	9		
BBS Wales	14	1995-2009	114	-9	-24	8		
	10	1999-2009	129	-12	-25	3		
	5	2004-2009	135	-21	-31	-8		
BBS N.Ireland	14	1995-2009	42	32				
	10	1999-2009	50	13				
	5	2004-2009	57	12				

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



CBC/BBS UK 1966–2010

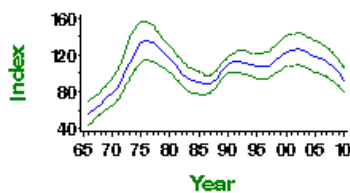
Pied Wagtail



CBC/BBS UK graph

CBC/BBS England 1966–2010

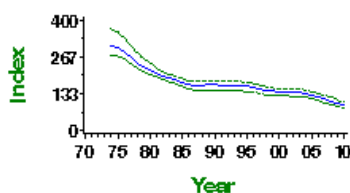
Pied Wagtail



CBC/BBS England graph

WBS/WBBS 1974–2010

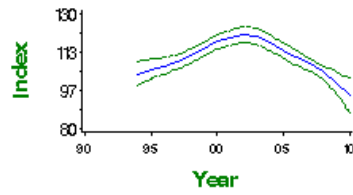
Pied Wagtail



WBS/WBBS waterways graph

BBS UK 1994—2010

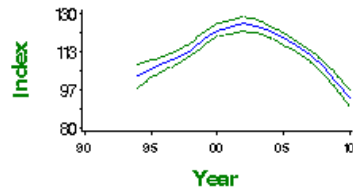
Pied Wagtail



BBS UK graph

BBS England 1994—2010

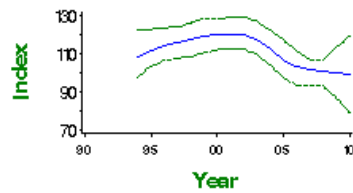
Pied Wagtail



BBS England graph

BBS Scotland 1994—2010

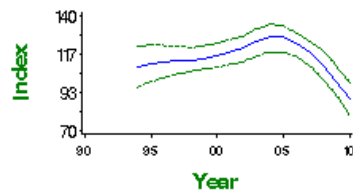
Pied Wagtail



BBS Scotland graph

BBS Wales 1994—2010

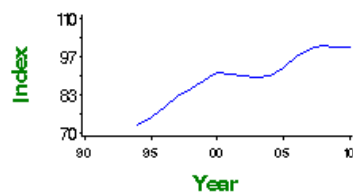
Pied Wagtail



BBS Wales graph

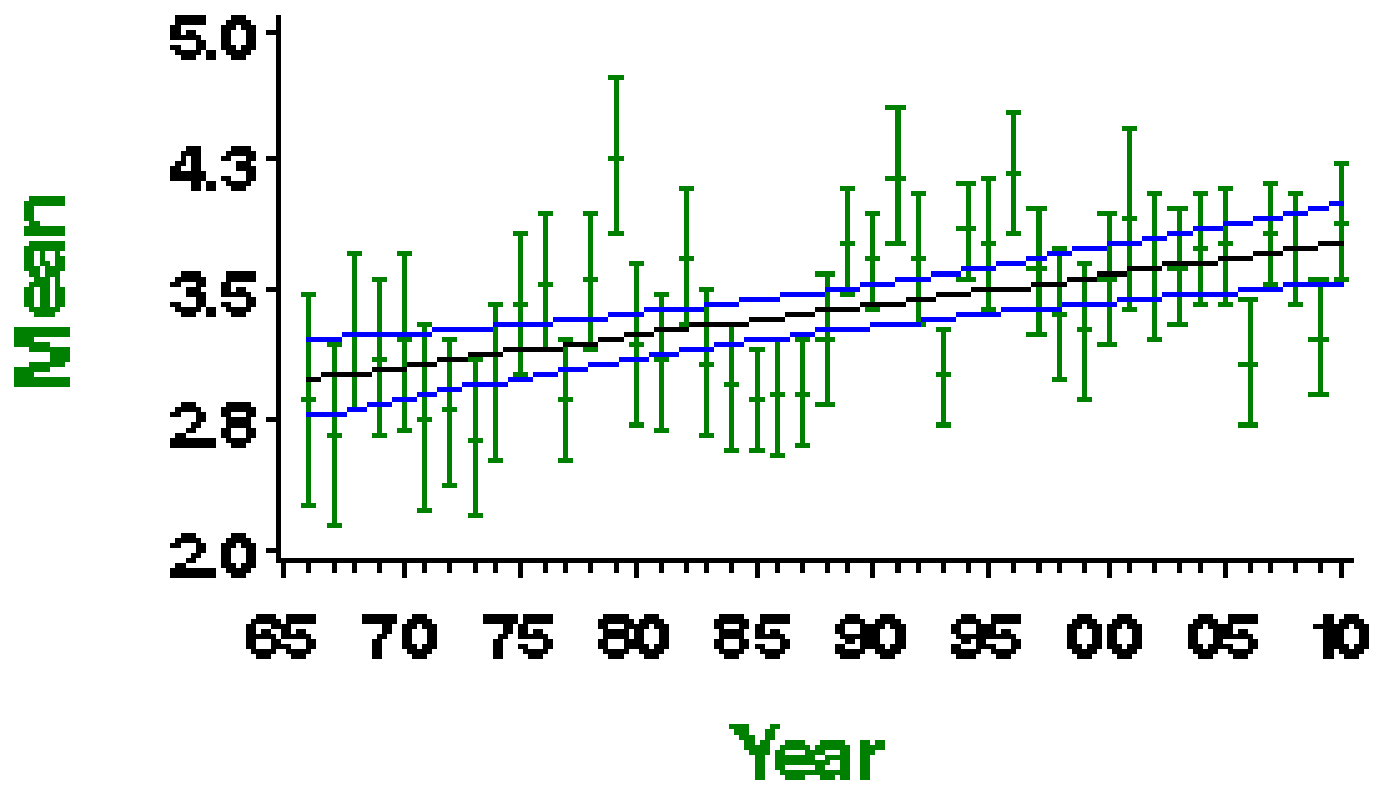
BBS N. Ireland 1994—2010

Pied Wagtail



BBS N. Ireland graph

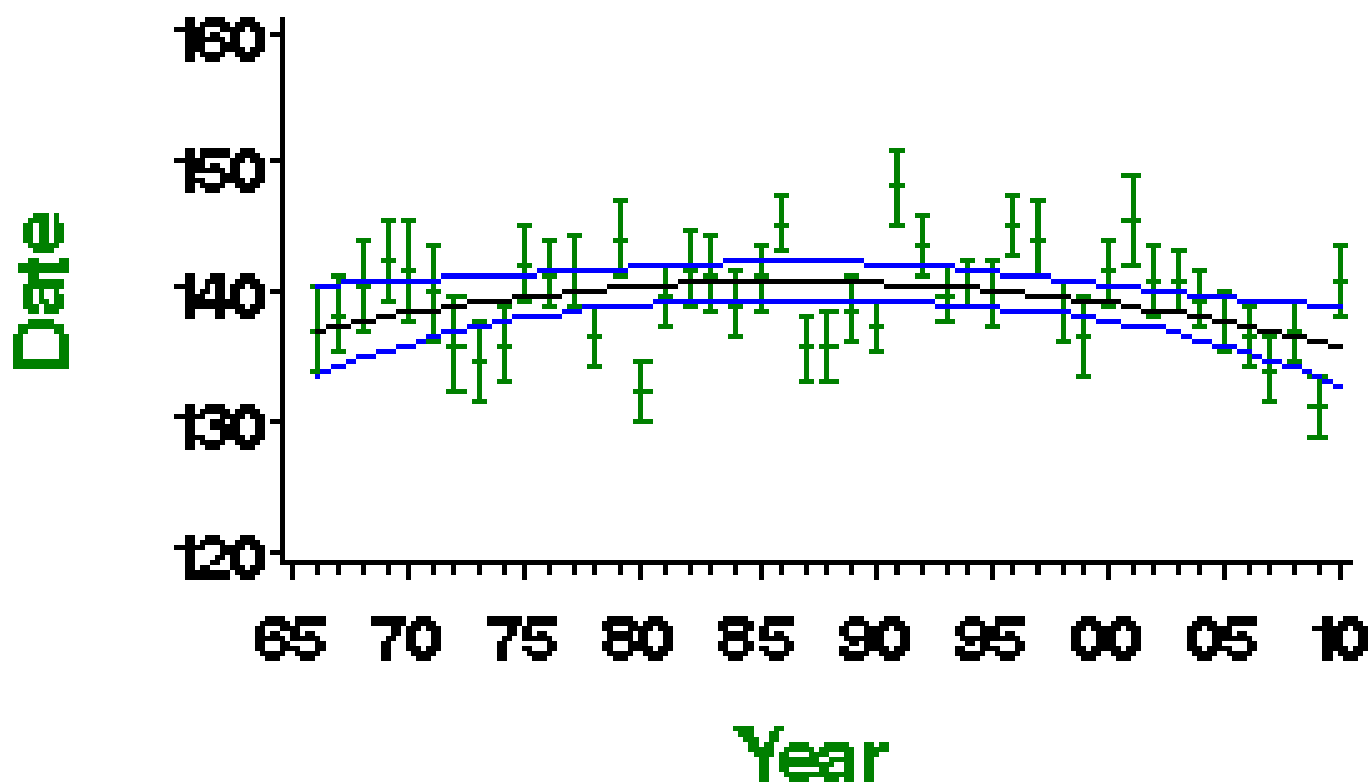
Fledglings per breeding attempt 1966–2010 Pied Wagtail



Mean number of fledglings produced per nest - green bars represent standard error and black line shows long-term trend

Laying date 1966—2010

Pied Wagtail



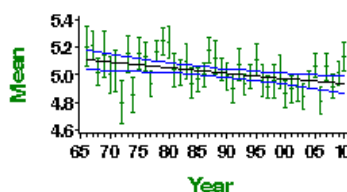
More on demographic trends

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Fledglings per breeding attempt	41	1968-2009	46	Linear increase	3.03 fledglings	3.76 fledglings	24.1%		
Clutch size	41	1968-2009	60	Linear decline	5.10 eggs	4.93 eggs	-3.2%		
Brood size	41	1968-2009	118	Linear decline	4.52 chicks	4.34 chicks	-4.0%		
Nest failure rate at egg stage	41	1968-2009	82	Linear decline	1.86% nests/day	0.67% nests/day	-64.0%		
Nest failure rate at chick stage	41	1968-2009	91	Linear decline	1.24% nests/day	0.84% nests/day	-32.3%		
Laying date	41	1968-2009	81	Curvilinear	May 18	May 16	-2 days		

For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).

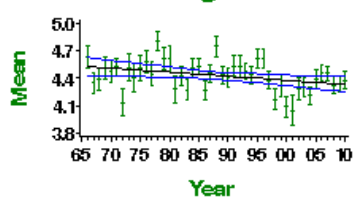
Clutch size 1966—2010

Pied Wagtail



Brood size 1966—2010

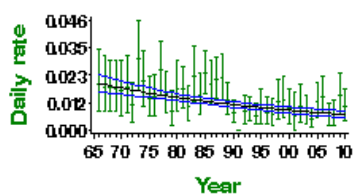
Pied Wagtail



Mean number of chicks per nest - green bars represent standard error and black line shows long-term trend

Egg stage nest failure rate

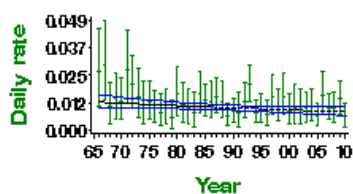
Pied Wagtail



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Chick stage nest failure rate

Pied Wagtail



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

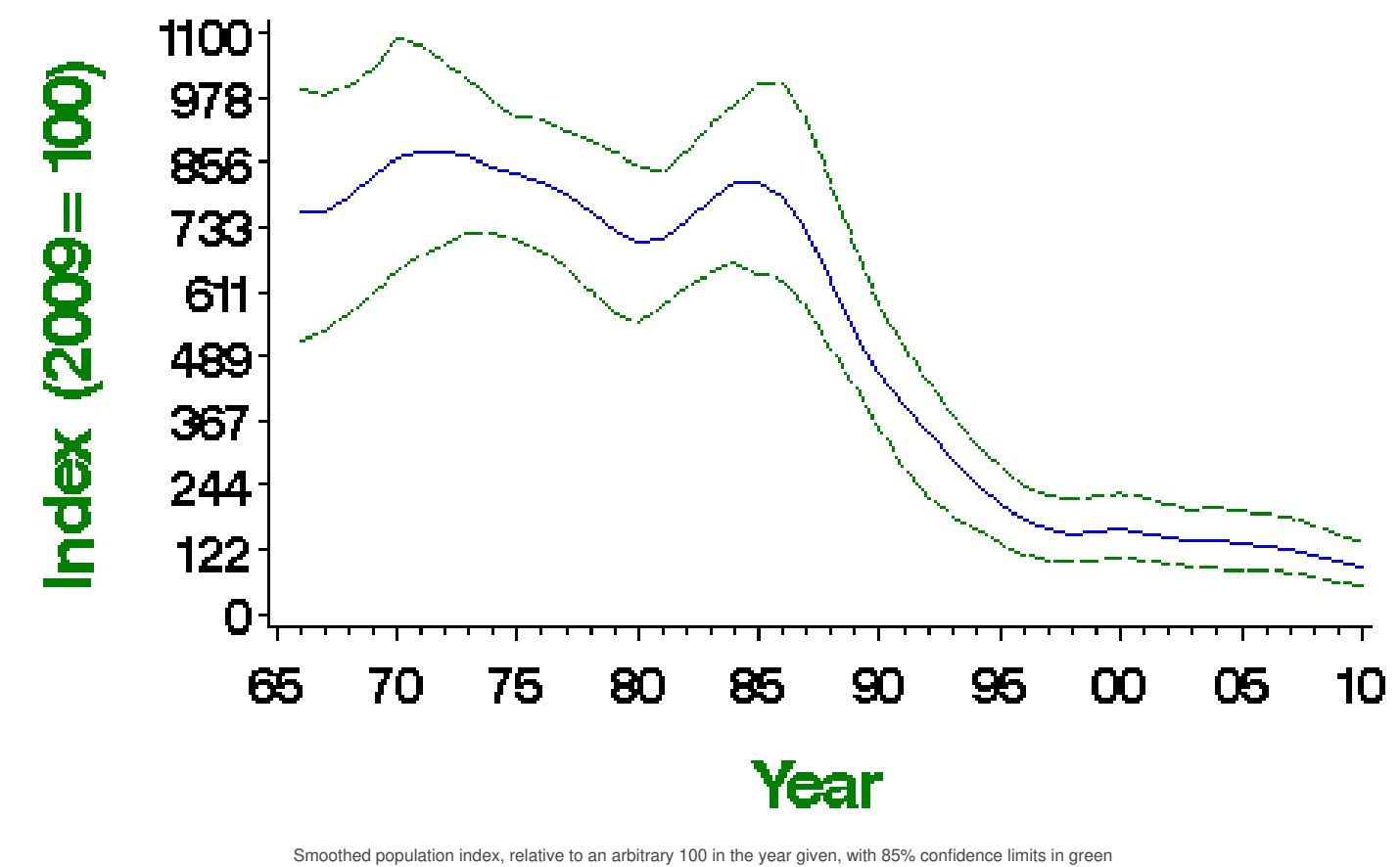
Key facts

Conservation listings:	Europe: no SPEC category (favourable conservation status in Europe, not concentrated in Europe) (BiE04) UK: red (>50% population decline) (BoCC3) UK Biodiversity Action Plan: priority species
Long-term trend:	England: rapid decline
Population size:	74,400 territories in 2000 (1988-91 Atlas estimate updated using CBC/BBS trend: BiE04, APEP06)
Migrant status:	Long-distance migrant
Nesting habitat:	Above-ground nester
Primary breeding habitat:	Woodland
Secondary breeding habitat:	
Breeding diet:	Animal
Winter diet:	Animal

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 for the species have shown a further severe decrease, especially in England. Although the species has no European conservation listing as yet, numbers have shown widespread moderate decrease across Europe since 1980 (PECBMS 2011a), 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 of UK Birds of Conservation Concern in 2002, and most recently to red, on the strength of its UK population decline (Eaton et al. 2009).

CBC/BBS England 1966–2010
Tree Pipit



Population changes in detail

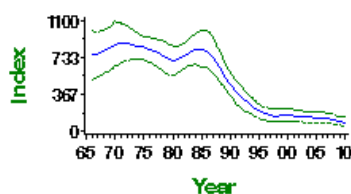
Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS England	42	1967-2009	47	-87	-94	-76	>50	
	25	1984-2009	55	-88	-93	-78	>50	Small CBC sample
	10	1999-2009	78	-36	-52	-20	>25	
	5	2004-2009	83	-27	-43	-13	>25	
BBS UK	14	1995-2009	137	-13	-32	4		
	10	1999-2009	144	-21	-37	-6		
	5	2004-2009	156	-9	-28	12		
BBS England	14	1995-2009	73	-50	-32	6		
	10	1999-2009	76	-35	-36	-4	>25	
	5	2004-2009	83	-27	-30	4		
BBS Scotland	14	1995-2009	32	51	10	118		
	10	1999-2009	34	-4	-30	32		
	5	2004-2009	41	5	-25	57		
BBS Wales	14	1995-2009	32	-26	-48	22		
	10	1999-2009	33	-35	-53	-6	>25	
	5	2004-2009	32	-17	-42	23		

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



CBC/BBS England 1966–2010

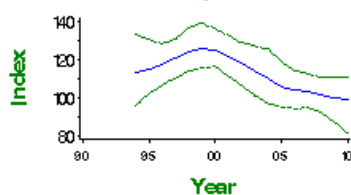
Tree Pipit



CBC/BBS England graph

BBS UK 1994–2010

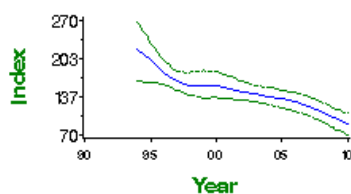
Tree Pipit



BBS UK graph

BBS England 1994–2010

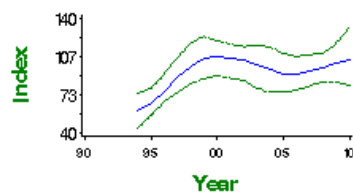
Tree Pipit



BBS England graph

BBS Scotland 1994—2010

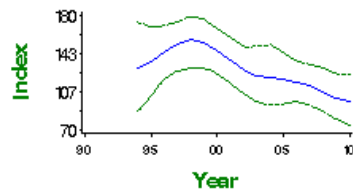
Tree Pipit



BBS Scotland graph

BBS Wales 1994—2010

Tree Pipit



BBS Wales graph

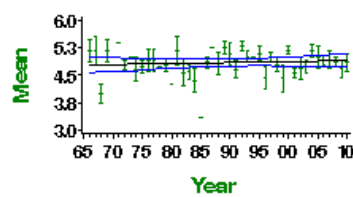
Demographic trends

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Clutch size	41	1968-2009	11	None					Small sample
Brood size	41	1968-2009	29	Curvilinear	4.29 chicks	4.47 chicks	4.4%		Small sample
Nest failure rate at egg stage	41	1968-2009	13	Curvilinear	5.15% nests/day	5.18% nests/day	0.6%		Small sample
Nest failure rate at chick stage	41	1968-2009	20	Curvilinear	3.38% nests/day	4.91% nests/day	45.3%		Small sample
Laying date	41	1968-2009	19	Linear decline	May 24	May 16	-8 days		Small sample

For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).

Clutch size 1966—2010

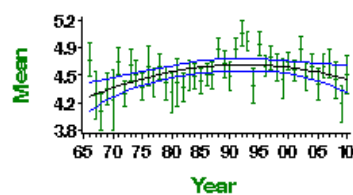
Tree Pipit



Mean number of eggs per nest - green bars represent standard error and black line shows long-term trend

Brood size 1966—2010

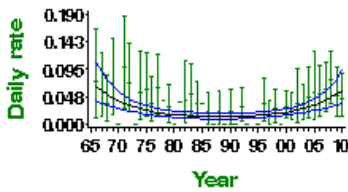
Tree Pipit



Mean number of chicks per nest - green bars represent standard error and black line shows long-term trend

Egg stage nest failure rate

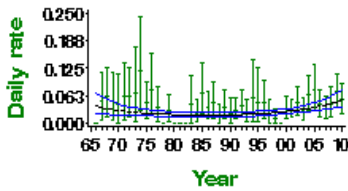
Tree Pipit



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Chick stage nest failure rate

Tree Pipit



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Causes of change

The availability of suitably structured habitat is important and lack of this may have contributed to the decline, possibly through a decrease in nest survival, although evidence for this is based largely on one site. This species being a long-distance migrant, problems on its wintering grounds should not be ruled out.

Change factor	Primary driver	Secondary driver
Demographic	Decreased breeding success	
Ecological	Changes in woodland	

Further information on causes of change

Demographic trends presented below show that brood size has increased since 1966 whilst laying dates have become later (see above), although better recording of replacement and second clutches in recent years may have influenced these trends. No information is available on productivity rates. A detailed, eight-year study in Thetford Forest conducted by Burton (2009) provides good evidence that there was a significant decrease in daily nest survival during the chick stage and that overall nesting success was lowest in clearfells and recently planted stands. Overall nesting success appeared to be determined at the habitat scale, and Burton suggested that this may have been because the broad differences in cover between habitats affected the likelihood of nest predation (the main cause of nest failure). Charman et al. (2009) also found that Tree Pipits have high failure rates at the chick stage and implicate predation. It should be noted that records from Thetford Forest, in south-east England, probably contribute over half the nest records for this species each year: thus these trends may not be representative of the UK as a whole.

This species prefers open ground within woodlands and upland grazed woods lacking understorey, and also occupies clearfells, restocks, new plantations, heaths and commons where trees provide songposts (Fuller 1995, Burton 2007, Charman et al. 2009). The species' decline has been greatest in lowland England, particularly in the wider countryside in woodland and common land (Gibbons et al. 1993) and, accordingly, several authors have proposed that the population decline may be linked to the changing forest structure as new plantations mature, and the reduced management of lowland woods (Fuller et al. 2005, Amar et al. 2006, Charman et al. 2009). Data provided by the Repeat Woodland Bird Survey (RWBS) gives reliable evidence that sub-canopy vegetation increased markedly in almost all regions covered between the 1980s and the early 2000s and analyses found that declines of Tree Pipit occurred in woods with higher maximum tree height and increased foliage (Amar et al. 2006, Smart et al. 2007). Fuller & Moreton (1987) and Burton (2007) provide evidence, respectively, for associations with young coppice and, within coniferous plantations, for young restocks, and a disassociation with closed-canopy woodlands. Amar et al. (2006) state that the lack of new plantations and restocks in southern Britain may contributing to the decline of this species, although specific analyses providing evidence for this are lacking. They also found that Tree Pipit declined more in sites with more tracks, suggesting disturbance can be an issue (Amar et al. 2006, Smart et al. 2007). Targeted management, such as the provision of large blocks of habitat and the retention of mature trees for use as songposts, was found to be beneficial (Burton 2007).

In upland habitats, Fuller et al. (2006) provided evidence showing that both overgrazing and agricultural abandonment of marginal habitats may have detrimental effects on Tree Pipits.

Hewson et al. (2007) analysed the RWBS and BBS/CBC data and found declines in all of the seven long-distance migrant species considered, including Tree Pipit. Thus, although specific evidence relating to factors operating on wintering grounds is lacking, these causes cannot be ruled out as impacting upon population declines.

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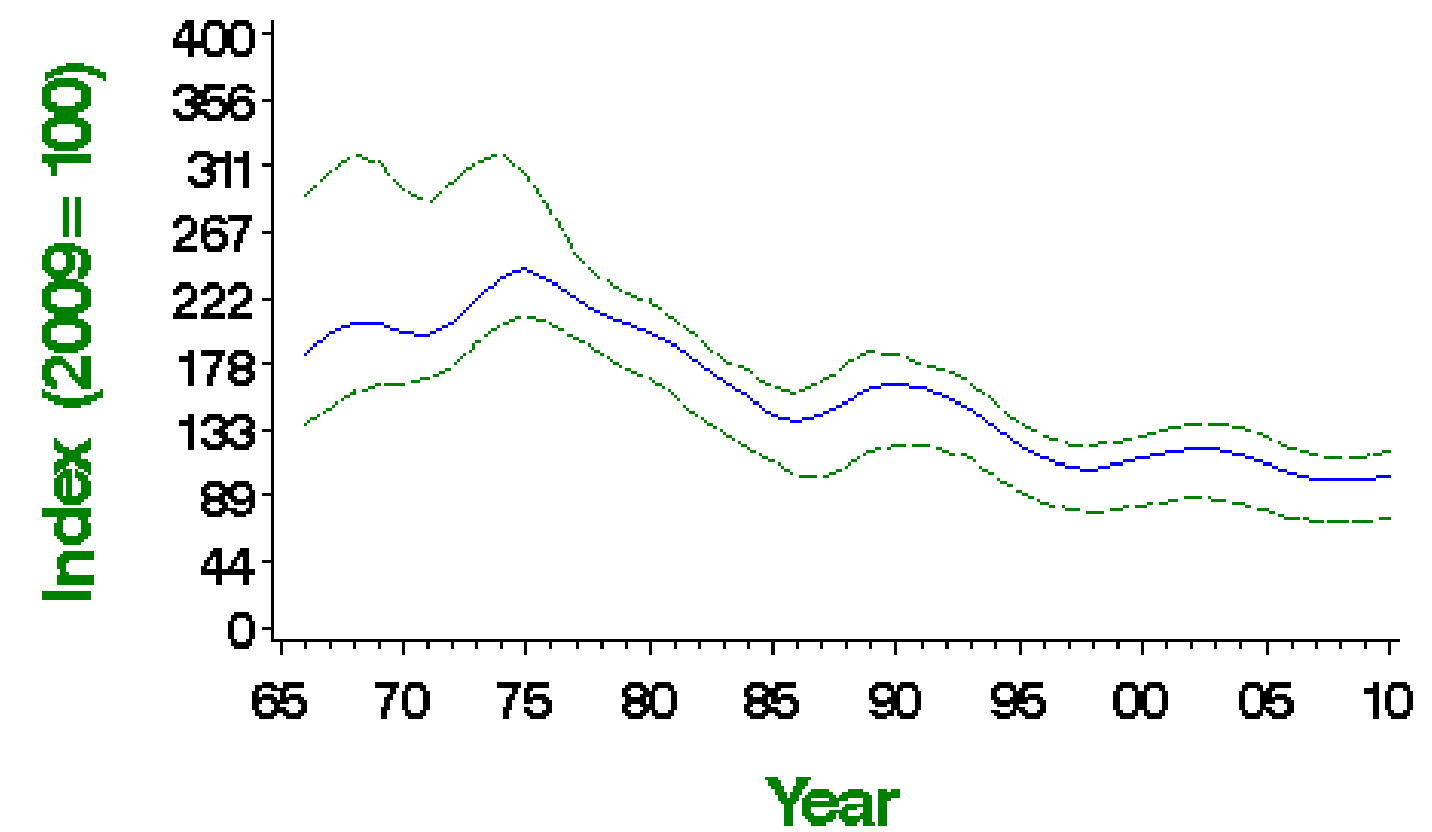
Key facts

Conservation listings:	Europe: no SPEC category (concentrated in Europe, conservation status favourable) (BiE04) UK: amber (25-50% population decline) (BoCC3)
Long-term trend:	England: moderate decline
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 moderate decline is evident across Europe since 1980 (PECBMS 2011a).

CBC/BBS England 1966–2010
Meadow Pipit



Smoothed population index, relative to an arbitrary 100 in the year given, with 85% confidence limits in green

Population changes in detail

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS England	42	1967-2009	173	-50	-77	-23	>25	
	25	1984-2009	264	-35	-56	-17	>25	
	10	1999-2009	470	-9	-18	5		
	5	2004-2009	556	-14	-20	-9		

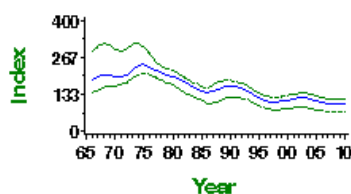
BBS UK Source	Period (yrs)	1995-2009 Years	PBIs (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
	10	1999-2009	848	-22	-27	-16		
	5	2004-2009	966	-18	-22	-14		
BBS England	14	1995-2009	421	-16	4	22		
	10	1999-2009	466	-9	0	13		
	5	2004-2009	556	-13	-8	2		
BBS Scotland	14	1995-2009	201	-31	-41	-23	>25	
	10	1999-2009	193	-28	-36	-20	>25	
	5	2004-2009	206	-19	-26	-12		
BBS Wales	14	1995-2009	86	-16	-26	-5		
	10	1999-2009	97	-24	-34	-13		
	5	2004-2009	99	-27	-34	-16	>25	
BBS N.Ireland	14	1995-2009	65	1	-16	34		
	10	1999-2009	74	-24	-34	-13		
	5	2004-2009	76	-33	-36	-25	>25	

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



CBC/BBS England 1966—2010

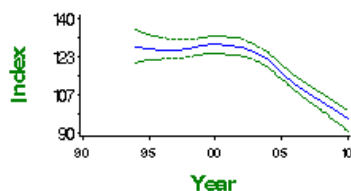
Meadow Pipit



CBC/BBS England graph

BBS UK 1994—2010

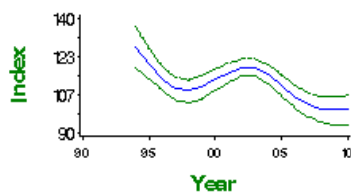
Meadow Pipit



BBS UK graph

BBS England 1994—2010

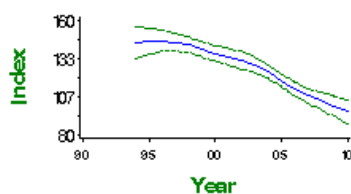
Meadow Pipit

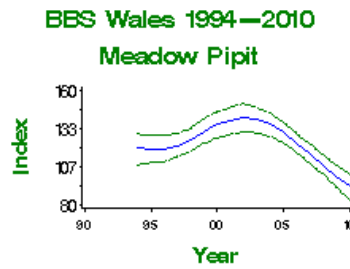


BBS England graph

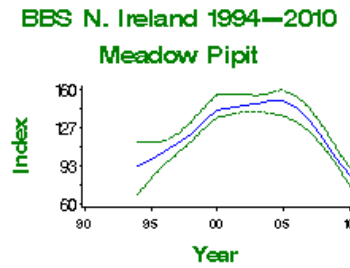
BBS Scotland 1994—2010

Meadow Pipit





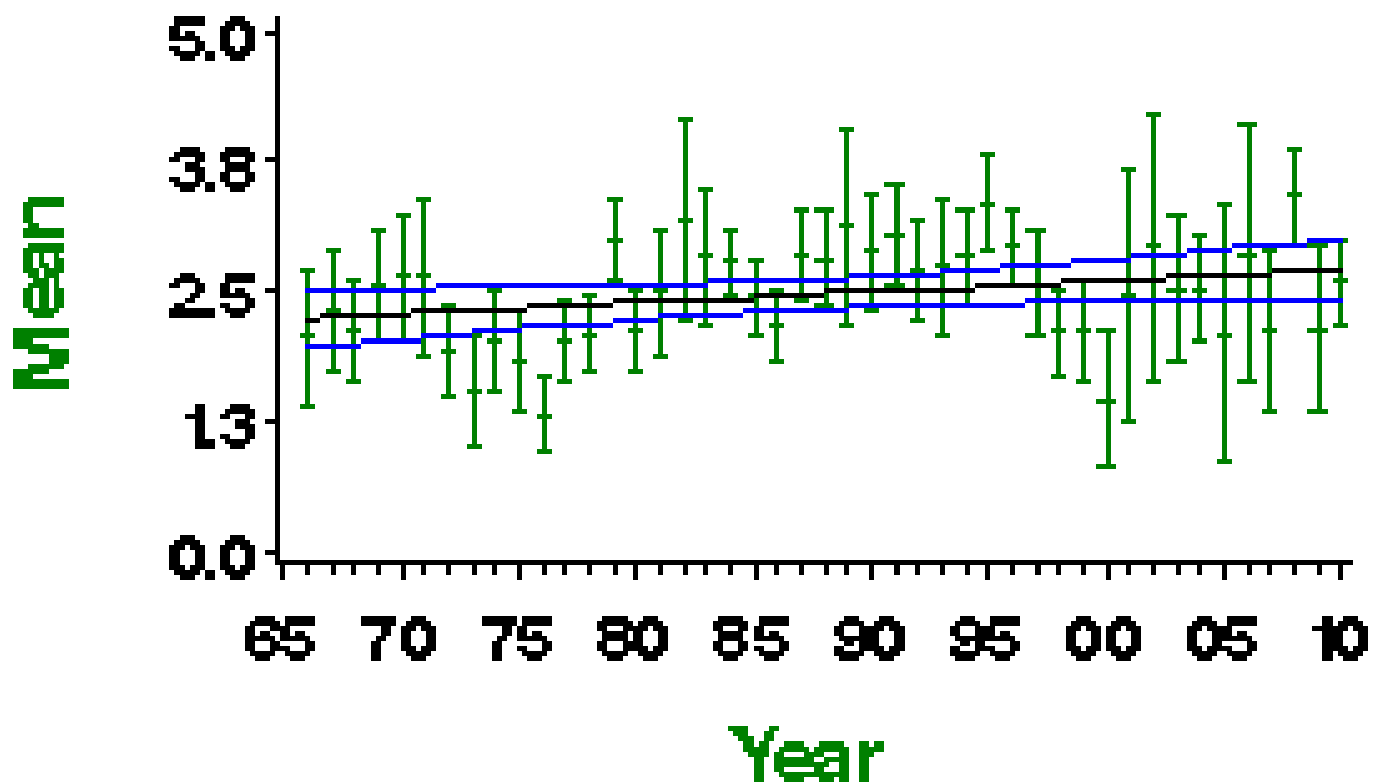
BBS Wales graph



BBS N.Ireland graph

Demographic trends

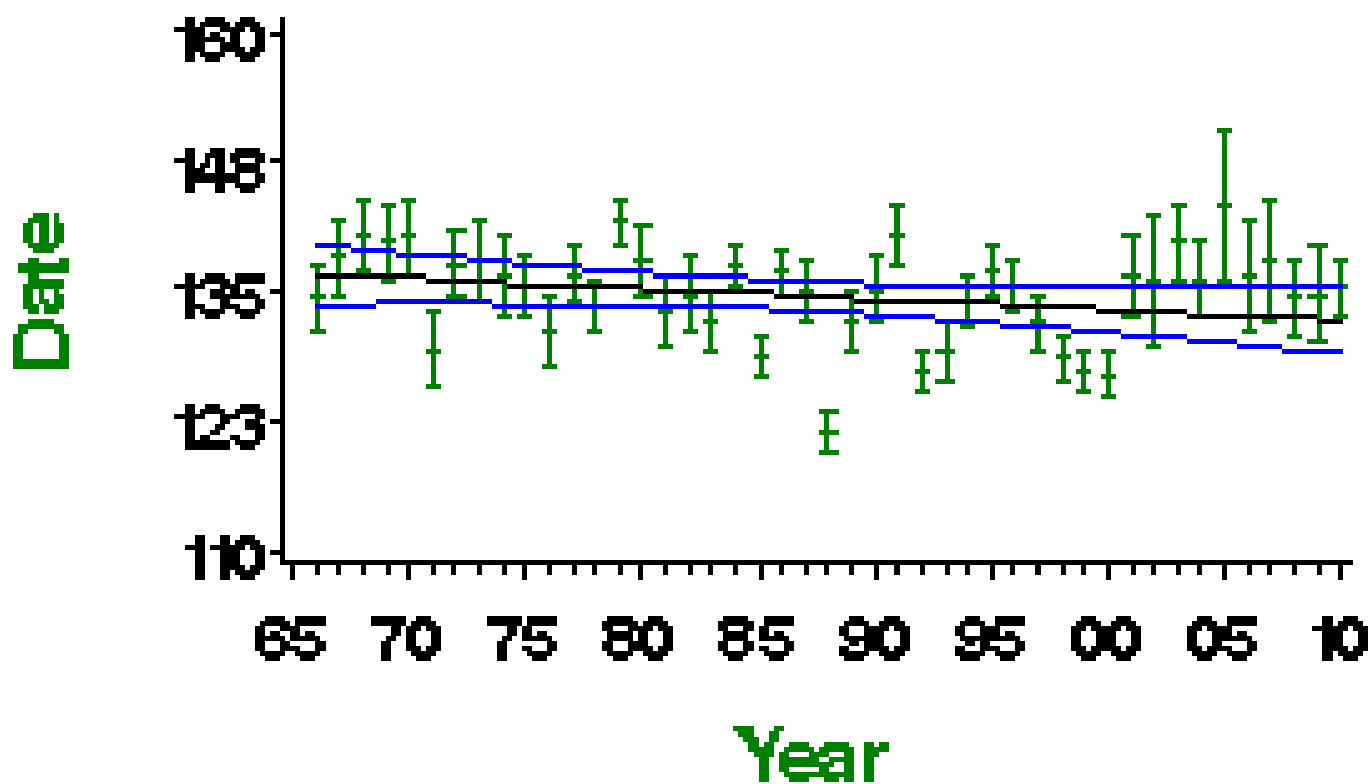
Fledglings per breeding attempt 1966—2010 Meadow Pipit



Mean number of fledglings produced per nest - green bars represent standard error and black line shows long-term trend

Laying date 1966—2010

Meadow Pipit



Mean laying date in Julian days (1st April = Day 90) - green bars represent standard error and black line shows long-term trend

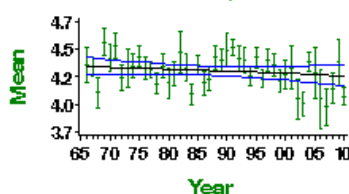
More on demographic trends

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Fledglings per breeding attempt	41	1968-2009	22	None					
Clutch size	41	1968-2009	35	None					
Brood size	41	1968-2009	69	None					
Nest failure rate at egg stage	41	1968-2009	44	None					
Nest failure rate at chick stage	41	1968-2009	61	Linear decline	2.66% nests/day	1.05% nests/day	-60.5%		
Laying date	41	1968-2009	37	None			0 days		

For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).

Clutch size 1966—2010

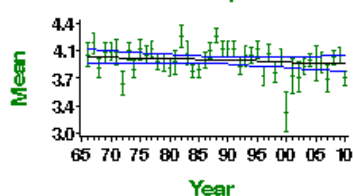
Meadow Pipit



Mean number of eggs per nest - green bars represent standard error and black line shows long-term trend

Brood size 1966—2010

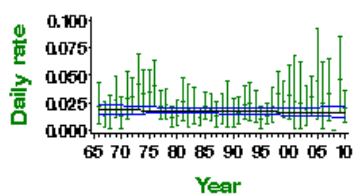
Meadow Pipit



Mean number of chicks per nest - green bars represent standard error and black line shows long-term trend

Egg stage nest failure rate

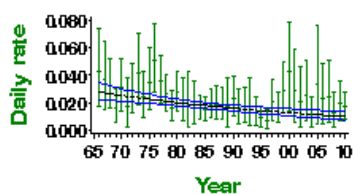
Meadow Pipit



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Chick stage nest failure rate

Meadow Pipit



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Key facts

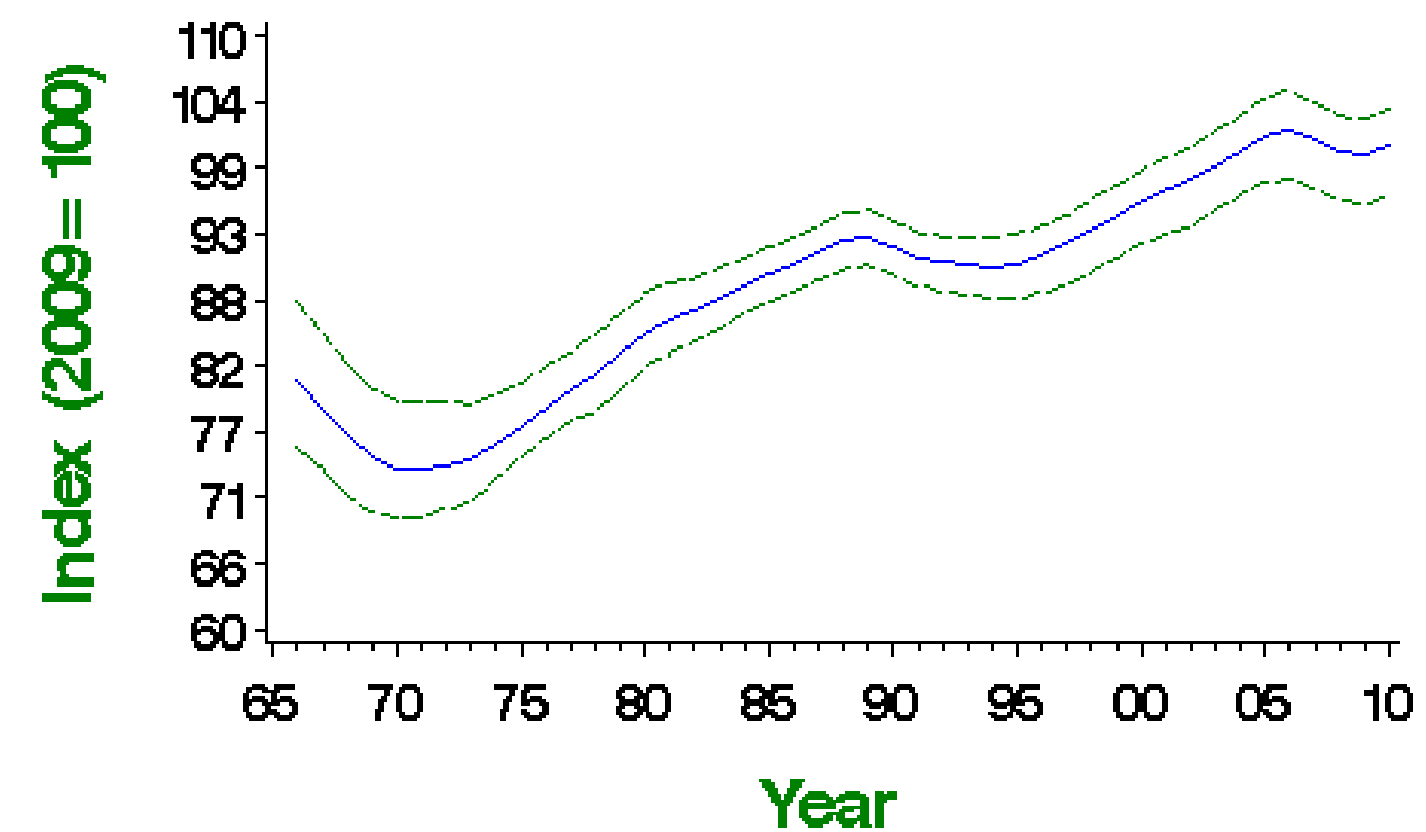
Conservation listings:	Europe: no SPEC category (concentrated in Europe, conservation status favourable) (BiE04) UK: green (species level); amber (race gengleri, >20% of European breeders) (BoCC3)
Long-term trend:	UK, England: shallow increase
Population size:	5,974,000 territories in 2000 (1988-91 Atlas 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 broods, 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.

CBC/BBS UK 1966—2010

Chaffinch



Smoothed population index, relative to an arbitrary 100 in the year given, with 85% confidence limits in green

Population changes in detail

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS UK	42	1967-2009	998	27	12	42		
	25	1984-2009	1528	12	5	18		

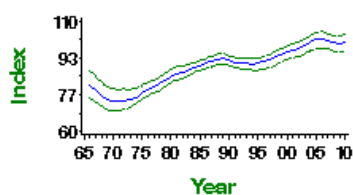
Source	10 Period (yrs)	1999-2009 Years 2004-2009	2649 Plots 2963	5 Change (%)	2 Lower limit	9 Upper limit	Alert	Comment
CBC/BBS England	42	1967-2009	789	31	15	47		
	25	1984-2009	1199	15	8	23		
	10	1999-2009	2064	6	4	10		
	5	2004-2009	2314	-3	-5	-1		
CES adults	25	1984-2009	78	13	-39	74		
	10	1999-2009	88	-7	-25	8		
	5	2004-2009	85	-13	-25	-4		
CES juveniles	25	1984-2009	60	16	-26	90		
	10	1999-2009	70	91	25	145		
	5	2004-2009	67	15	-10	36		
BBS UK	14	1995-2009	2378	11	7	15		
	10	1999-2009	2613	6	3	9		
	5	2004-2009	2963	0	-2	2		
BBS England	14	1995-2009	1827	13	10	17		
	10	1999-2009	2002	6	3	9		
	5	2004-2009	2263	-2	-4	0		
BBS Scotland	14	1995-2009	235	13	5	25		
	10	1999-2009	247	10	2	21		
	5	2004-2009	287	9	3	16		
BBS Wales	14	1995-2009	195	-8	-19	5		
	10	1999-2009	221	0	-7	9		
	5	2004-2009	237	-5	-12	3		
BBS N.Ireland	14	1995-2009	87	38	3	53		
	10	1999-2009	100	-11	-25	2		
	5	2004-2009	109	-4	-11	3		

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



CBC/BBS UK 1966–2010

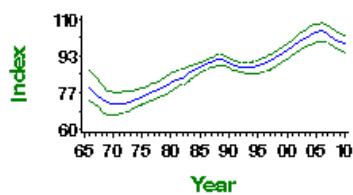
Chaffinch



CBC/BBS UK graph

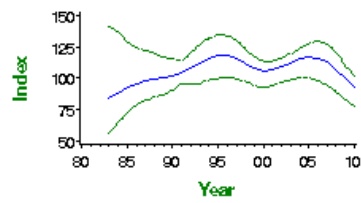
CBC/BBS England 1966–2010

Chaffinch



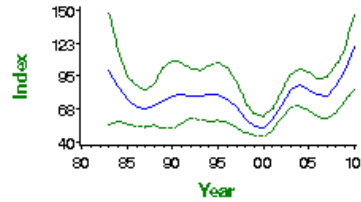
CBC/BBS England graph

CES adult abundance 1983–2010
Chaffinch



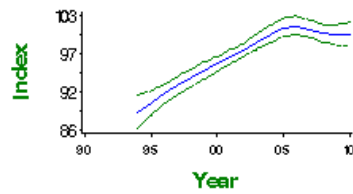
CES adults graph

CES juvenile abundance 1983–2010
Chaffinch



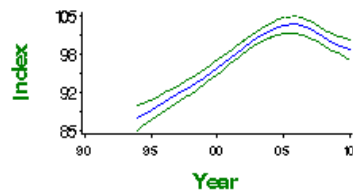
CES juveniles graph

BBS UK 1994–2010
Chaffinch



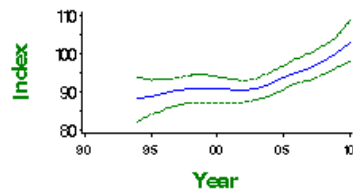
BBS UK graph

BBS England 1994–2010
Chaffinch



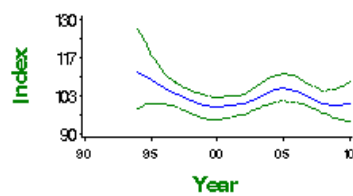
BBS England graph

BBS Scotland 1994–2010
Chaffinch



BBS Scotland graph

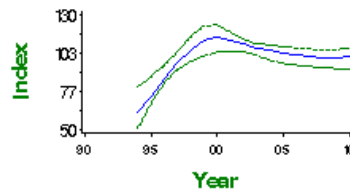
BBS Wales 1994–2010
Chaffinch



BBS Wales graph

BBS N. Ireland 1994—2010

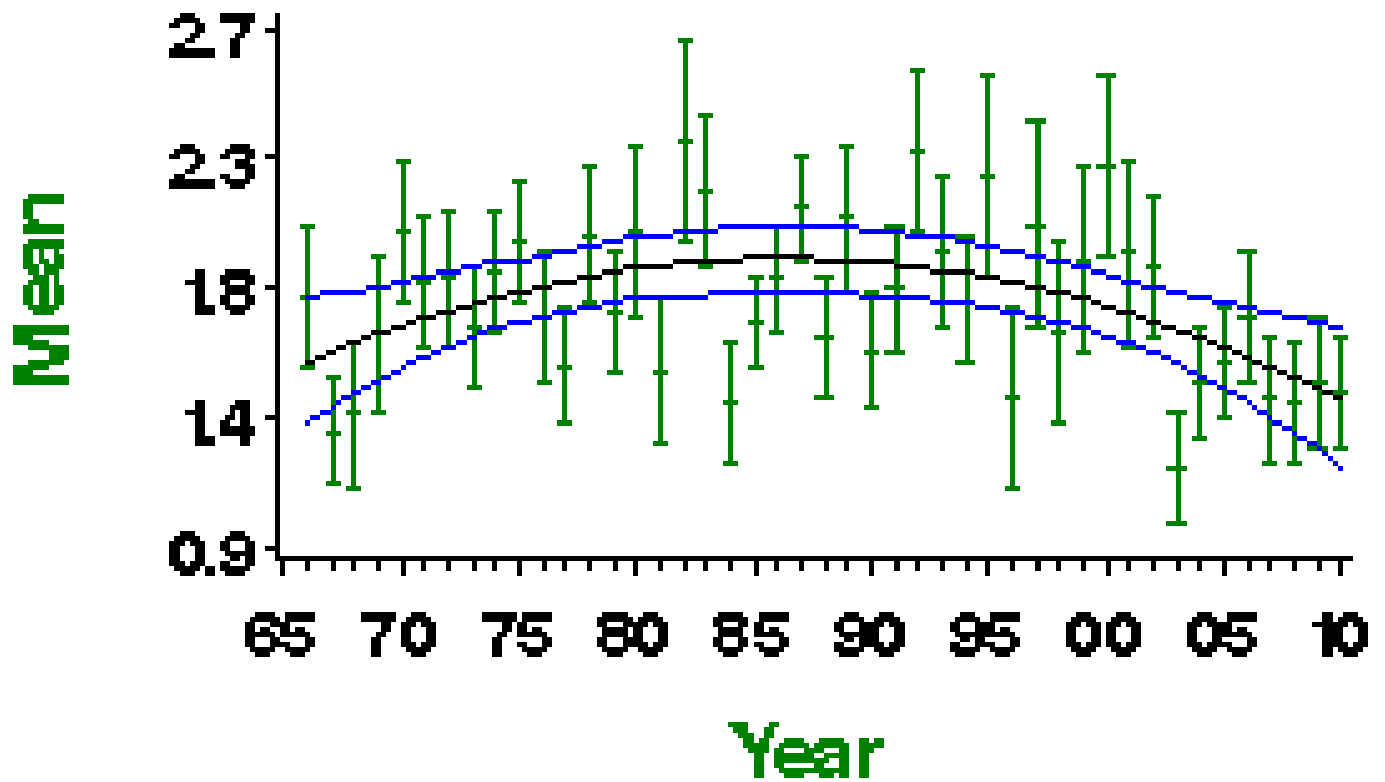
Chaffinch



BBS N.Ireland graph

Demographic trends

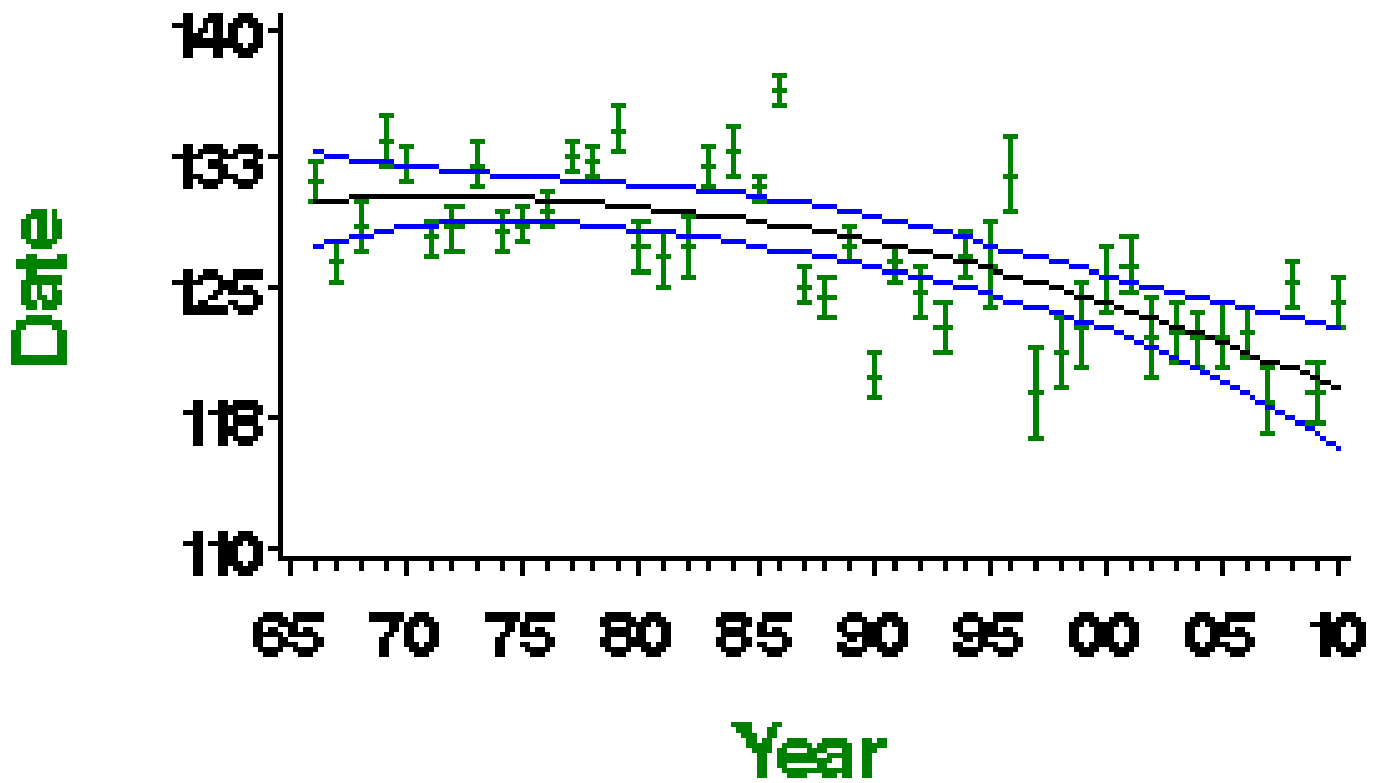
Fledglings per breeding attempt 1966—2010 Chaffinch



Mean number of fledglings produced per nest - green bars represent standard error and black line shows long-term trend

Laying date 1966–2010

Chaffinch



Mean laying date in Julian days (1st April = Day 90) - green bars represent standard error and black line shows long-term trend

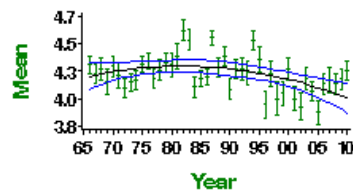
More on demographic trends

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Fledglings per breeding attempt	41	1968-2009	56	Curvilinear	1.61 fledglings	1.45 fledglings	-9.7%		
Clutch size	41	1968-2009	86	Curvilinear	4.23 eggs	4.05 eggs	-4.2%		
Brood size	41	1968-2009	138	Curvilinear	3.59 chicks	3.54 chicks	-1.4%		
Nest failure rate at egg stage	41	1968-2009	163	Curvilinear	3.05% nests/day	3.76% nests/day	23.3%		
Nest failure rate at chick stage	41	1968-2009	113	None					
Laying date	41	1968-2009	108	Curvilinear	May 10	Apr 30	-10 days		
Juvenile to Adult ratio (CES)	25	1984-2009	84	Smoothed trend	46 Index value	100 Index value	116%		
Juvenile to Adult ratio (CES)	10	1999-2009	96	Smoothed trend	66 Index value	100 Index value	51%		
Juvenile to Adult ratio (CES)	5	2004-2009	93	Smoothed trend	92 Index value	100 Index value	9%		

For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).

Clutch size 1966—2010

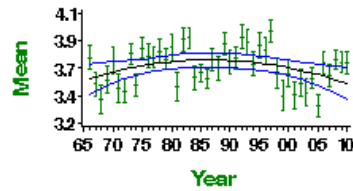
Chaffinch



Mean number of eggs per nest - green bars represent standard error and black line shows long-term trend

Brood size 1966—2010

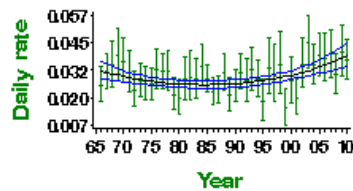
Chaffinch



Mean number of chicks per nest - green bars represent standard error and black line shows long-term trend

Egg stage nest failure rate

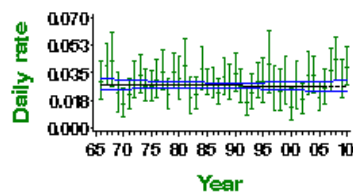
Chaffinch



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Chick stage nest failure rate

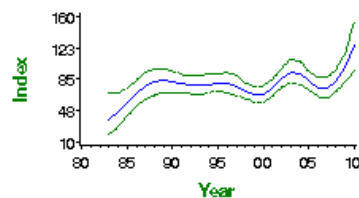
Chaffinch



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

CES productivity 1983—2010

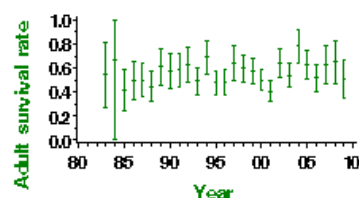
Chaffinch



Smoothed long-term trend in ratio of juvenile:adult birds caught - green lines indicate 85% confidence limits

CES survival 1983—2009

Chaffinch



Proportion of adult birds surviving to following year - green bars represent 95% confidence limits

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Key facts

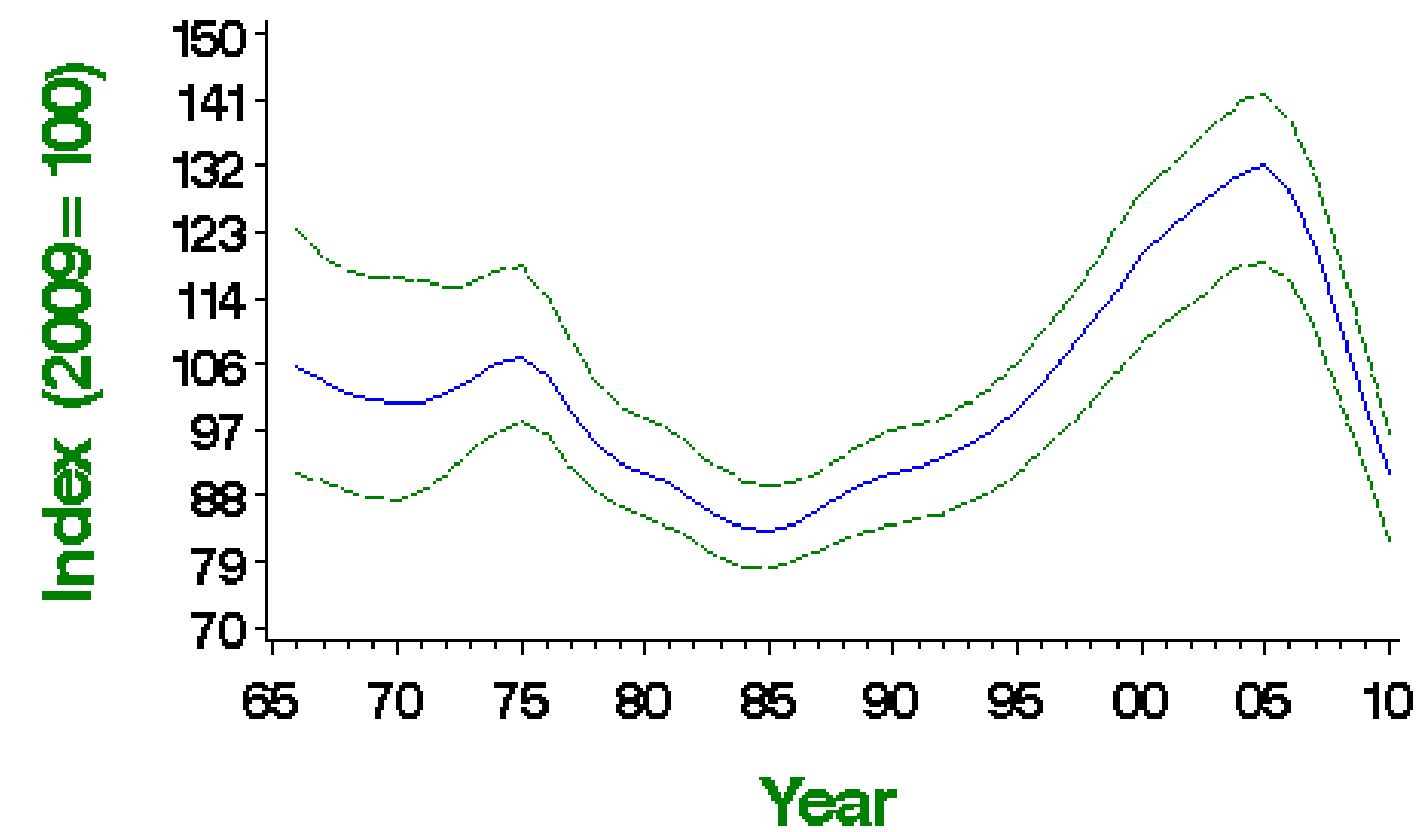
Conservation listings:	Europe: no SPEC category (concentrated in Europe, conservation status favourable) (BiE04) UK: green (species level, race chloris); amber (race harrisoni, >20% of European breeders) (BoCC3)
Long-term trend:	UK, England: fluctuating, with no long-term trend
Population size:	734,000 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. 2010b). 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 moderate increase across Europe since 1980 (PECBMS 2011a).

CBC/BBS UK 1966–2010

Greenfinch



Smoothed population index, relative to an arbitrary 100 in the year given, with 85% confidence limits in green

Population changes in detail

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS UK	42	1967-2009	723	-3	-25	21		
	25	1984-2009	1110	20	1	36		
	10	1999-2009	1984	-14	-17	-9		
	5	2004-2009	2228	-24	-26	-21		

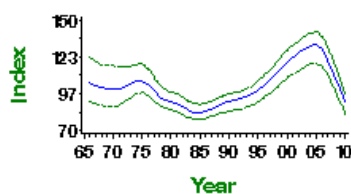
CBC/BBS England Source	42 Period (yrs)	1967-2009 Years	612 Plots	5 Change (%)	-21 Lower limit	34 Upper limit	Alert	Comment
	10	1999-2009	1661	-13	-17	-9		
	5	2004-2009	1866	-25	-27	-22		
CES adults	25	1984-2009	41	29	-35	209		
	10	1999-2009	50	-26	-43	-7	>25	
	5	2004-2009	52	-34	-46	-25	>25	
CES juveniles	25	1984-2009	29	151	0	764		
	10	1999-2009	39	140	39	285		
	5	2004-2009	41	31	-19	78		
BBS UK	14	1995-2009	1750	2	-3	10		
	10	1999-2009	1943	-13	-17	-8		
	5	2004-2009	2197	-23	-25	-20		
BBS England	14	1995-2009	1472	3	-2	10		
	10	1999-2009	1629	-12	-16	-8		
	5	2004-2009	1846	-24	-26	-20		
BBS Scotland	14	1995-2009	103	-6	-24	17		
	10	1999-2009	111	-13	-28	4		
	5	2004-2009	127	-13	-23	0		
BBS Wales	14	1995-2009	112	9	-13	35		
	10	1999-2009	130	-16	-29	1		
	5	2004-2009	141	-22	-32	-11		
BBS N.Ireland	14	1995-2009	50	18	-23	74		
	10	1999-2009	60	-27	-43	-10	>25	
	5	2004-2009	68	-42	-48	-30	>25	

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



CBC/BBS UK 1966–2010

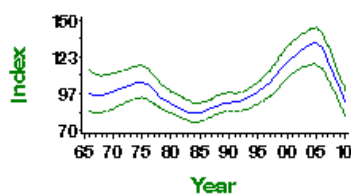
Greenfinch



CBC/BBS UK graph

CBC/BBS England 1966–2010

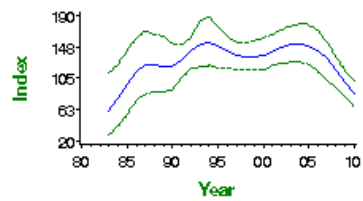
Greenfinch



CBC/BBS England graph

CES adult abundance 1983–2010

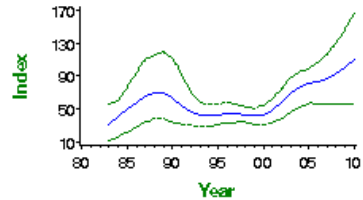
Greenfinch



CES adults graph

CES juvenile abundance 1983–2010

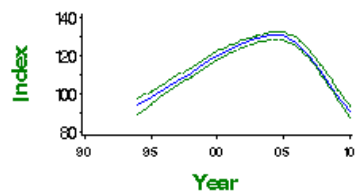
Greenfinch



CES juveniles graph

BBS UK 1994–2010

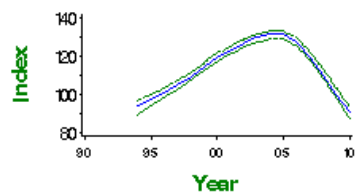
Greenfinch



BBS UK graph

BBS England 1994–2010

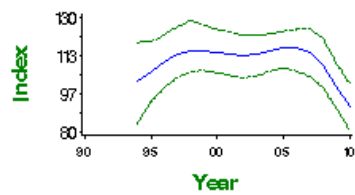
Greenfinch



BBS England graph

BBS Scotland 1994–2010

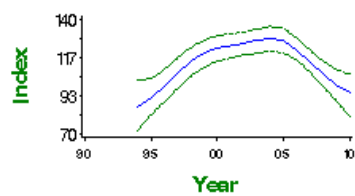
Greenfinch



BBS Scotland graph

BBS Wales 1994–2010

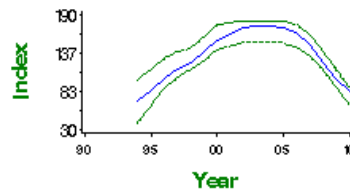
Greenfinch



BBS Wales graph

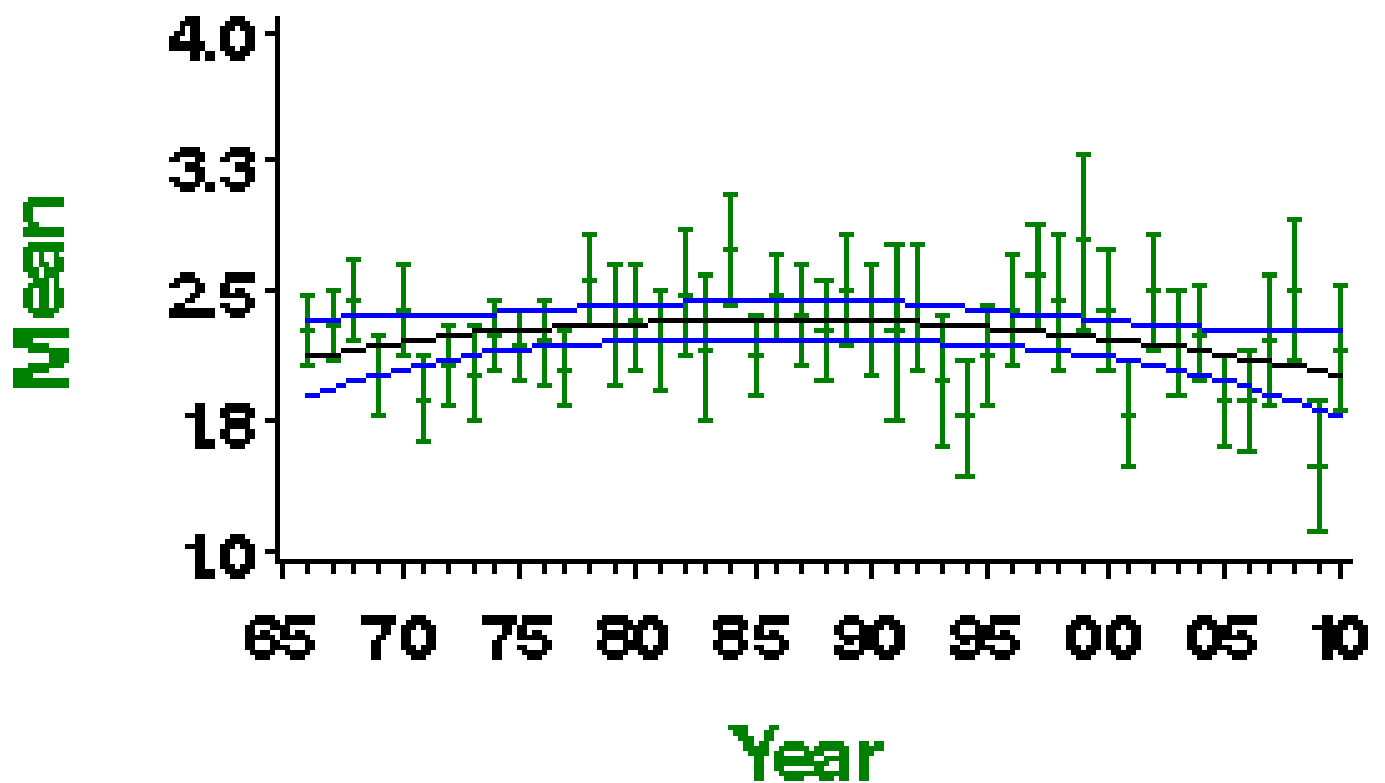
BBS N. Ireland 1994—2010

Greenfinch



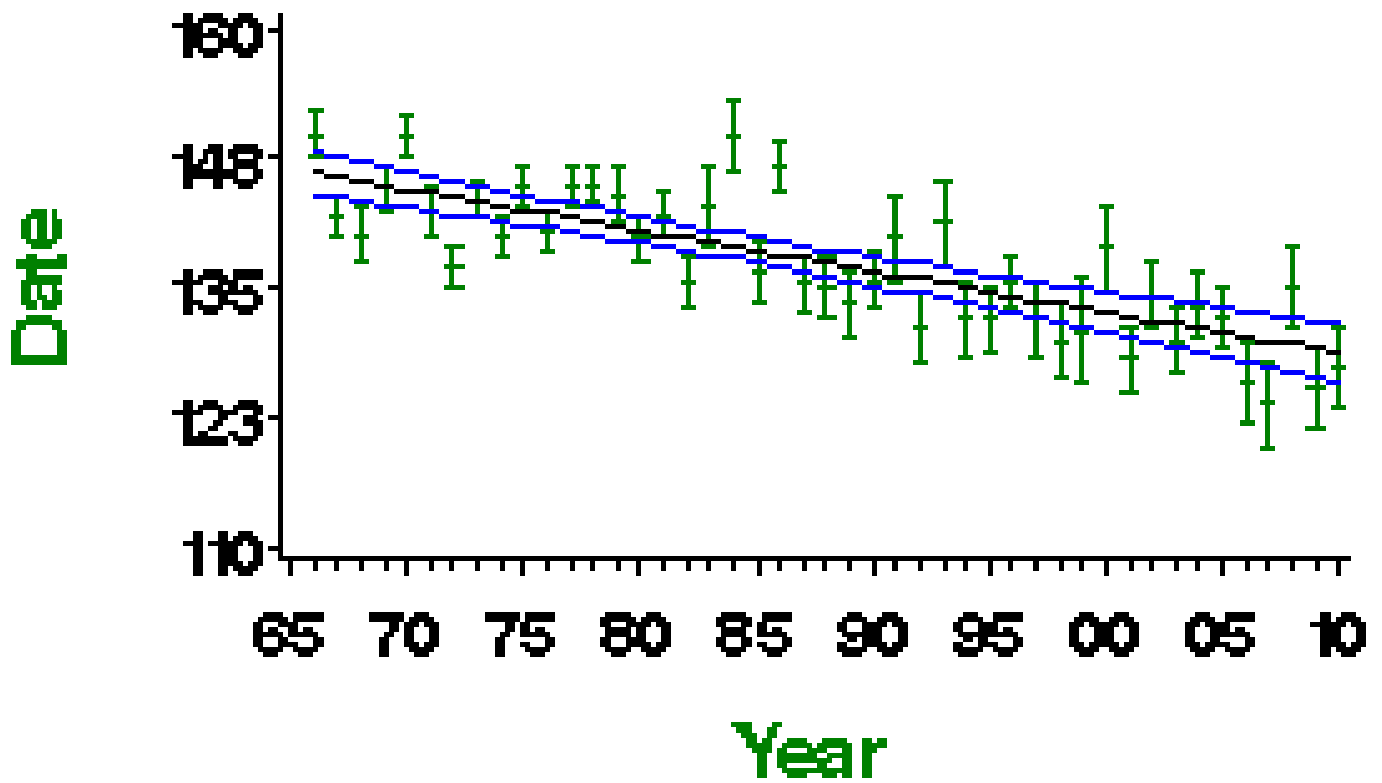
Demographic trends

Fledglings per breeding attempt 1966—2010 Greenfinch



Laying date 1966–2010

Greenfinch



Mean laying date in Julian days (1st April = Day 90) - green bars represent standard error and black line shows long-term trend

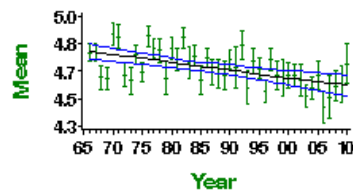
More on demographic trends

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Fledglings per breeding attempt	41	1968-2009	59	Curvilinear	2.16 fledglings	2.04 fledglings	-5.6%		
Clutch size	41	1968-2009	91	Linear decline	4.76 eggs	4.56 eggs	-4.2%		
Brood size	41	1968-2009	113	Linear decline	4.10 chicks	3.76 chicks	-8.3%		
Nest failure rate at egg stage	41	1968-2009	126	Linear decline	2.49% nests/day	1.56% nests/day	-37.3%		
Nest failure rate at chick stage	41	1968-2009	94	None					
Laying date	41	1968-2009	93	Linear decline	May 25	May 9	-16 days		
Juvenile to Adult ratio (CES)	25	1984-2009	46	Smoothed trend	130 Index value	100 Index value	-23%		
Juvenile to Adult ratio (CES)	10	1999-2009	56	Smoothed trend	66 Index value	100 Index value	52%		
Juvenile to Adult ratio (CES)	5	2004-2009	59	Smoothed trend	84 Index value	100 Index value	20%		

For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).

Clutch size 1966—2010

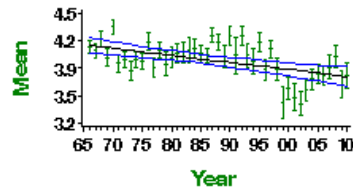
Greenfinch



Mean number of eggs per nest - green bars represent standard error and black line shows long-term trend

Brood size 1966—2010

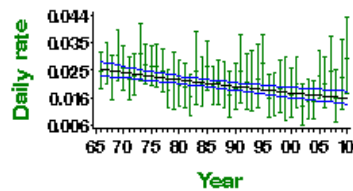
Greenfinch



Mean number of chicks per nest - green bars represent standard error and black line shows long-term trend

Egg stage nest failure rate

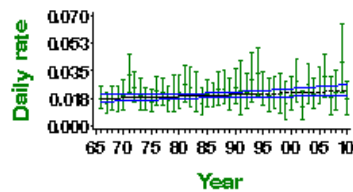
Greenfinch



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Chick stage nest failure rate

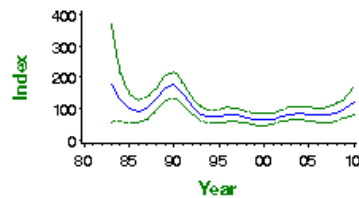
Greenfinch



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

OES productivity 1983—2010

Greenfinch



Smoothed long-term trend in ratio of juvenile:adult birds caught - green lines indicate 85% confidence limits

Key facts

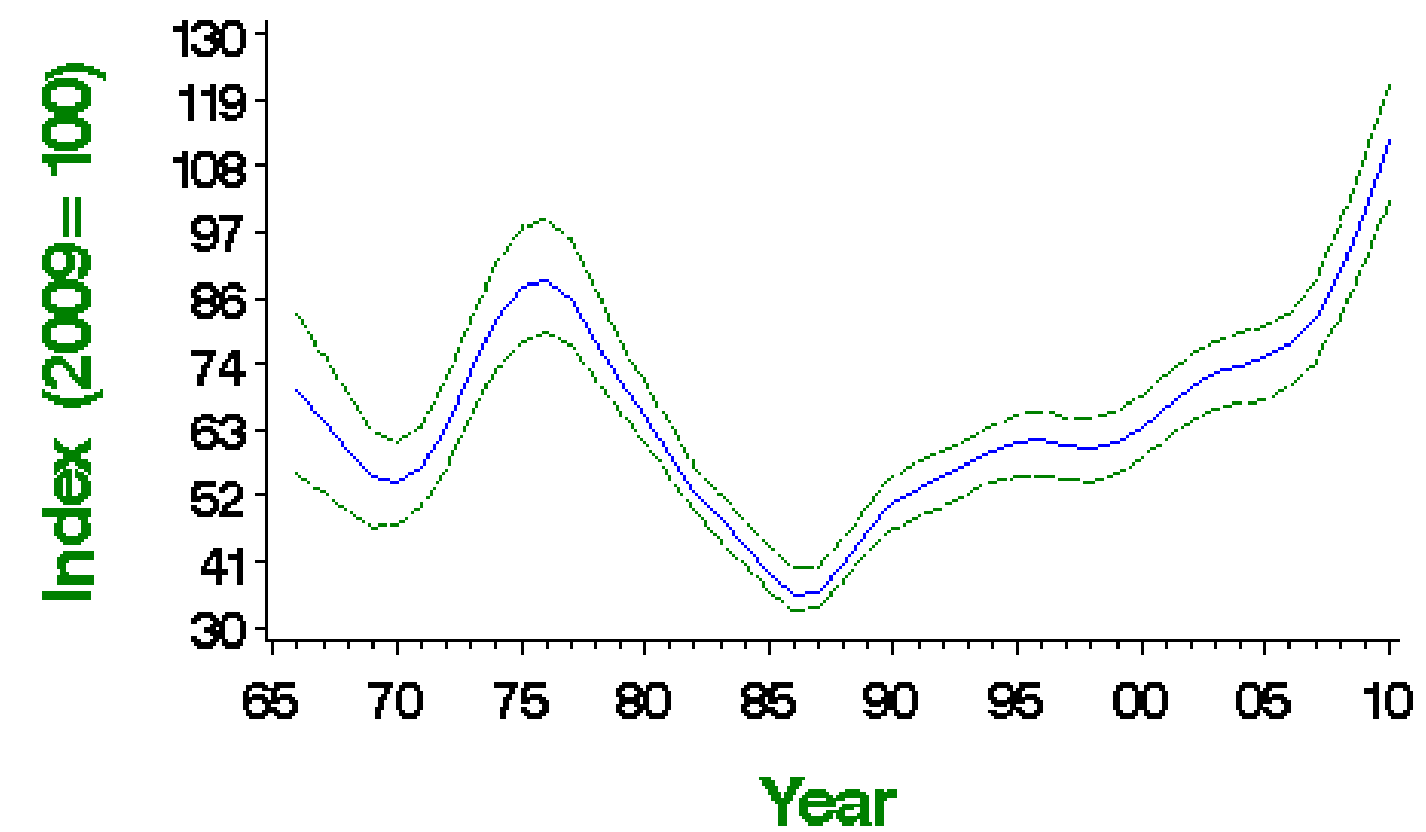
Conservation listings:	Europe: no SPEC category (not concentrated in Europe, conservation status favourable) (BiE04) UK: green (species level); amber (race britannica, >20% of European breeders) (BoCC3)
Long-term trend:	England: moderate increase
Population size:	313,000 territories in 2000 (1988-91 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 and niger feeders. 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. There has been widespread moderate increase across Europe since 1980 (PECBMS 2011a). A strong increase has been recorded in the Republic of Ireland since 1998 (Crowe et al. 2010).

CBC/BBS England 1966–2010

Goldfinch



Smoothed population index, relative to an arbitrary 100 in the year given, with 85% confidence limits in green

Population changes in detail

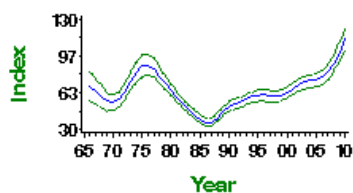
Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS England	42	1967-2009	486	55	21	108		
	25	1984-2009	753	128	93	165		

Source	10 Period (yrs)	1999-2009 Years 2004-2009	1370 Plots (1992-1998)	63 Change (%)	56 Lower limit	73 Upper limit	Alert	Comment
CES adults	25	1984-2009	30	43	-24	153		
	10	1999-2009	37	27	-9	82		
	5	2004-2009	38	21	-10	57		
CES juveniles	25	1984-2009	21	-16	-66	257		
	10	1999-2009	26	75	4	157		
	5	2004-2009	25	82	22	202		
BBS UK	14	1995-2009	1455	73	64	86		
	10	1999-2009	1641	63	56	75		
	5	2004-2009	1908	33	29	40		
BBS England	14	1995-2009	1197	63	53	73		
	10	1999-2009	1343	62	55	72		
	5	2004-2009	1569	35	30	43		
BBS Scotland	14	1995-2009	83	123	66	184		
	10	1999-2009	92	83	44	135		
	5	2004-2009	107	46	26	78		
BBS Wales	14	1995-2009	123	59	30	109		
	10	1999-2009	142	16	3	32		
	5	2004-2009	154	-4	-16	9		
BBS N.Ireland	14	1995-2009	43	728				
	10	1999-2009	54	269				
	5	2004-2009	66	74				

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.

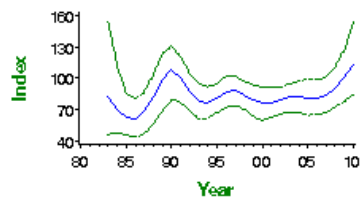


CBC/BBS England 1966–2010 Goldfinch



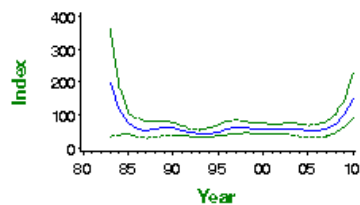
CBC/BBS England graph

CES adult abundance 1983–2010 Goldfinch



CES adults graph

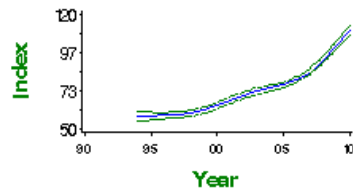
CES juvenile abundance 1983–2010 Goldfinch



CES juveniles graph

BBS UK 1994—2010

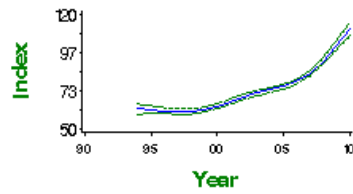
Goldfinch



BBS UK graph

BBS England 1994—2010

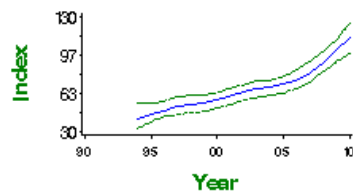
Goldfinch



BBS England graph

BBS Scotland 1994—2010

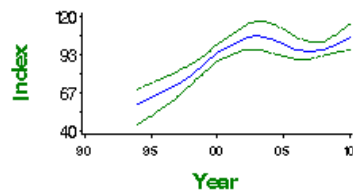
Goldfinch



BBS Scotland graph

BBS Wales 1994—2010

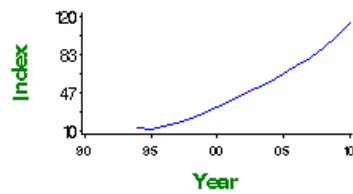
Goldfinch



BBS Wales graph

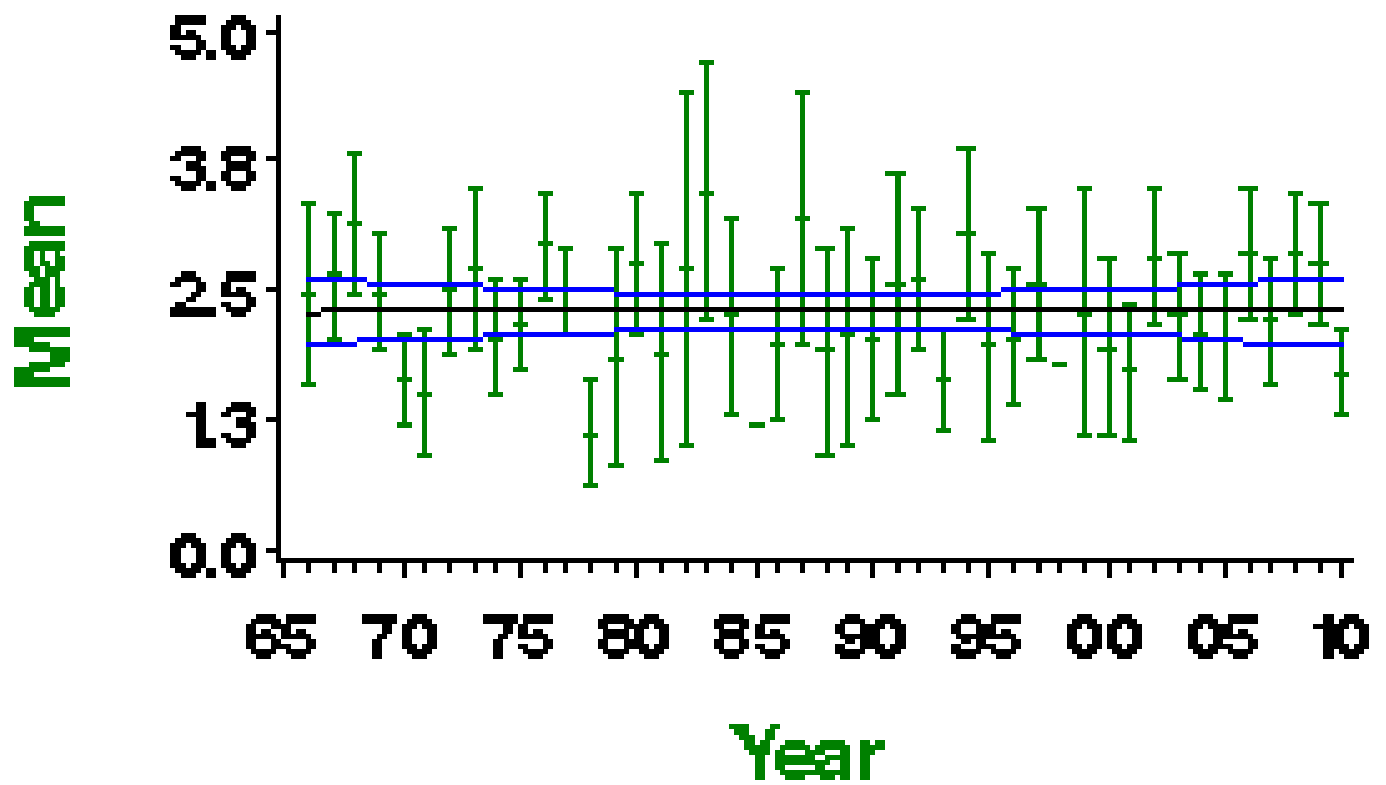
BBS N. Ireland 1994—2010

Goldfinch



BBS N.Ireland graph

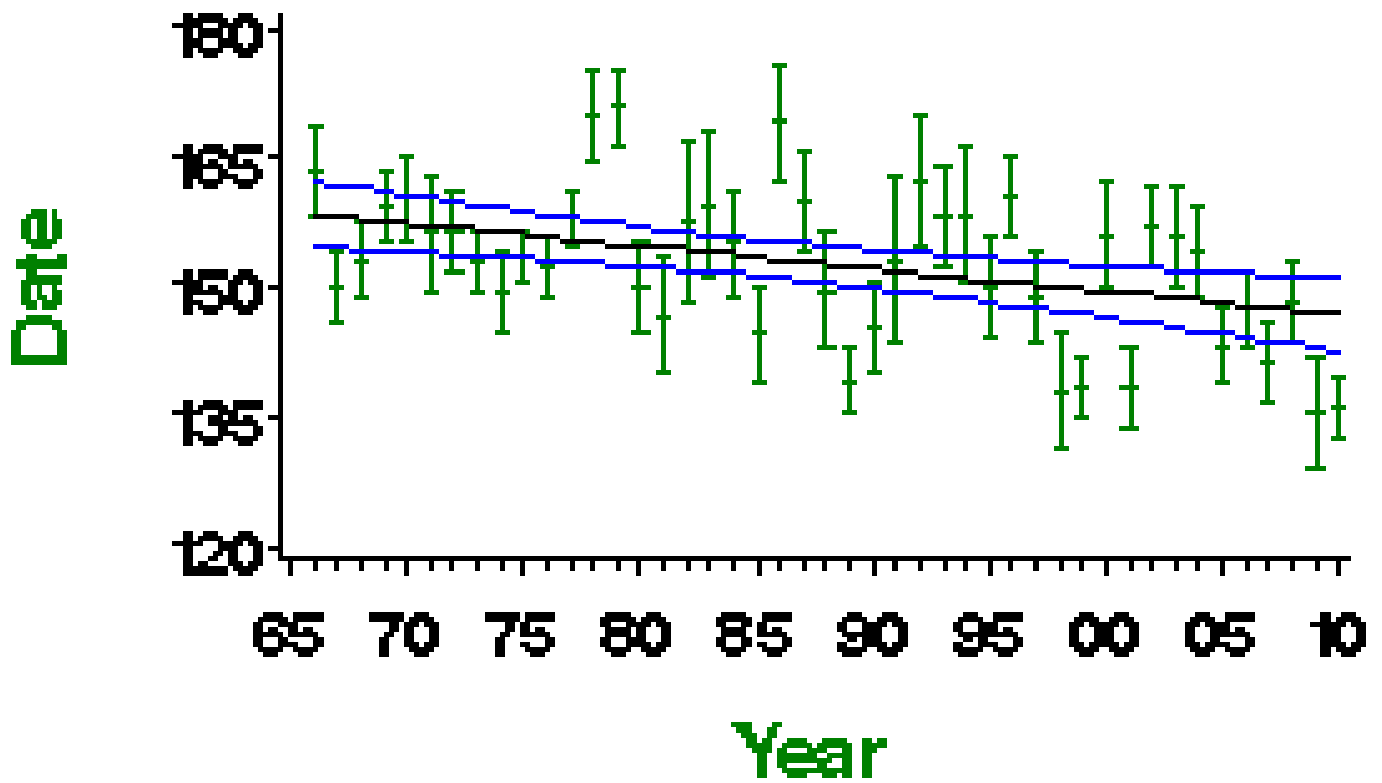
Fledglings per breeding attempt 1966 – 2010 Goldfinch



Mean number of fledglings produced per nest - green bars represent standard error and black line shows long-term trend

Laying date 1966–2010

Goldfinch



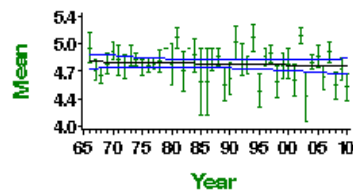
More on demographic trends

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Fledglings per breeding attempt	41	1968-2009	14	None					
Clutch size	41	1968-2009	20	None					Small sample
Brood size	41	1968-2009	34	None					
Nest failure rate at egg stage	41	1968-2009	35	None					
Nest failure rate at chick stage	41	1968-2009	28	None					Small sample
Laying date	41	1968-2009	23	Linear decline	Jun 7	May 27	-11 days		Small sample
Juvenile to Adult ratio (CES)	25	1984-2009	35	Smoothed trend	308 Index value	100 Index value	-68%	>50	
Juvenile to Adult ratio (CES)	10	1999-2009	43	Smoothed trend	182 Index value	100 Index value	-45%	>25	
Juvenile to Adult ratio (CES)	5	2004-2009	42	Smoothed trend	114 Index value	100 Index value	-12%		

For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).

Clutch size 1966–2010

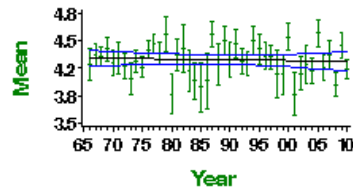
Goldfinch



Mean number of eggs per nest - green bars represent standard error and black line shows long-term trend

Brood size 1966–2010

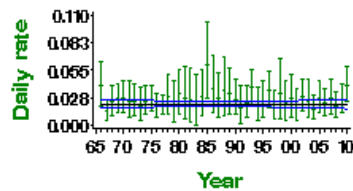
Goldfinch



Mean number of chicks per nest - green bars represent standard error and black line shows long-term trend

Egg stage nest failure rate

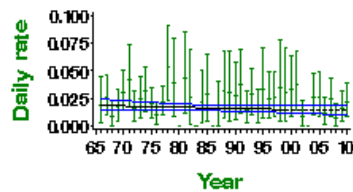
Goldfinch



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Chick stage nest failure rate

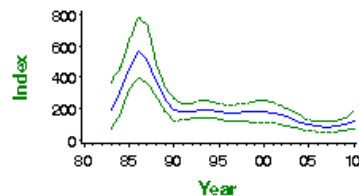
Goldfinch



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

OES productivity 1983–2010

Goldfinch



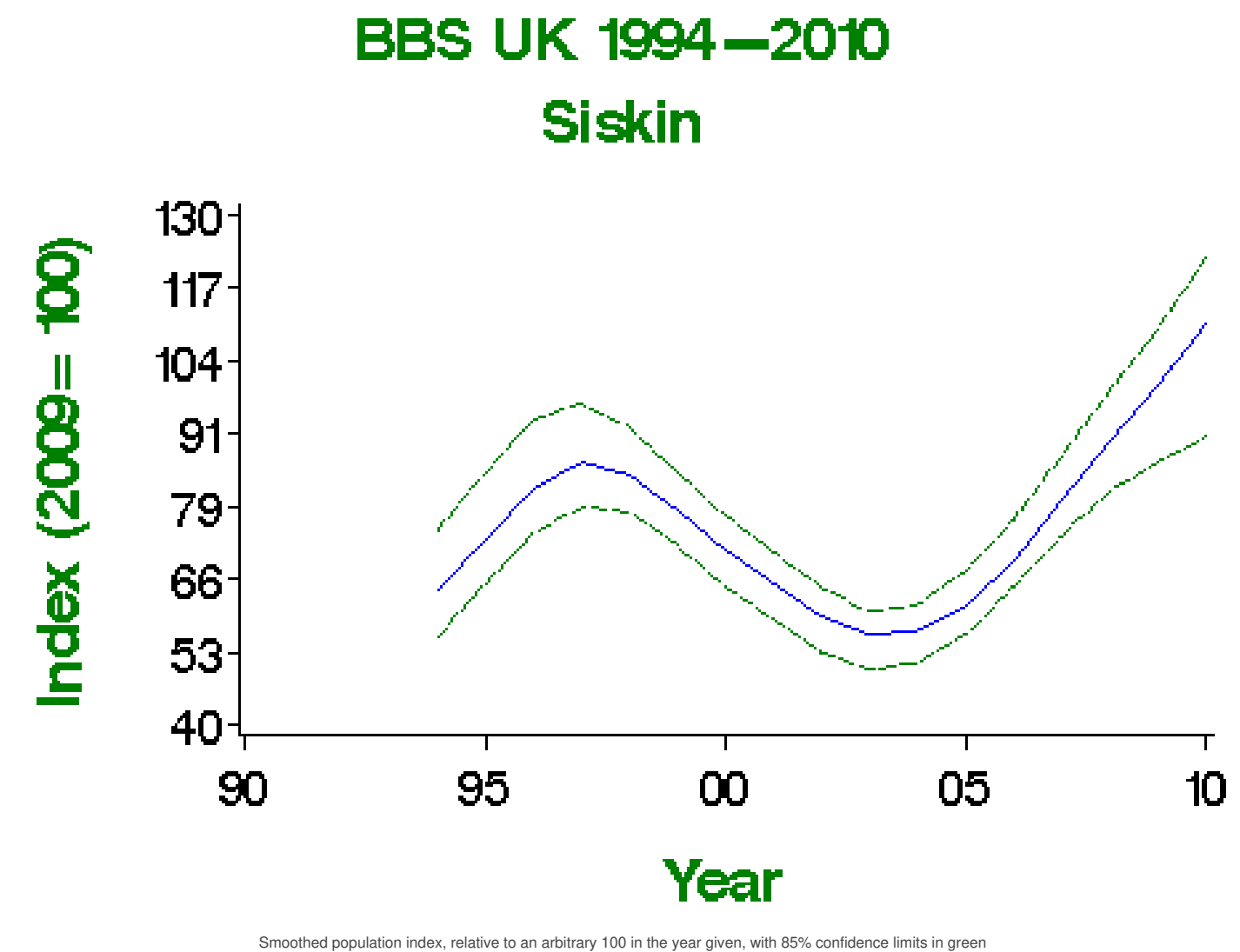
Smoothed long-term trend in ratio of juvenile:adult birds caught - green lines indicate 85% confidence limits

Key facts

Conservation listings:	Europe: no SPEC category (concentrated in Europe, conservation status favourable) (BiE04) UK: green (BoCC3)
Long-term trend:	UK: increase
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. The overall trend across Europe since 1980 has been a moderate decrease (PECBMS 2011a).

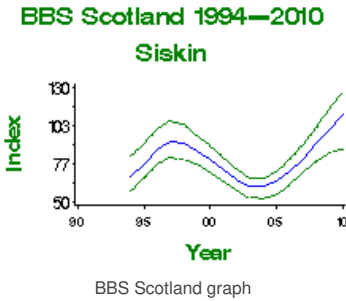
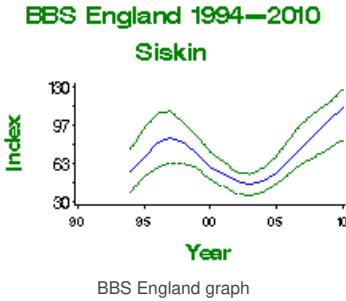
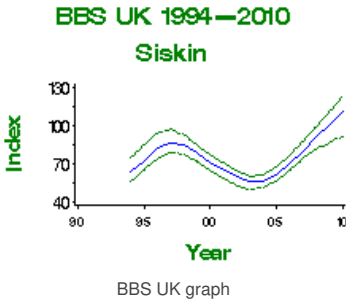


Population changes in detail

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
BBS UK	14	1995-2009	155	38	4	66		
	10	1999-2009	169	28	0	55		
	5	2004-2009	206	77	49	106		

BBS England Source	14 Period (yrs)	1995-2009 Years 1999-2009	52 Plots 59	47 Change 46	-41 Lower limit 33	-21 Upper limit 20	Alert	Comment
	5	2004-2009	75	110	-21	-9		
BBS Scotland	14	1995-2009	72	31	-6	66		
	10	1999-2009	76	17	-14	50		
	5	2004-2009	94	65	34	104		

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



Demographic trends

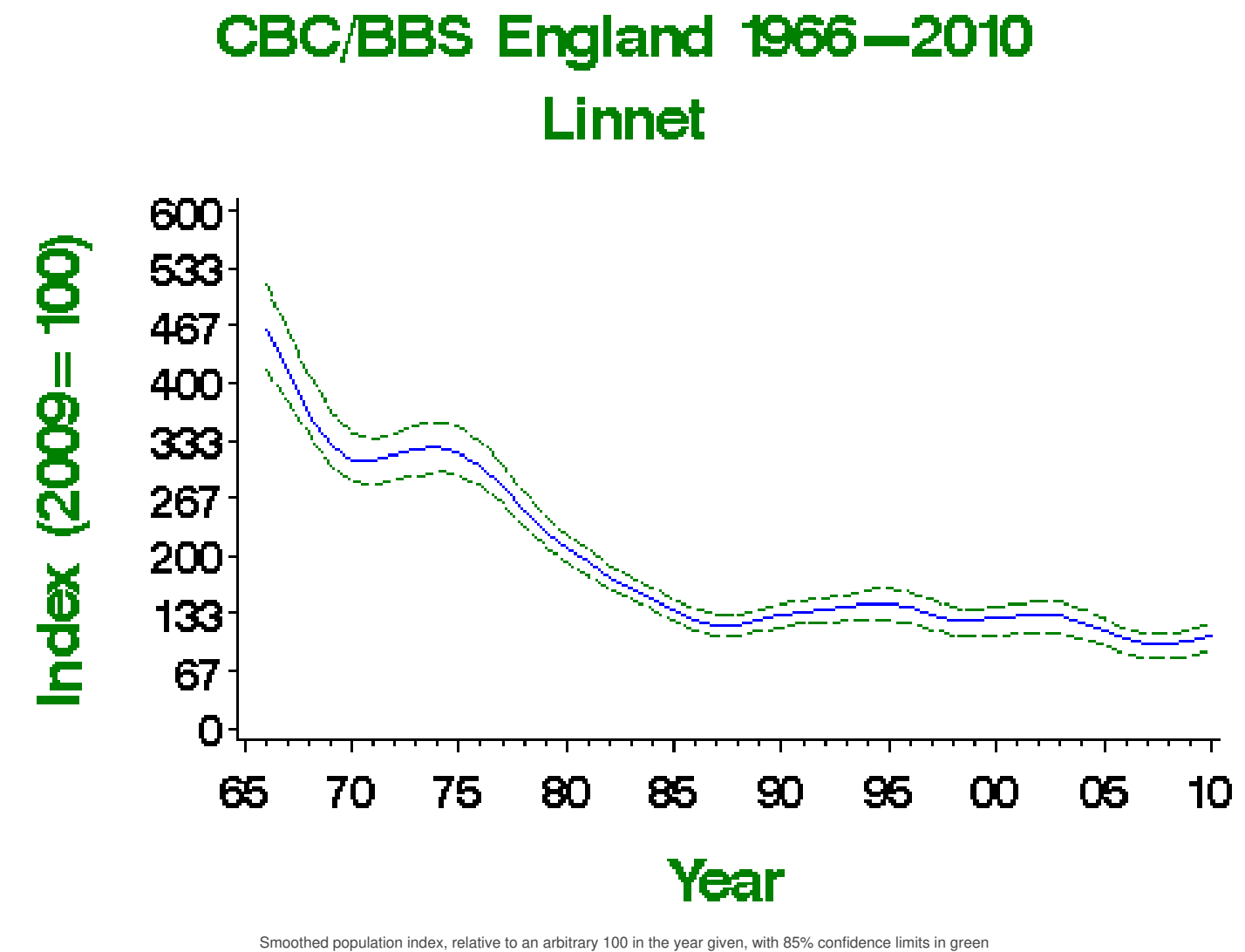
Productivity and survival trends for this species are not currently produced by BTO

Key facts

Conservation listings:	Europe: SPEC category 2 (declining) (BiE04) UK: red (species level, race cannabina); amber (race autochthona, >20% of European breeders, European status) (BoCC3) UK Biodiversity Action Plan: click here , priority species
Long-term trend:	England: rapid decline
Population size:	556,000 territories in 2000 (1988-91 Atlas estimate updated using CBC/BBS trend: BiE04, APEP06)
Migrant status:	Short-distance migrant
Nesting habitat:	Above-ground nester
Primary breeding habitat:	Farmland
Secondary breeding habitat:	
Breeding diet:	Vegetation
Winter diet:	Vegetation

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 decreases in England and Wales and possibly some increase in Northern Ireland. A moderate decline has been recorded widely across Europe since 1980 (PECBMS 2011a), and the European status of this species is no longer considered 'secure' (BirdLife International 2004).



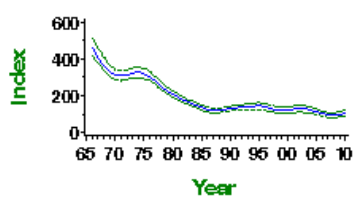
Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS England	42	1967-2009	418	-76	-82	-70	>50	
	25	1984-2009	616	-34	-47	-21	>25	
	10	1999-2009	1000	-20	-25	-13		
	5	2004-2009	1038	-19	-24	-13		
CES adults	25	1984-2009	17	-94	-98	-83	>50	Small sample
	10	1999-2009	15	-56	-79	2		Small sample
	5	2004-2009	15	-44	-66	-14	>25	Small sample
CES juveniles	25	1984-2009	14	-87	-96	-43	>50	Small sample
	10	1999-2009	13	-42	-79	35		Small sample
	5	2004-2009	13	21	-48	134		Small sample
BBS UK	14	1995-2009	1161	-23	-30	-16		
	10	1999-2009	1218	-15	-23	-8		
	5	2004-2009	1276	-11	-18	-5		
BBS England	14	1995-2009	937	-32	-36	-26	>25	
	10	1999-2009	975	-20	-26	-14		
	5	2004-2009	1019	-17	-22	-12		
BBS Scotland	14	1995-2009	90	10	-19	48		
	10	1999-2009	94	5	-22	35		
	5	2004-2009	99	9	-14	34		
BBS Wales	14	1995-2009	91	-31	-51	-5	>25	
	10	1999-2009	101	-37	-54	-20	>25	
	5	2004-2009	104	-34	-45	-23	>25	
BBS N.Ireland	14	1995-2009	35	104	22	225		
	10	1999-2009	41	52	8	131		
	5	2004-2009	45	34	7	102		

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



CBC/BBS England 1966–2010

Linnet



CBC/BBS England graph



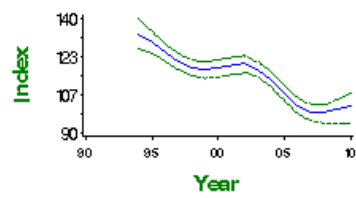
CES adults graph



CES juveniles graph

BBS UK 1994—2010

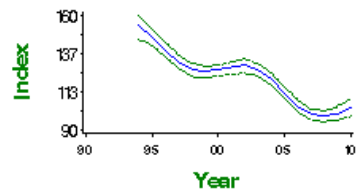
Linnet



BBS UK graph

BBS England 1994—2010

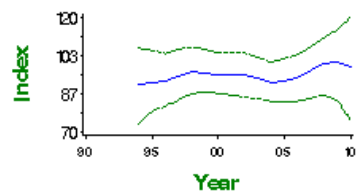
Linnet



BBS England graph

BBS Scotland 1994—2010

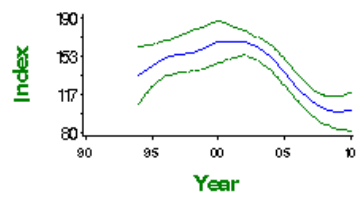
Linnet



BBS Scotland graph

BBS Wales 1994—2010

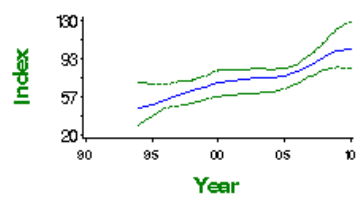
Linnet



BBS Wales graph

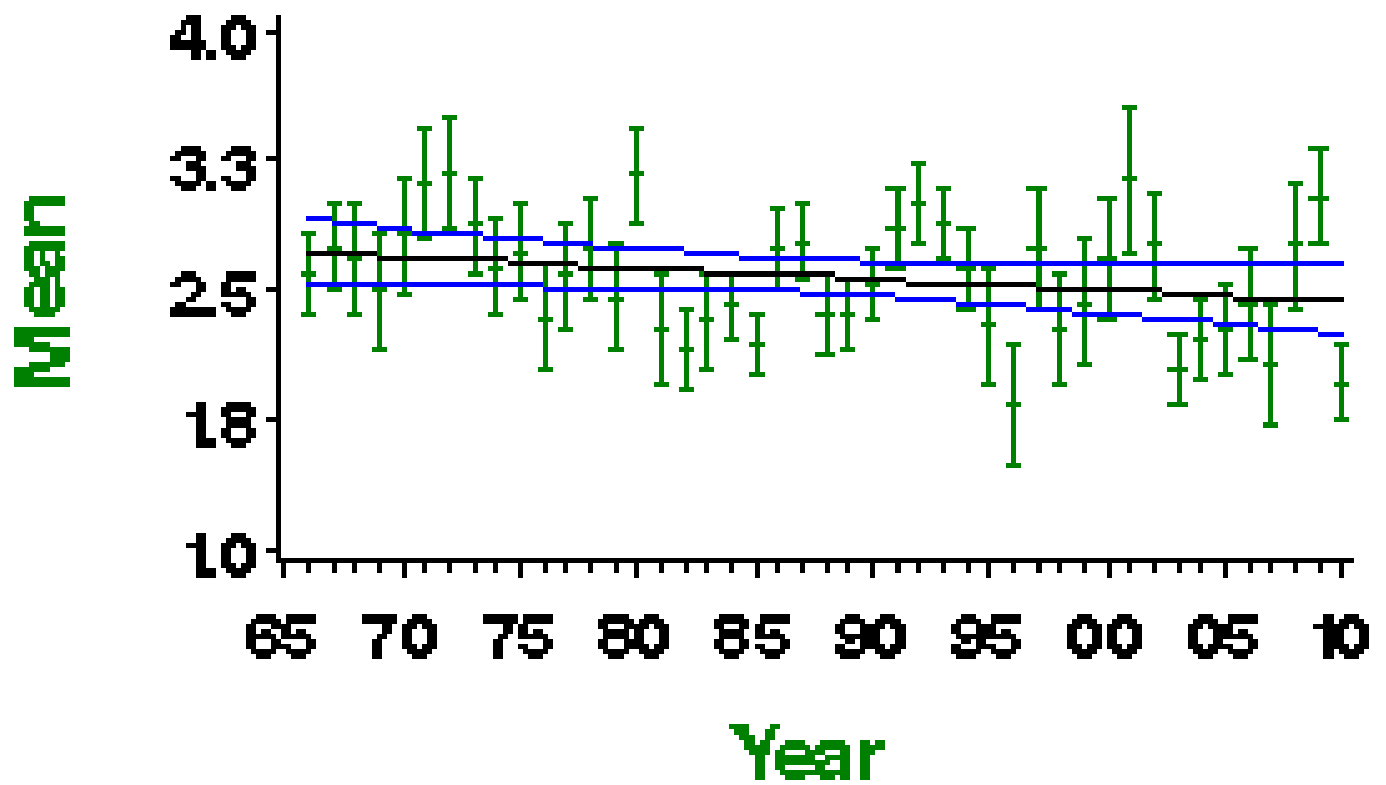
BBS N. Ireland 1994—2010

Linnet



BBS N. Ireland graph

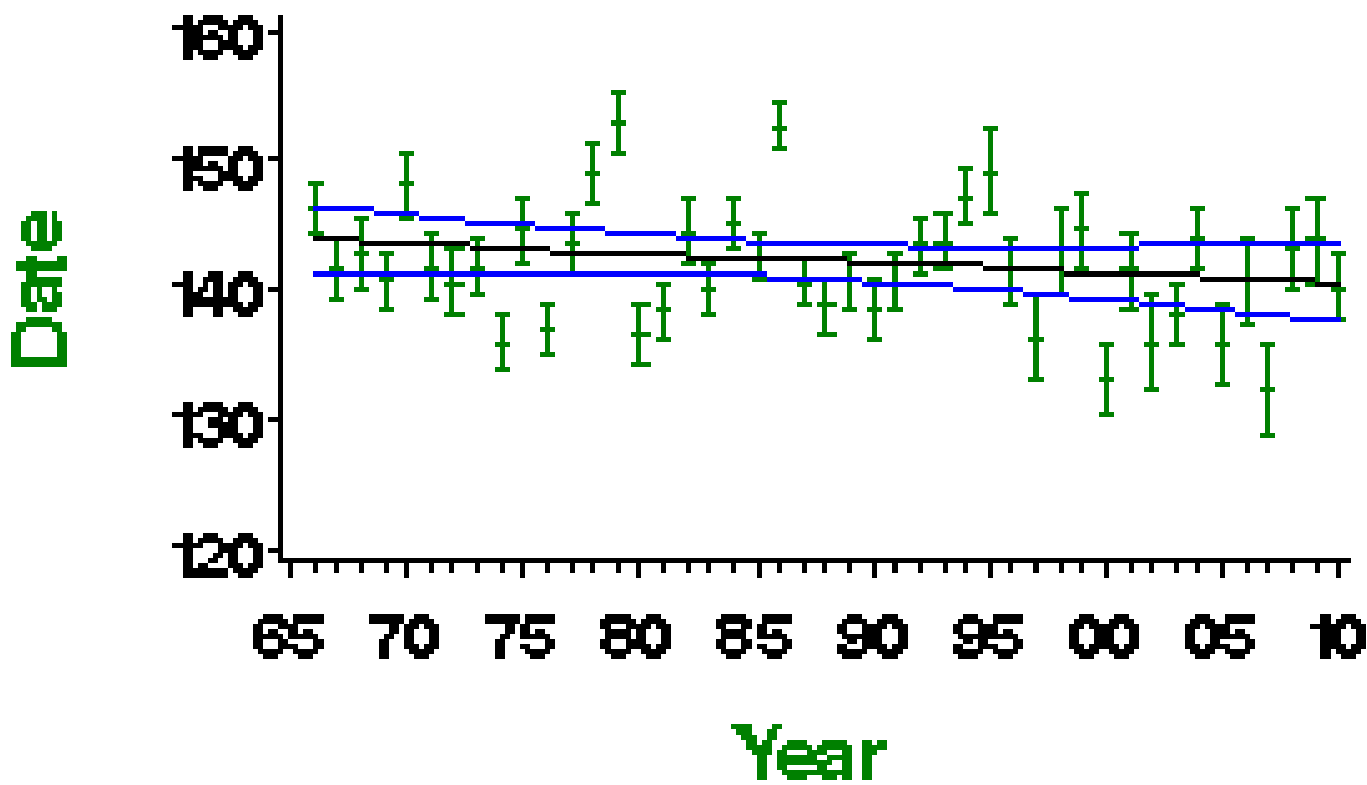
Fledglings per breeding attempt 1966–2010 Linnet



Mean number of fledglings produced per nest - green bars represent standard error and black line shows long-term trend

Laying date 1966—2010

Linnet



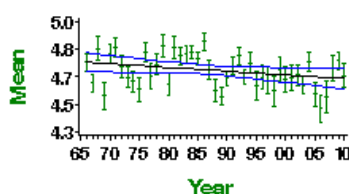
More on demographic trends

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Fledglings per breeding attempt	41	1968-2009	69	None					
Clutch size	41	1968-2009	107	None					
Brood size	41	1968-2009	122	Curvilinear	4.08 chicks	4.11 chicks	0.6%		
Nest failure rate at egg stage	41	1968-2009	149	None					
Nest failure rate at chick stage	41	1968-2009	107	Linear increase	1.58% nests/day	2.18% nests/day	38.0%		
Laying date	41	1968-2009	108	None			0 days		

For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).

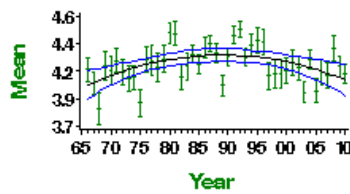
Clutch size 1966—2010

Linnet



Brood size 1966–2010

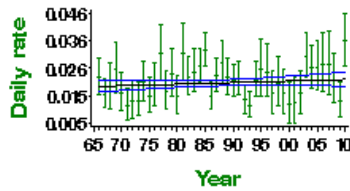
Linnet



Mean number of chicks per nest - green bars represent standard error and black line shows long-term trend

Egg stage nest failure rate

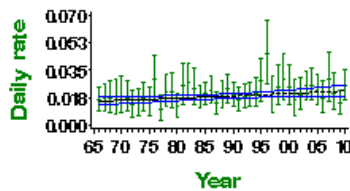
Linnet



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Chick stage nest failure rate

Linnet



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Causes of change

There is convincing evidence that nest failure rates at the egg stage rose during the principal period of population decline and this represents the most likely demographic mechanism driving the observed decreases in abundance. The most likely ecological driver of this pattern is habitat impoverishment due to agricultural intensification.

Change factor	Primary driver	Secondary driver
Demographic	Decreased breeding success	
Ecological	Agricultural intensification	

Further information on causes of change

Siriwardena et al. (1999, 2000) provide convincing evidence that nest failure rates at the egg stage rose during the principal period of population decline and this represents the most likely demographic mechanism driving the observed decrease in abundance. They found an obvious change in the egg-stage failure rate of Linnet nests after 1975 and this was detectable in the total fledglings produced, suggesting that the deterioration in breeding performance had an important role in driving the species' concurrent decline in abundance (Siriwardena et al. 2000). Nest failure rates increased between 1968 and 2008. The number of fledglings per breeding attempt shows a linear decrease and recent decreases in clutch and brood sizes are reported (see above). Moorcroft & Wilson (2000) concur that the severe decline during the 1970s and 1980s occurred via a reduction in breeding success, attributing this to a reduction in the availability of breeding-season food supplies on arable farmland caused by agricultural intensification. However, they state that the precise demographic mechanism involved is unclear: instead of breeding performance per attempt, they suggest reductions in the number of nesting attempts being made by individual females or a reduction in immediate post-fledging survival due to resource limitations as the most likely, although these hypotheses were not tested. BTO monitoring data do not permit analysis of influences on these parameters, so it is plausible that such effects occurred in parallel with the breeding success effects indicated by NRS results. Nevertheless, all these patterns are consistent with the results of Siriwardena et al. (1999), who reported that index change was not significantly correlated with correlations with adult and first-year survival. They found no significant trend-specific difference in survival, and survival rates in periods of decline were higher than those in periods of increase.

Since 1986, egg-stage nest survival has increased and this has led to a slight increase in breeding performance, although, as with the earlier decline, greater numbers of breeding attempts or increased post-fledging survival may also have contributed to the population increase (Siriwardena et al. 2000, Wilson et al. 1996, Moorcroft et al. 1997). Increases in the crop area of oilseed rape are thought to have improved Linnet breeding success by compensating for the herbicide-mediated decline in many farmland weeds that were traditionally important in this species' summer diet (Moorcroft et al. 1997). Both the number of breeding attempts possible in a season and post-fledging survival could have increased in response to this improvement in food supplies, as could chick survival. Oddly, Siriwardena et al. (2001) identified a significant negative effect of rape on breeding performance through the egg-stage daily nest failure rate and no positive effect on success through the nestling stage in a further analysis of nest record data. This is clearly inconsistent with the results of intensive work on Linnets (Wilson et al. 1996, Moorcroft et al. 1997), perhaps reflecting the different geographical biases affecting nest records and this particular intensive study. Nevertheless, it suggests that environmental effects on Linnet breeding success show complex spatial variation and that the knock-on effects on trends in abundance could also be difficult to characterise.

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Wilson, J.D., Taylor, R. & Muirhead, L.B. (1996) Field use by farmland birds in winter: an analysis of field type preferences using resampling methods. *Bird Study* 43: 320-332.

This report should be cited as: Baillie, S.R., Marchant, J.H., Leech, D.I., Renwick, A.R., Eglington, S.M., Joys, A.C., Noble, D.G., Barimore, C., Conway, G.J., Downie, I.S., Risely, K. & Robinson, R.A. (2012). *BirdTrends 2011*. BTO Research Report No. 609. BTO, Thetford. <https://www.bto.org/birdtrends>

Lesser Redpoll

Acanthis cabaret

Key facts

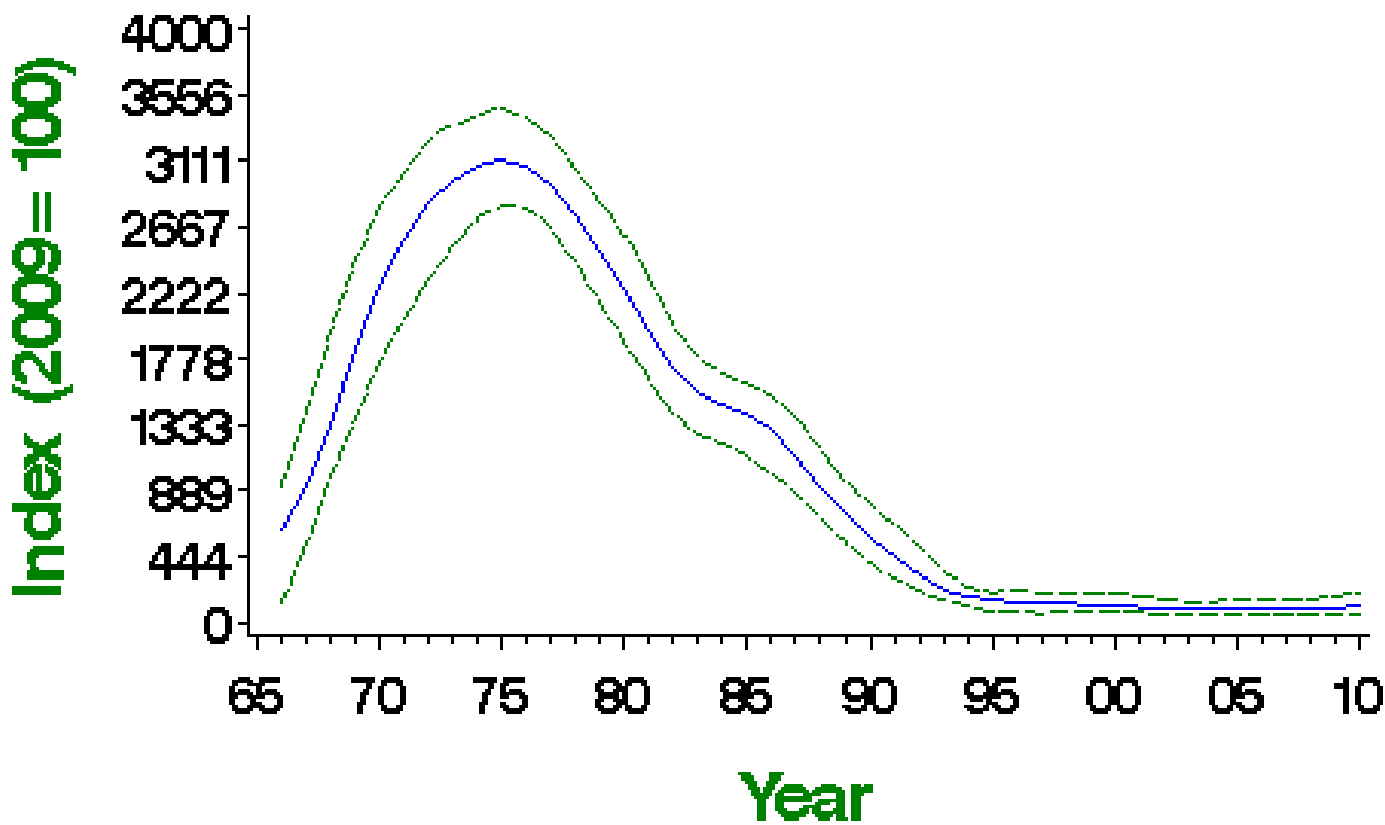
Conservation listings:	Europe (C. cabaret/flammea): no SPEC category (not concentrated in Europe, conservation status favourable) (BiE04) UK: red (>50% population decline) (BoCC3) UK Biodiversity Action Plan: priority species
Long-term trend:	England: rapid decline
Population size:	26,900 pairs in 2000 (1988-91 Atlas estimate updated using CBC trend: BiE04, APEP06)
Migrant status:	Short-distance migrant
Nesting habitat:	Above-ground nester
Primary breeding habitat:	Woodland
Secondary breeding habitat:	
Breeding diet:	Animal
Winter diet:	Vegetation

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 initially 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). 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). Recent UK data show wide variation between years, but no clear trend.

CBC/BBS England 1966–2010

Lesser Redpoll



Smoothed population index, relative to an arbitrary 100 in the year given, with 85% confidence limits in green

Population changes in detail

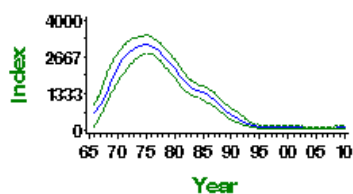
Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS England	42	1967-2009	46	-89	-96	-74	>50	
	25	1984-2009	44	-93	-97	-87	>50	Small CBC sample
	10	1999-2009	63	-20	-56	22		
	5	2004-2009	74	11	-15	45		
BBS UK	14	1995-2009	153	16	-9	46		
	10	1999-2009	163	-1	-24	19		
	5	2004-2009	189	6	-10	22		
BBS England	14	1995-2009	59	-28	-41	-14	>25	
	10	1999-2009	62	-21	-45	-20		
	5	2004-2009	74	10	-35	-11		
BBS Scotland	14	1995-2009	45	2	-38	53		
	10	1999-2009	46	-20	-48	15		
	5	2004-2009	57	-9	-31	20		

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



CBC/BBS England 1966–2010

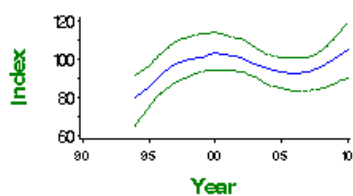
Lesser Redpoll



CBC/BBS England graph

BBS UK 1994–2010

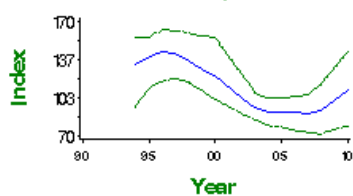
Lesser Redpoll



BBS UK graph

BBS England 1994–2010

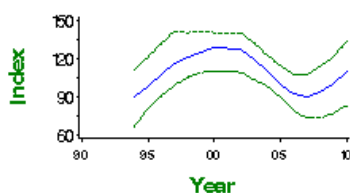
Lesser Redpoll



BBS England graph

BBS Scotland 1994–2010

Lesser Redpoll



BBS Scotland graph

Demographic trends

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Laying date	41	1968-2009	10	Curvilinear	May 27	May 13	-14 days		Small sample

For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).

Causes of change

Although sample sizes are small, declines in both survival and productivity appear to have led to the Lesser Redpoll decline. Evidence for the ecological drivers behind this is largely circumstantial but they are thought to include maturation of woodland and a reduction in birch seed food supplies.

Change factor	Primary driver	Secondary driver
Demographic	Decreased survival	Decreased breeding success
Ecological	Changes in woodland	

Further information on causes of change

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 fallen (Siriwardena et al. 1998).

There is very little evidence available regarding the ecological drivers behind the decline of this species. In southern Britain, at least, the decrease may be attributable to a reduction in the amount of suitable young forest growth (Fuller et al. 2005). Amar et al. (2006) and Smart et al. (2007) both found relationships with lichen and bracken cover, although these studies were limited to broadleaved woodlands. Evans (1966) and Cramp & Perrins (1994) point to the importance of birch to the species, which could potentially explain the relationships found by Amar et al. (2006) and Smart et al. (2007). Birch seeds are an important component of this species' diet. Amaret al. (2006) state that birch has declined in many woodlands as they have matured, and this could raise the possibility of winter food as a factor in the species decline, although this evidence is circumstantial and given that species with similar winter diet, such as Siskin, are faring better, may be unlikely.

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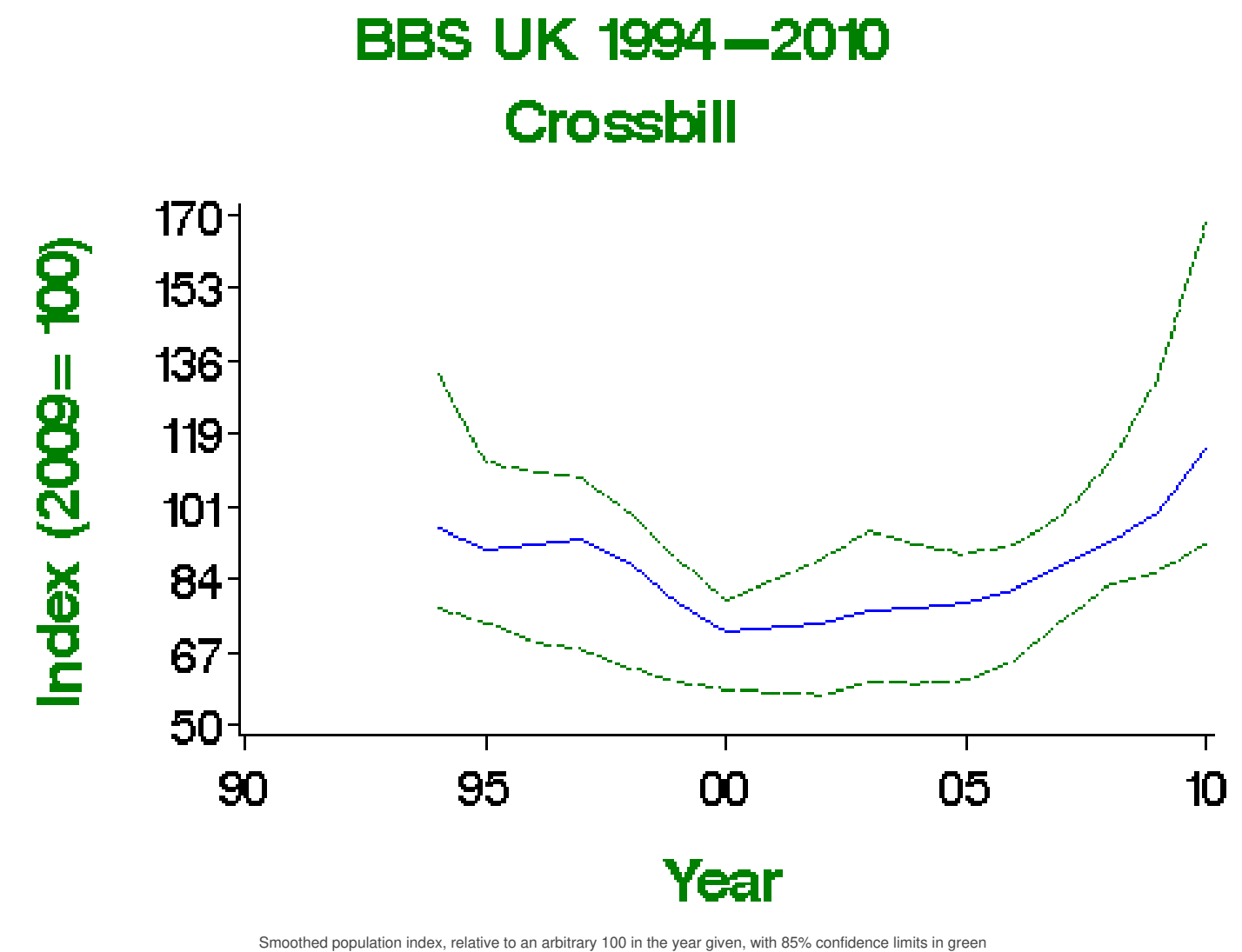
Smart, J., Taylor, E., Amar, A., Smith, K., Bierman, S., Carpenter, J., Grice, P., Currie, F., Smithers, R., Fuller, R. & Hewson, C. (2007) Habitat associations of woodland birds: implications for woodland management for declining species. RSPB, Sandy.

Key facts

Conservation listings:	Europe: no SPEC category (not concentrated in Europe, conservation status favourable) (BiE04) UK: green (BoCC3)
Long-term trend:	UK: fluctuating, with no long-term trend
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.

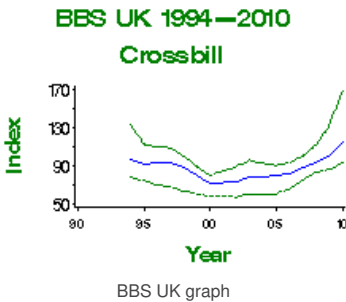


Population changes in detail

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
BBS UK	14	1995-2009	52	10	-22	79		
	10	1999-2009	56	27	-3	118		
	5	2004-2009	68	29	3	125		

BBS Scotland	5	2004-2009	36	30	-2	145		
Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



BBS Scotland graph

Demographic trends

Productivity and survival trends for this species are not currently produced by BTO

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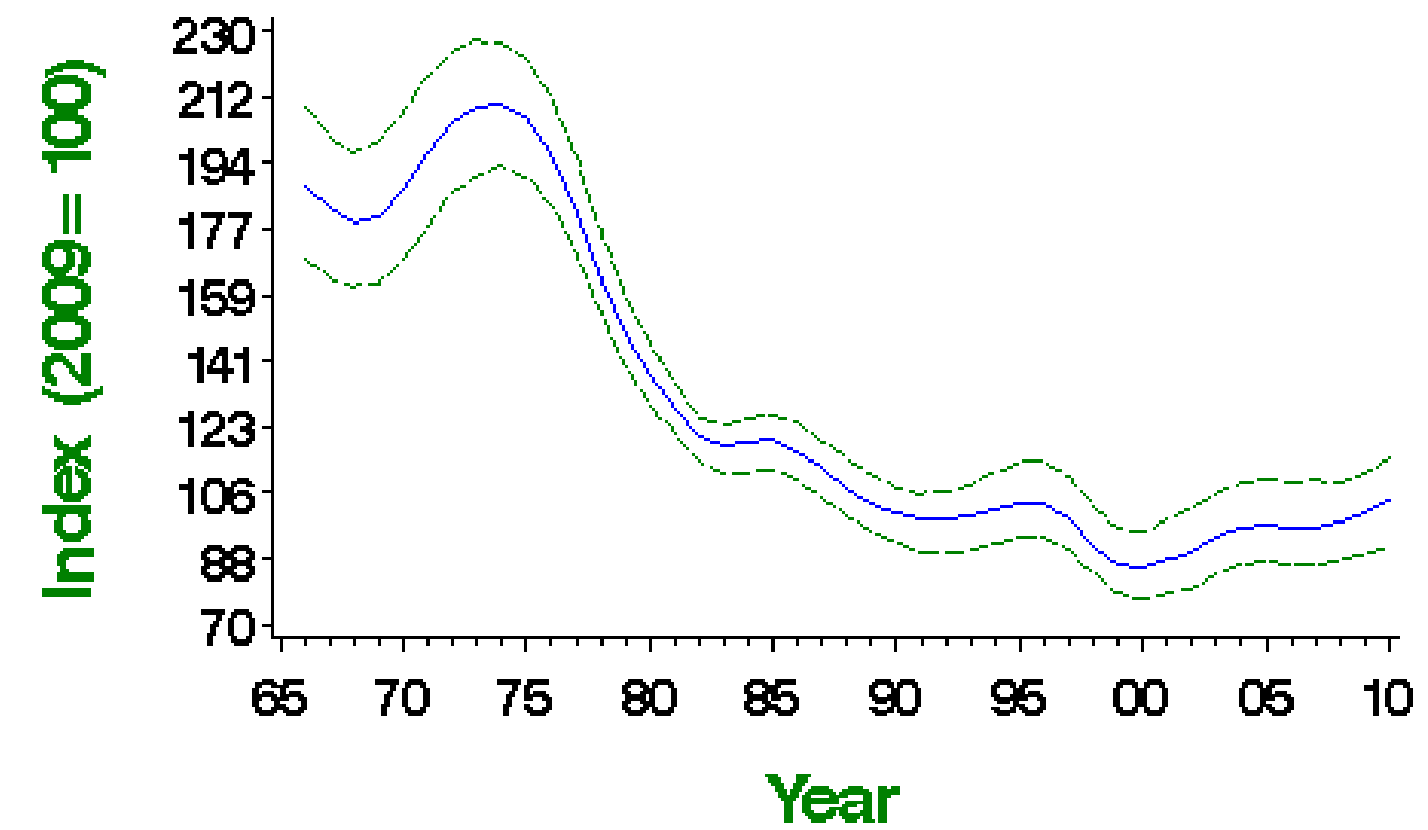
Key facts

Conservation listings:	Europe: no SPEC category (not concentrated in Europe, conservation status favourable) (BiE04) UK: amber (25-50% population decline) (BoCC3) UK Biodiversity Action Plan: click here , priority species
Long-term trend:	UK, England: moderate decline
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 Leech & Barimore (2008), and the trend in fledglings per breeding attempt is downward. Numbers have shown widespread moderate decrease across Europe since 1980 (PECBMS 2011a). 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.

CBC/BBS UK 1966–2010
Bullfinch



Smoothed population index, relative to an arbitrary 100 in the year given, with 85% confidence limits in green

Population changes in detail

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS UK	42	1967-2009	305	-45	-57	-31	>25	
	25	1984-2009	409	-16	-27	-3		
	10	1999-2009	626	16	5	24		

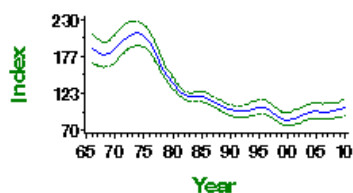
Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS England	42	1967-2009	246	-48	-60	-36	>25	
	25	1984-2009	322	-21	-35	-7		
	10	1999-2009	481	13	3	25		
	5	2004-2009	526	3	-4	12		
CES adults	25	1984-2009	80	-18	-38	7		
	10	1999-2009	86	7	-16	31		
	5	2004-2009	83	-6	-21	10		
CES juveniles	25	1984-2009	65	-25	-49	15		
	10	1999-2009	70	-4	-29	25		
	5	2004-2009	68	-1	-24	26		
BBS UK	14	1995-2009	564	-4	-12	4		
	10	1999-2009	608	15	5	23		
	5	2004-2009	692	5	-2	12		
BBS England	14	1995-2009	430	-6	-14	4		
	10	1999-2009	461	12	2	23		
	5	2004-2009	519	3	-4	11		
BBS Scotland	14	1995-2009	39	25	-17	53		
	10	1999-2009	41	12	-15	32		
	5	2004-2009	50	24	0	54		
BBS Wales	14	1995-2009	62	-18	-35	6		
	10	1999-2009	68	9	-12	31		
	5	2004-2009	77	-18	-31	-6		

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



CBC/BBS UK 1966–2010

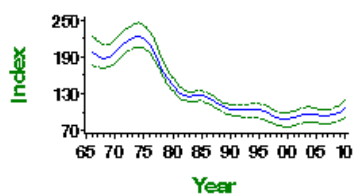
Bullfinch



CBC/BBS UK graph

CBC/BBS England 1966–2010

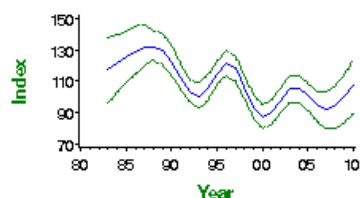
Bullfinch



CBC/BBS England graph

CES adult abundance 1983–2010

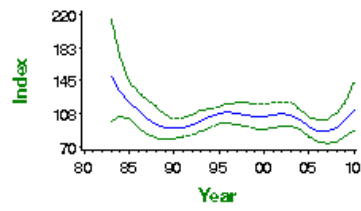
Bullfinch



CES adults graph

CES juvenile abundance 1983–2010

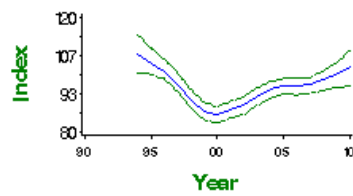
Bullfinch



CES juveniles graph

BBS UK 1994–2010

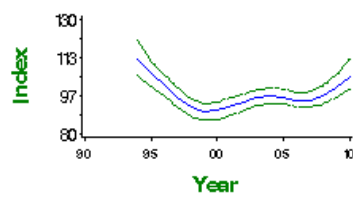
Bullfinch



BBS UK graph

BBS England 1994–2010

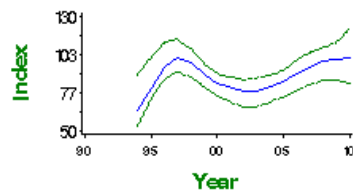
Bullfinch



BBS England graph

BBS Scotland 1994–2010

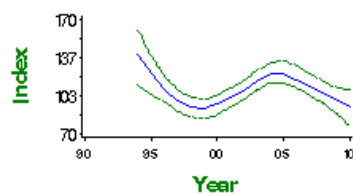
Bullfinch



BBS Scotland graph

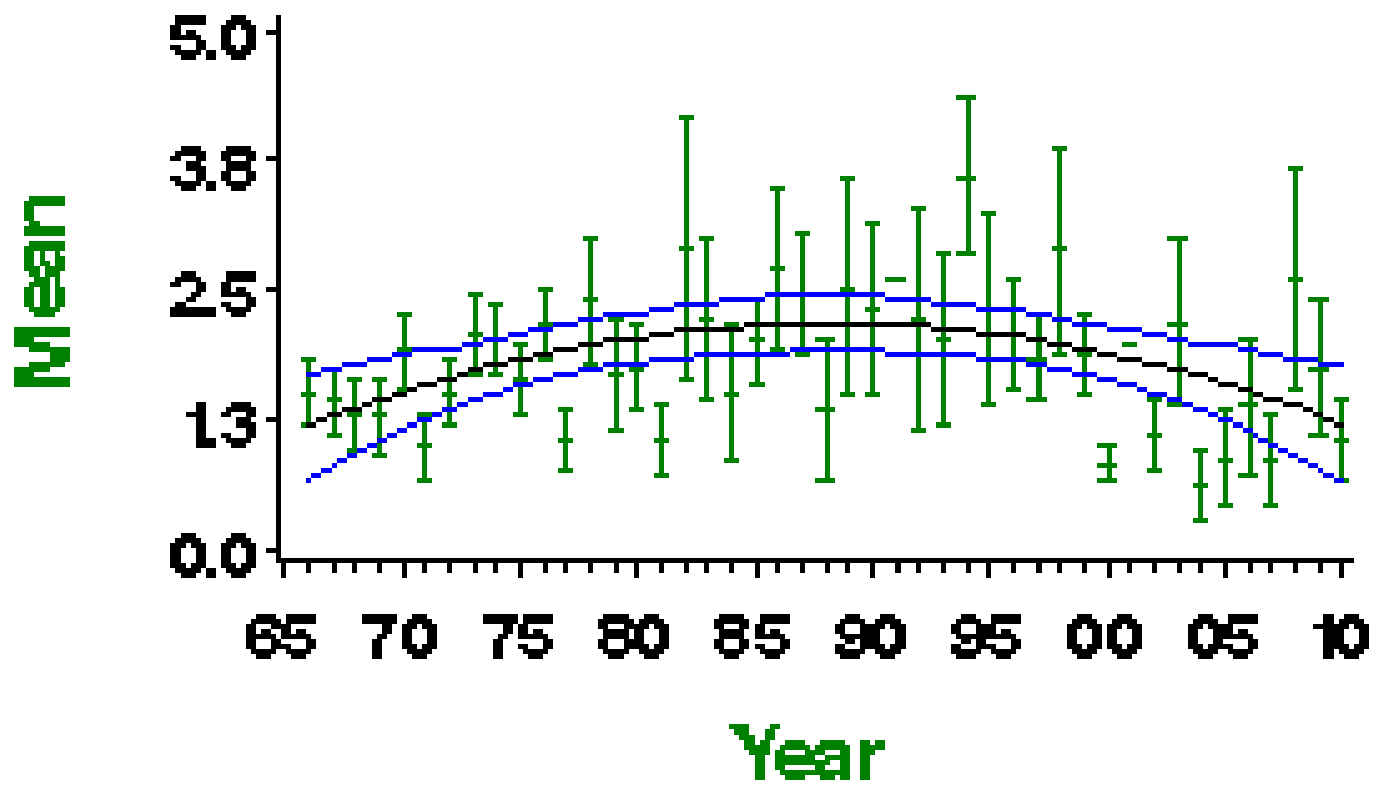
BBS Wales 1994–2010

Bullfinch



BBS Wales graph

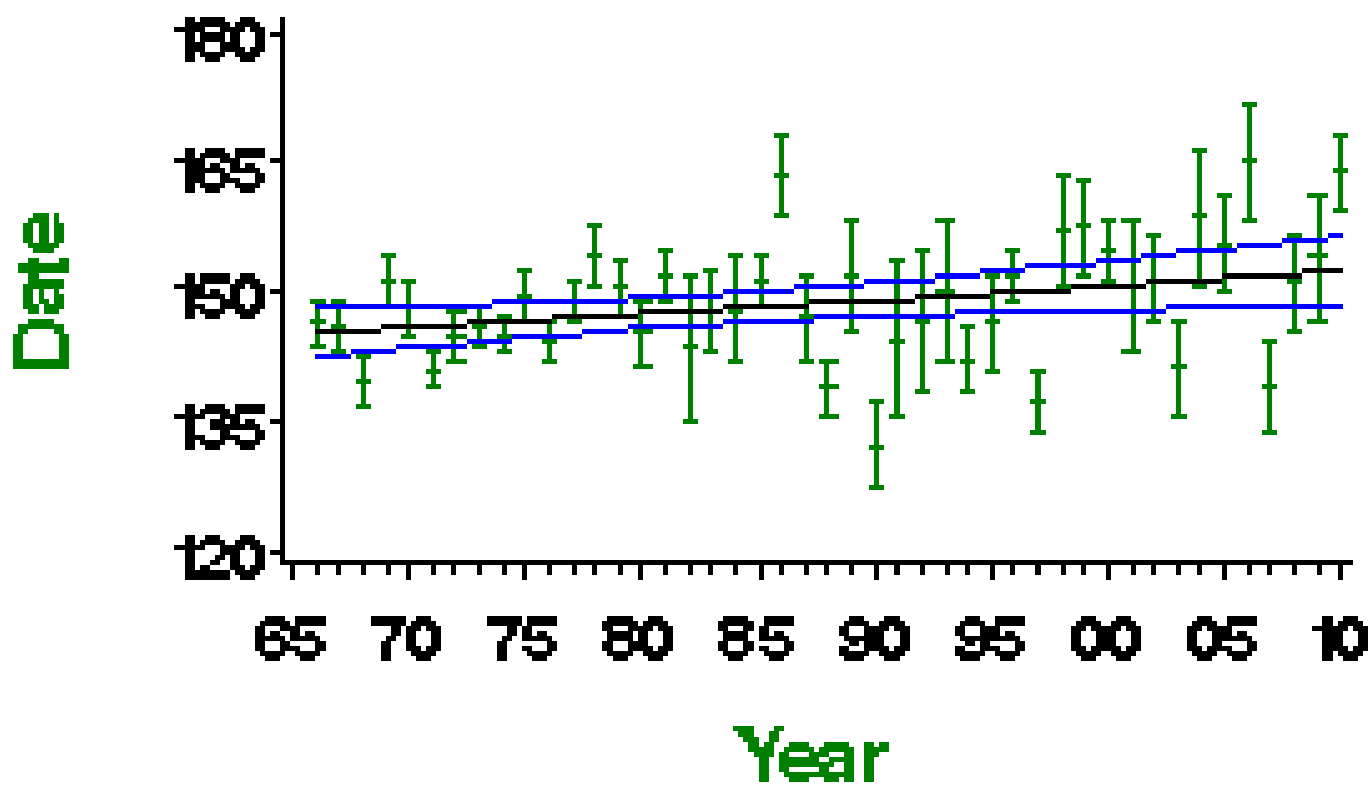
Fledglings per breeding attempt 1966–2010 Bullfinch



Mean number of fledglings produced per nest - green bars represent standard error and black line shows long-term trend

Laying date 1966–2010

Bulfinch



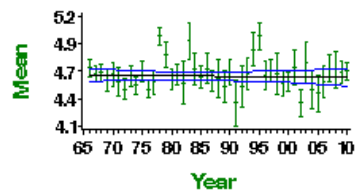
More on demographic trends

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Fledglings per breeding attempt	41	1968-2009	18	Curvilinear	1.36 fledglings	1.30 fledglings	-4.4%		
Clutch size	41	1968-2009	35	None					
Brood size	41	1968-2009	36	Curvilinear	4.12 chicks	3.73 chicks	-9.5%		
Nest failure rate at egg stage	41	1968-2009	51	Curvilinear	3.26% nests/day	3.75% nests/day	15.0%		
Nest failure rate at chick stage	41	1968-2009	34	Curvilinear	3.23% nests/day	4.60% nests/day	42.4%		
Laying date	41	1968-2009	33	Linear increase	May 26	Jun 1	6 days		
Juvenile to Adult ratio (CES)	25	1984-2009	85	Smoothed trend	93 Index value	100 Index value	8%		
Juvenile to Adult ratio (CES)	10	1999-2009	91	Smoothed trend	91 Index value	100 Index value	10%		
Juvenile to Adult ratio (CES)	5	2004-2009	87	Smoothed trend	87 Index value	100 Index value	14%		

For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).

Clutch size 1966—2010

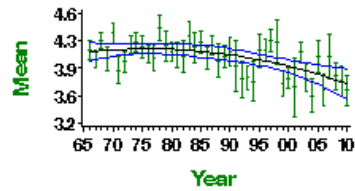
Bullfinch



Mean number of eggs per nest - green bars represent standard error and black line shows long-term trend

Brood size 1966—2010

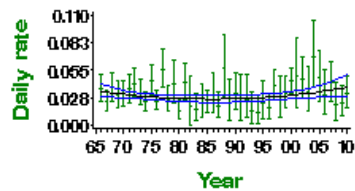
Bullfinch



Mean number of chicks per nest - green bars represent standard error and black line shows long-term trend

Egg stage nest failure rate

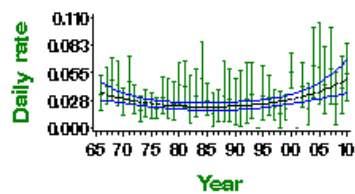
Bullfinch



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Chick stage nest failure rate

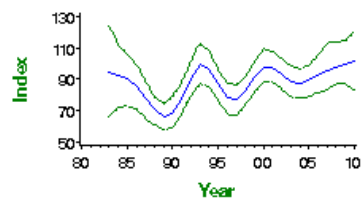
Bullfinch



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

CES productivity 1983—2010

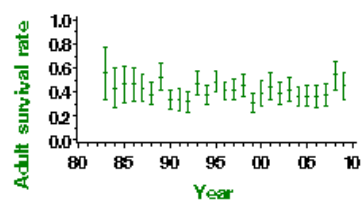
Bullfinch



Smoothed long-term trend in ratio of juvenile:adult birds caught - green lines indicate 85% confidence limits

CES survival 1983—2009

Bullfinch



Proportion of adult birds surviving to following year - green bars represent 95% confidence limits

This report should be cited as: Baillie, S.R., Marchant, J.H., Leech, D.I., Renwick, A.R., Eglinton, S.M., Joys, A.C., Noble, D.G., Barimore, C., Conway, G.J., Downie, I.S., Risely, K. & Robinson, R.A. (2012). BirdTrends 2011. BTO Research Report No. 609. BTO, Thetford. <https://www.bto.org/birdtrends>

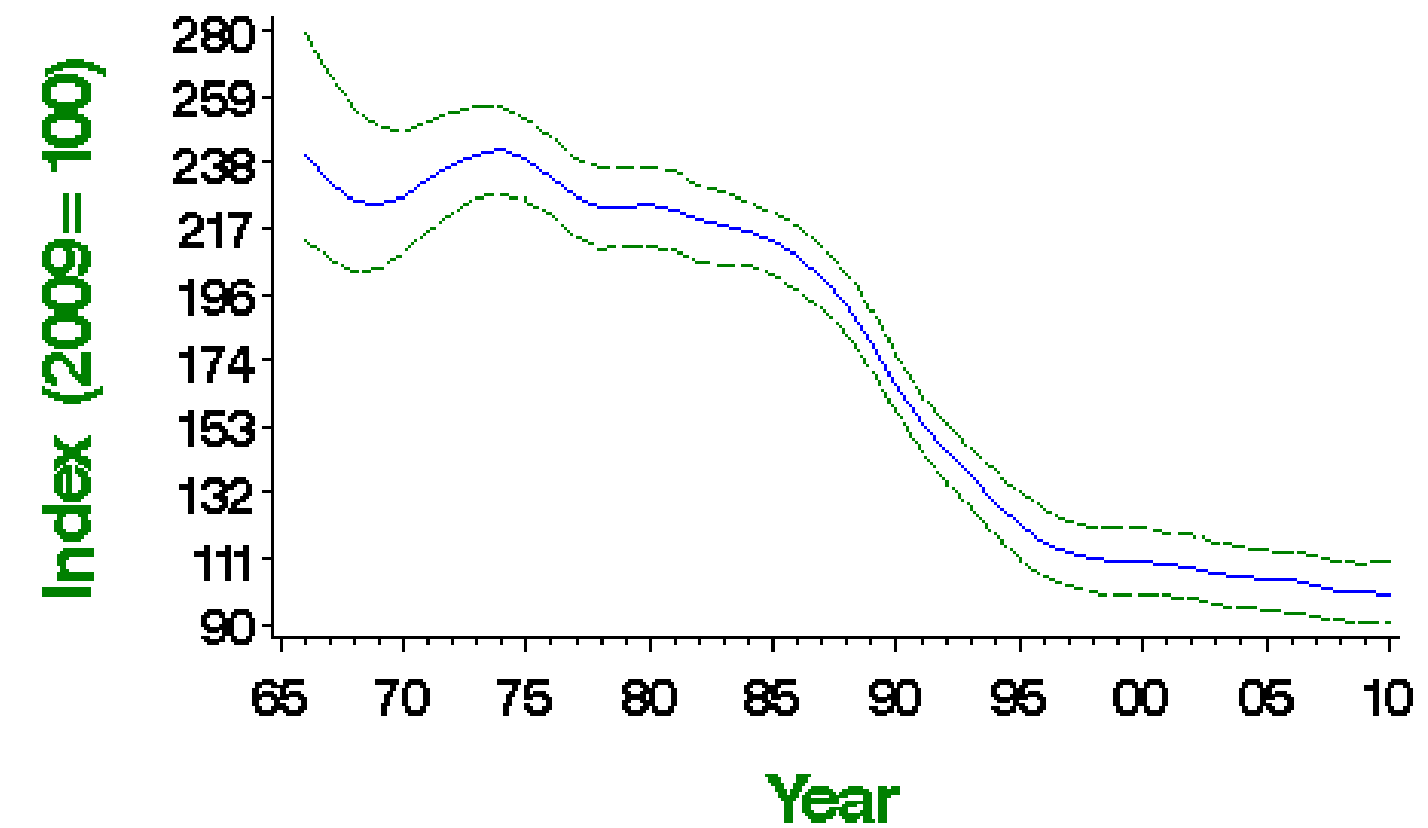
Key facts

Conservation listings:	Europe: no SPEC category (concentrated in Europe, conservation status favourable) (BiE04) UK: red (>50% population decline) (BoCC3) UK Biodiversity Action Plan: priority species
Long-term trend:	UK, England: rapid decline
Population size:	792,000 territories in 2000 (1988-91 Atlas estimate updated using CBC/BBS trend: BiE04, APEP06)
Migrant status:	Resident
Nesting habitat:	Ground nester
Primary breeding habitat:	Farmland
Secondary breeding habitat:	
Breeding diet:	Animal
Winter diet:	Vegetation

Status summary

Yellowhammer abundance began to decline on farmland in the mid 1980s and the downward trend has continued ever since, although BBS indicates that numbers have increased in Scotland since 1994. The species, listed as green in 1996, has been red listed since 2002. Numbers have shown widespread moderate decrease across Europe since 1980 (PECBMS 2011a).

CBC/BBS UK 1966—2010
Yellowhammer



Smoothed population index, relative to an arbitrary 100 in the year given, with 85% confidence limits in green

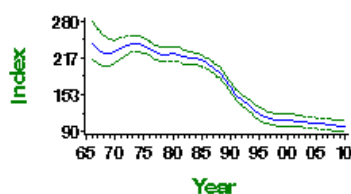
Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS UK	42	1967-2009	511	-57	-66	-48	>50	
	25	1984-2009	757	-54	-60	-48	>50	
	10	1999-2009	1231	-9	-14	-4		
	5	2004-2009	1321	-5	-10	0		
CBC/BBS England	42	1967-2009	446	-60	-68	-50	>50	
	25	1984-2009	661	-58	-62	-52	>50	
	10	1999-2009	1074	-15	-20	-11		
	5	2004-2009	1153	-10	-14	-6		
BBS UK	14	1995-2009	1153	-17	-21	-10		
	10	1999-2009	1206	-9	-14	-2		
	5	2004-2009	1307	-4	-9	2		
BBS England	14	1995-2009	1007	-23	-27	-19		
	10	1999-2009	1056	-16	-20	-12		
	5	2004-2009	1147	-10	-13	-7		
BBS Scotland	14	1995-2009	101	13	-9	37		
	10	1999-2009	104	18	0	41		
	5	2004-2009	114	19	4	37		
BBS Wales	14	1995-2009	37	-35	-54	-17	>25	
	10	1999-2009	37	-17	-39	5		
	5	2004-2009	36	-5	-19	11		

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



CBC/BBS UK 1966—2010

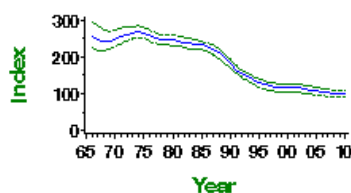
Yellowhammer



CBC/BBS UK graph

CBC/BBS England 1966—2010

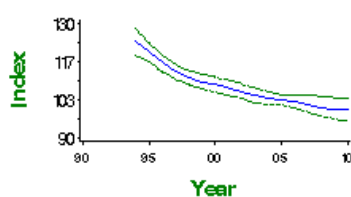
Yellowhammer



CBC/BBS England graph

BBS UK 1994—2010

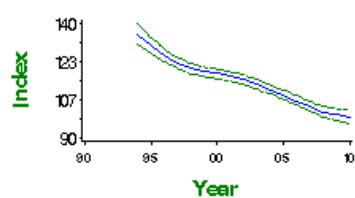
Yellowhammer



BBS UK graph

BBS England 1994—2010

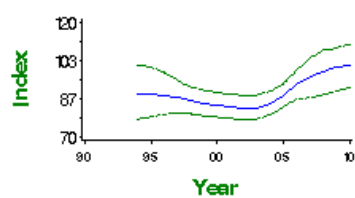
Yellowhammer



BBS England graph

BBS Scotland 1994—2010

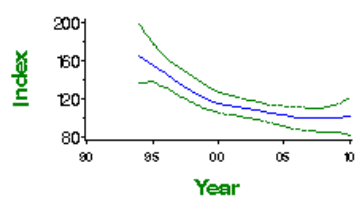
Yellowhammer



BBS Scotland graph

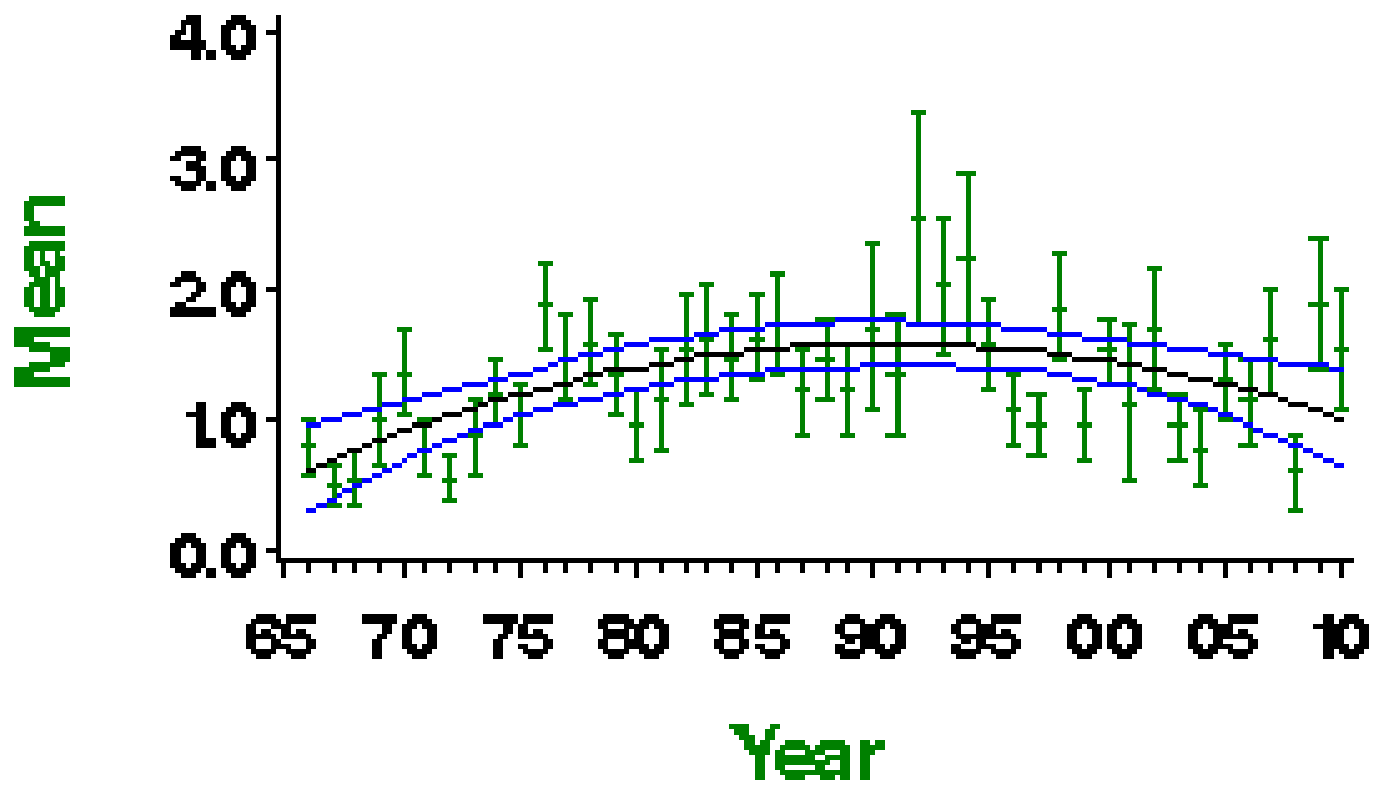
BBS Wales 1994—2010

Yellowhammer



BBS Wales graph

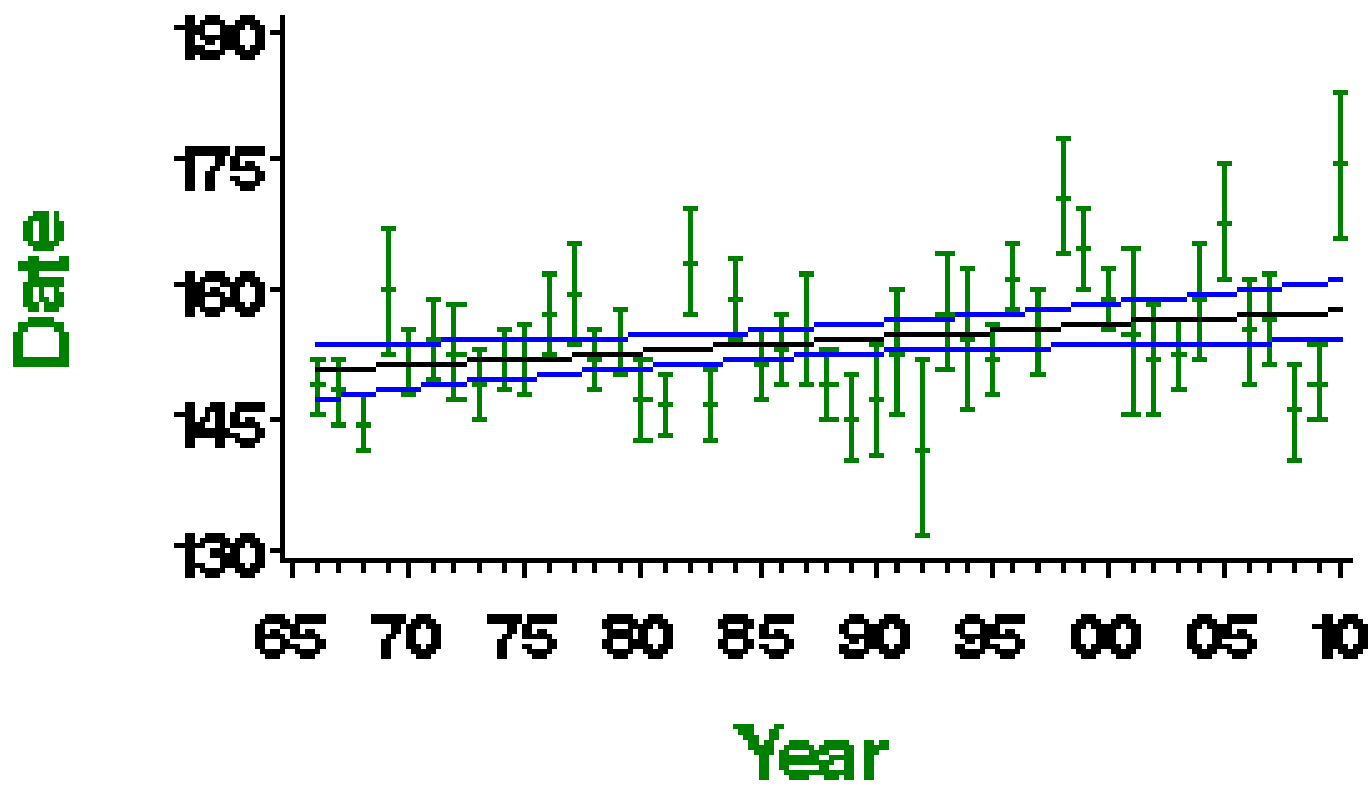
Fledglings per breeding attempt 1966 – 2010 Yellowhammer



Mean number of fledglings produced per nest - green bars represent standard error and black line shows long-term trend

Laying date 1966—2010

Yellowhammer



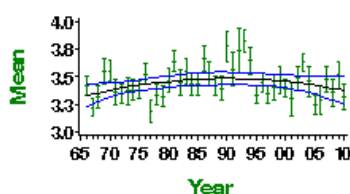
More on demographic trends

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Fledglings per breeding attempt	41	1968-2009	28	Curvilinear	0.77 fledglings	1.07 fledglings	38.1%		
Clutch size	41	1968-2009	43	Curvilinear	3.36 eggs	3.39 eggs	0.9%		
Brood size	41	1968-2009	65	Curvilinear	2.97 chicks	2.98 chicks	0.3%		
Nest failure rate at egg stage	41	1968-2009	63	Curvilinear	5.01% nests/day	3.23% nests/day	-35.5%		
Nest failure rate at chick stage	41	1968-2009	50	Curvilinear	4.51% nests/day	4.34% nests/day	-3.8%		
Laying date	41	1968-2009	26	Linear increase	May 31	Jun 6	6 days		Small sample

For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).

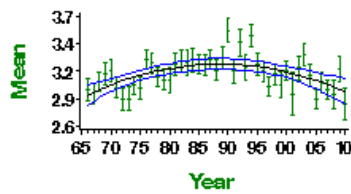
Clutch size 1966—2010

Yellowhammer



Brood size 1966–2010

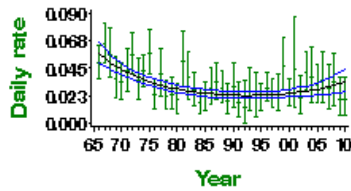
Yellowhammer



Mean number of chicks per nest - green bars represent standard error and black line shows long-term trend

Egg stage nest failure rate

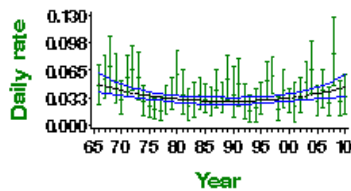
Yellowhammer



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Chick stage nest failure rate

Yellowhammer



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Causes of change

Declines in annual survival have been proposed as the demographic mechanism, due to winter resource limitation, although recovery data are sparse and so most evidence for this is indirect.

Change factor	Primary driver	Secondary driver
Demographic	Decreased survival	
Ecological	Agricultural intensification	

Further information on causes of change

Yellowhammer is unique among farmland birds in that its population was stable until the mid 1980s, followed by a decline, suggesting that it alone was affected by some change that occurred in the 1980s (Siriwardena et al. 1998a). Although long-term demographic trends presented here show few linear changes over time (see above), there is some evidence that survival rates decreased during the initial period of decline (Siriwardena et al. 1998b, 2000a, Kyrkos 1997), and that breeding performance tended to improve (Siriwardena et al. 2000b). However, more recent declines in clutch size, brood size and nest success are of NRS concern (Leech & Barimore 2008, and see above).

Best estimates of the variation in adult and first-year Yellowhammer survival (from ring recoveries) suggest that it has been sufficient to explain the species' decline (Kyrkos 1997). Reductions in winter seed 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, presumably through impacts on survival rates. Siriwardena et al. (2007), found that Yellowhammer declines were less steep in areas where the species received more overwinter provisioning, providing experimental evidence for winter resource limitation. Food availability (and therefore, as a conservation measure, supplementary feeding) in late winter appears to be particularly important because demand for seed food is greatest at this time and this is also when the food supply resulting from agri-environment conservation measures is at its lowest (Siriwardena et al. 2007). Further evidence comes from Gillings et al. (2005), who used two, complementary, extensive bird surveys undertaken at the same localities in summer and winter to show that the areas of extensive stubble in winter were correlated with better population performance, presumably because overwinter survival is relatively high. This is supported by another study, in Oxfordshire (Wilson et al. 1996), which found that the only habitat type for which a clear preference was displayed in winter was stubble.

In terms of changes to habitat, Kyrkos et al. (1998) found that Yellowhammer breeding density decreased with increasing proportion of farmland under grassland. It may be that modern improved grassland has neither the weed density required by adult Yellowhammers nor sufficient invertebrate prey for birds feeding nestlings. The dense sward structure of highly fertilised leys may also reduce access to invertebrate prey (Perkins et al. 2000). This is supported by the results of Douglass et al. (2010) who found that foraging in grass margins was increased by experimental mowing, showing that access to prey in dense vegetation limits feeding activity. Siriwardena et al. (2000b, 2000c) provide further evidence that grazing supported the lowest breeding performance, although the best breeding performance was associated with mixed

farmland, suggesting that loss of heterogeneity in the landscape may be a factor in the decline, although they state that this is unlikely to be the main mechanism behind the declines. Bradbury & Stoate (2000) further suggest that loss or degradation of hedges and field margins, loss of stubbles and intensification of grassland management may have reduced nest-site and food availability for farmland Yellowhammers.

Increased use of pesticides may have also played a role in decreasing breeding success. Boatman et al. (2004) used an experimental set-up to look at the effect of pesticides on breeding performance, and further evidence was provided by Morris et al. (2005), who showed that increased use of pesticides results in reduced invertebrate abundance, lower brood production and fewer chicks fledging. Hart et al. (2006) also demonstrated how insecticide applications can depress Yellowhammer breeding productivity. Whittingham et al. (2005) found that the local availability of rotational set-aside was a good predictor of sites chosen for breeding territories, which could reflect the benefits of both sparse vegetation (access to bare ground for foraging) and lack of pesticide use.

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This report should be cited as: Baillie, S.R., Marchant, J.H., Leech, D.I., Renwick, A.R., Eglington, S.M., Joys, A.C., Noble, D.G., Barimore, C., Conway, G.J., Downie, I.S., Risely, K. & Robinson, R.A. (2012). *BirdTrends 2011*. BTO Research Report No. 609. BTO, Thetford. <https://www.bto.org/birdtrends>

Key facts

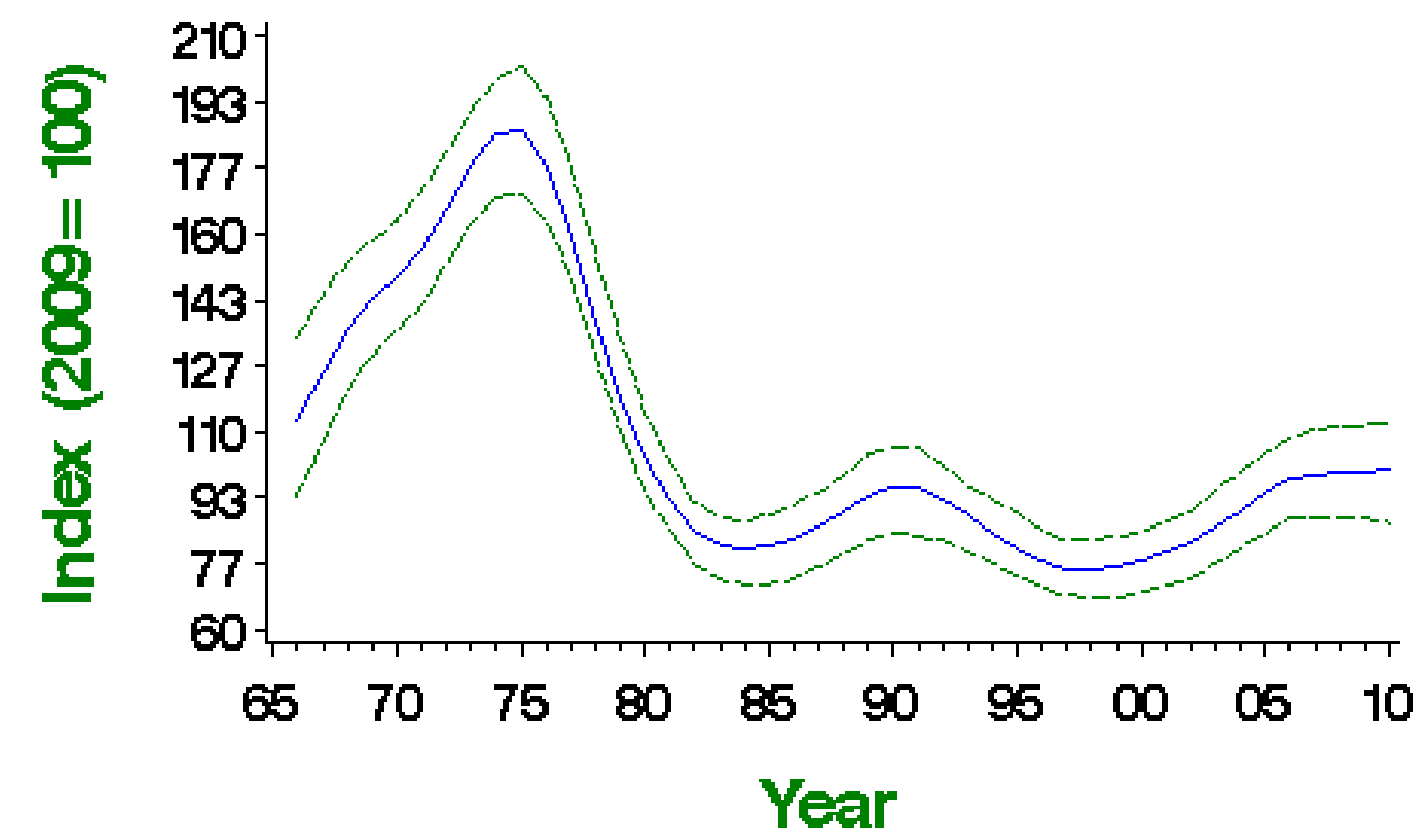
Conservation listings:	Europe: no SPEC category (not concentrated in Europe, conservation status favourable) (BiE04) UK: amber (25-50% population decline to 2006) (BoCC3) UK Biodiversity Action Plan: click here , priority species
Long-term trend:	UK, England: shallow decline
Population size:	192,000-211,000 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. There has been widespread moderate decrease across Europe since 1980 (PECBMS 2011a).

CBC/BBS UK 1966–2010

Reed Bunting



Smoothed population index, relative to an arbitrary 100 in the year given, with 85% confidence limits in green

Population changes in detail

Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS UK	42	1967-2009	231	-20	-40	3		
	25	1984-2009	315	24	4	50		

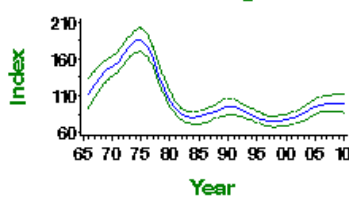
Source	Period (yrs)	1999-2009 Years	526 Pits (n)	32 Change (%)	18 Lower limit	47 Upper limit	Alert	Comment
		2004-2009	626	11		19		
CBC/BBS England	42	1967-2009	180	-20	-40	3		
	25	1984-2009	240	26	1	49		
	10	1999-2009	399	41	29	55		
	5	2004-2009	466	14	5	23		
WBS/WBBS waterways	34	1975-2009	83	-58	-69	-40	>50	
	25	1984-2009	95	-5	-25	19		
	10	1999-2009	145	16	3	27		
	5	2004-2009	151	3	-6	14		
CES adults	25	1984-2009	58	-61	-72	-49	>50	
	10	1999-2009	65	-20	-31	-5		
	5	2004-2009	65	-28	-37	-18	>25	
CES juveniles	25	1984-2009	44	118	-9	373		
	10	1999-2009	48	31	-2	72		
	5	2004-2009	48	16	-11	47		
BBS UK	14	1995-2009	460	30	18	46		
	10	1999-2009	511	33	19	52		
	5	2004-2009	601	14	6	23		
BBS England	14	1995-2009	344	31	16	45		
	10	1999-2009	380	43	29	55		
	5	2004-2009	449	16	7	25		
BBS Scotland	14	1995-2009	56	50	13	107		
	10	1999-2009	62	35	-5	82		
	5	2004-2009	75	20	-2	49		
BBS N.Ireland	14	1995-2009	32	-3	-30	59		
	10	1999-2009	36	-6	-32	30		
	5	2004-2009	41	-14	-32	5		

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



CBC/BBS UK 1966—2010

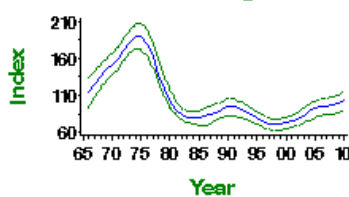
Reed Bunting



CBC/BBS UK graph

CBC/BBS England 1966—2010

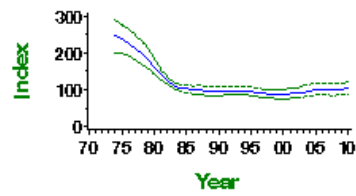
Reed Bunting



CBC/BBS England graph

WBS/WBBS 1974—2010

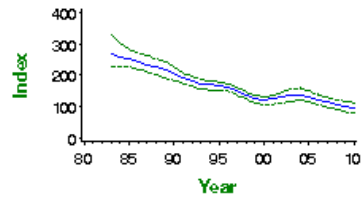
Reed Bunting



WBS/WBBS waterways graph

CES adult abundance 1983—2010

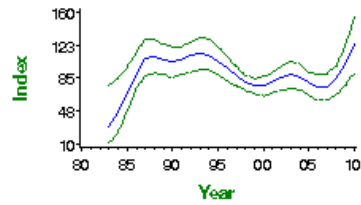
Reed Bunting



CES adults graph

CES juvenile abundance 1983—2010

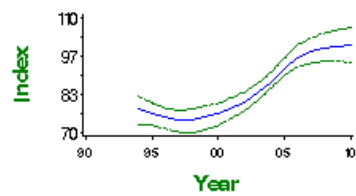
Reed Bunting



CES juveniles graph

BBS UK 1994—2010

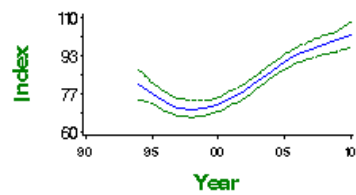
Reed Bunting



BBS UK graph

BBS England 1994—2010

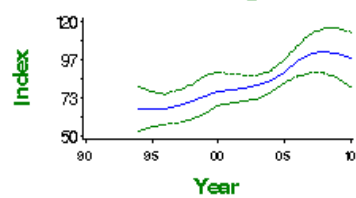
Reed Bunting



BBS England graph

BBS Scotland 1994—2010

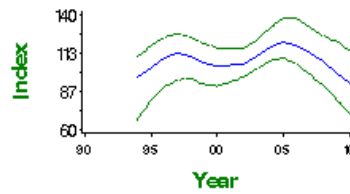
Reed Bunting



BBS Scotland graph

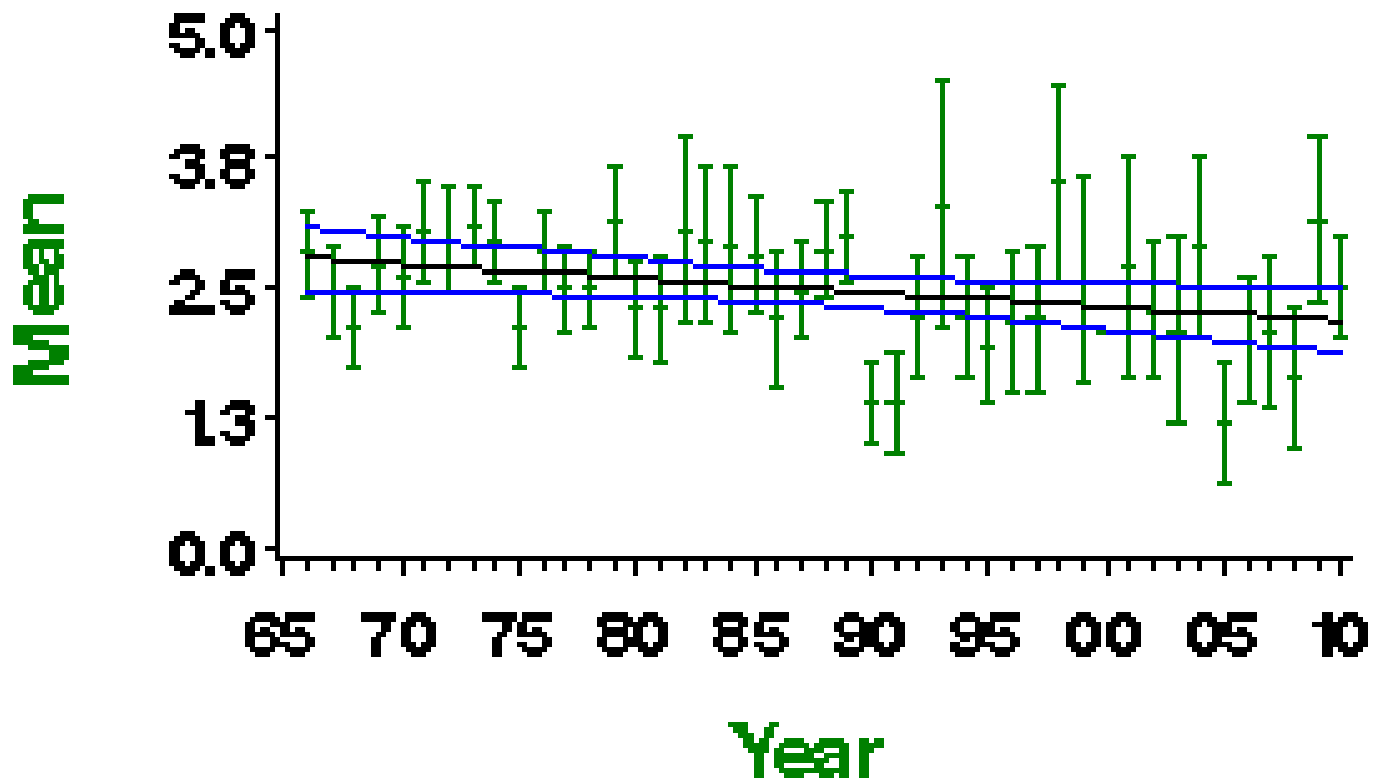
BBS N. Ireland 1994–2010

Reed Bunting



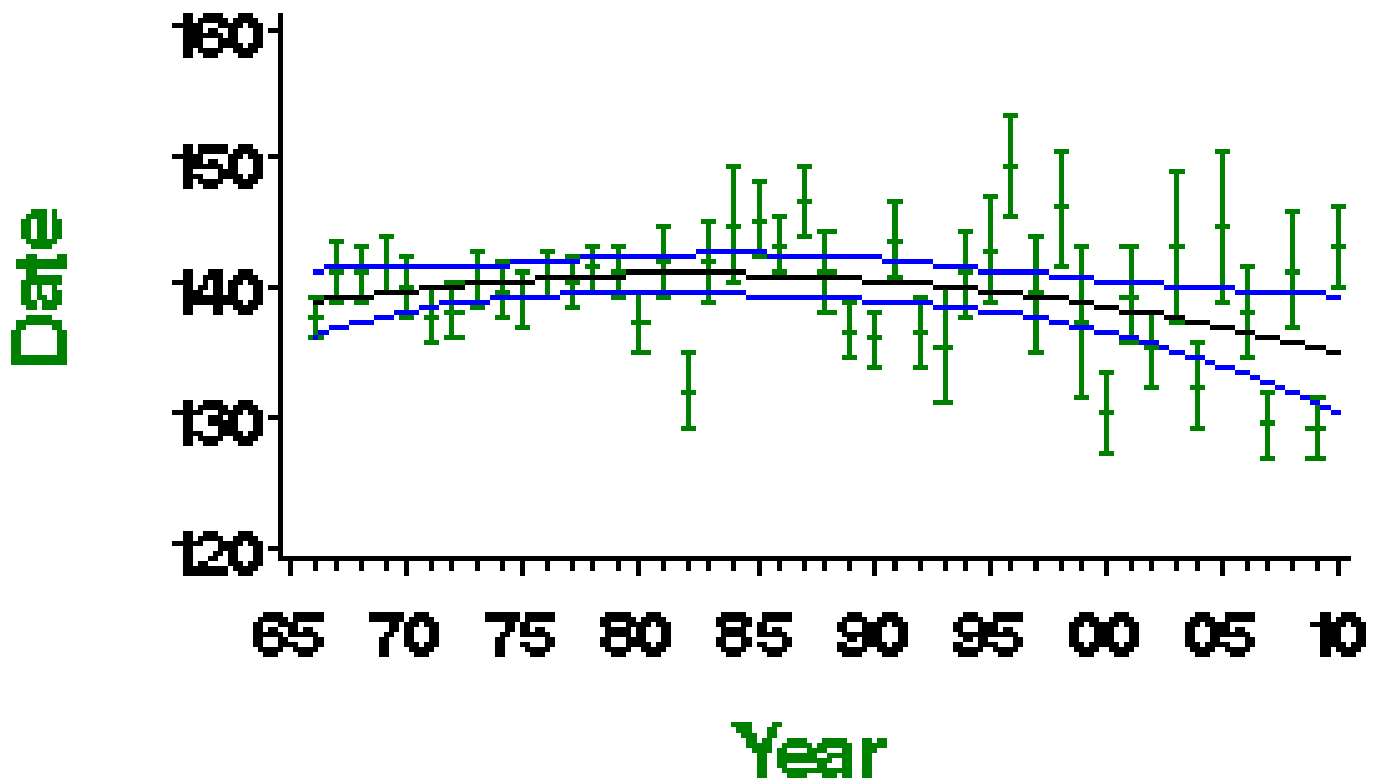
Demographic trends

Fledglings per breeding attempt 1966–2010 Reed Bunting



Laying date 1966–2010

Reed Bunting



Mean laying date in Julian days (1st April = Day 90) - green bars represent standard error and black line shows long-term trend

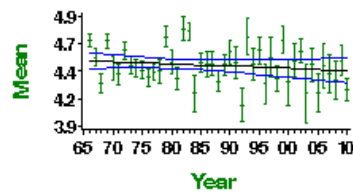
More on demographic trends

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Fledglings per breeding attempt	41	1968-2009	28	Linear decline	2.76 fledglings	2.21 fledglings	-19.8%		
Clutch size	41	1968-2009	43	None					
Brood size	41	1968-2009	60	None					
Nest failure rate at egg stage	41	1968-2009	50	Linear increase	0.80% nests/day	2.23% nests/day	178.8%		
Nest failure rate at chick stage	41	1968-2009	50	None					
Laying date	41	1968-2009	47	Curvilinear	May 19	May 15	-4 days		
Juvenile to Adult ratio (CES)	25	1984-2009	61	Smoothed trend	189 Index value	100 Index value	-47%		
Juvenile to Adult ratio (CES)	10	1999-2009	69	Smoothed trend	117 Index value	100 Index value	-14%		
Juvenile to Adult ratio (CES)	5	2004-2009	69	Smoothed trend	106 Index value	100 Index value	-5%		

For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).

Clutch size 1966—2010

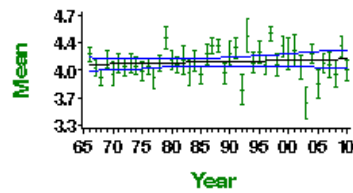
Reed Bunting



Mean number of eggs per nest - green bars represent standard error and black line shows long-term trend

Brood size 1966—2010

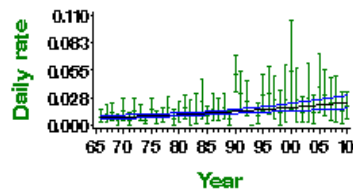
Reed Bunting



Mean number of chicks per nest - green bars represent standard error and black line shows long-term trend

Egg stage nest failure rate

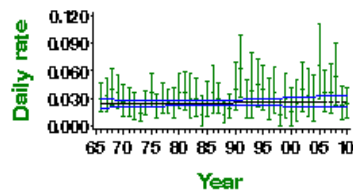
Reed Bunting



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Chick stage nest failure rate

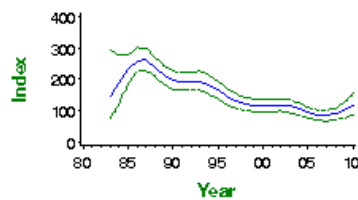
Reed Bunting



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

CES productivity 1983—2010

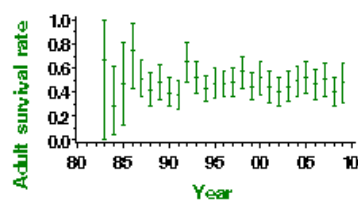
Reed Bunting



Smoothed long-term trend in ratio of juvenile:adult birds caught - green lines indicate 85% confidence limits

CES survival 1983—2009

Reed Bunting



Proportion of adult birds surviving to following year - green bars represent 95% confidence limits

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Corn Bunting

Emberiza calandra

Key facts

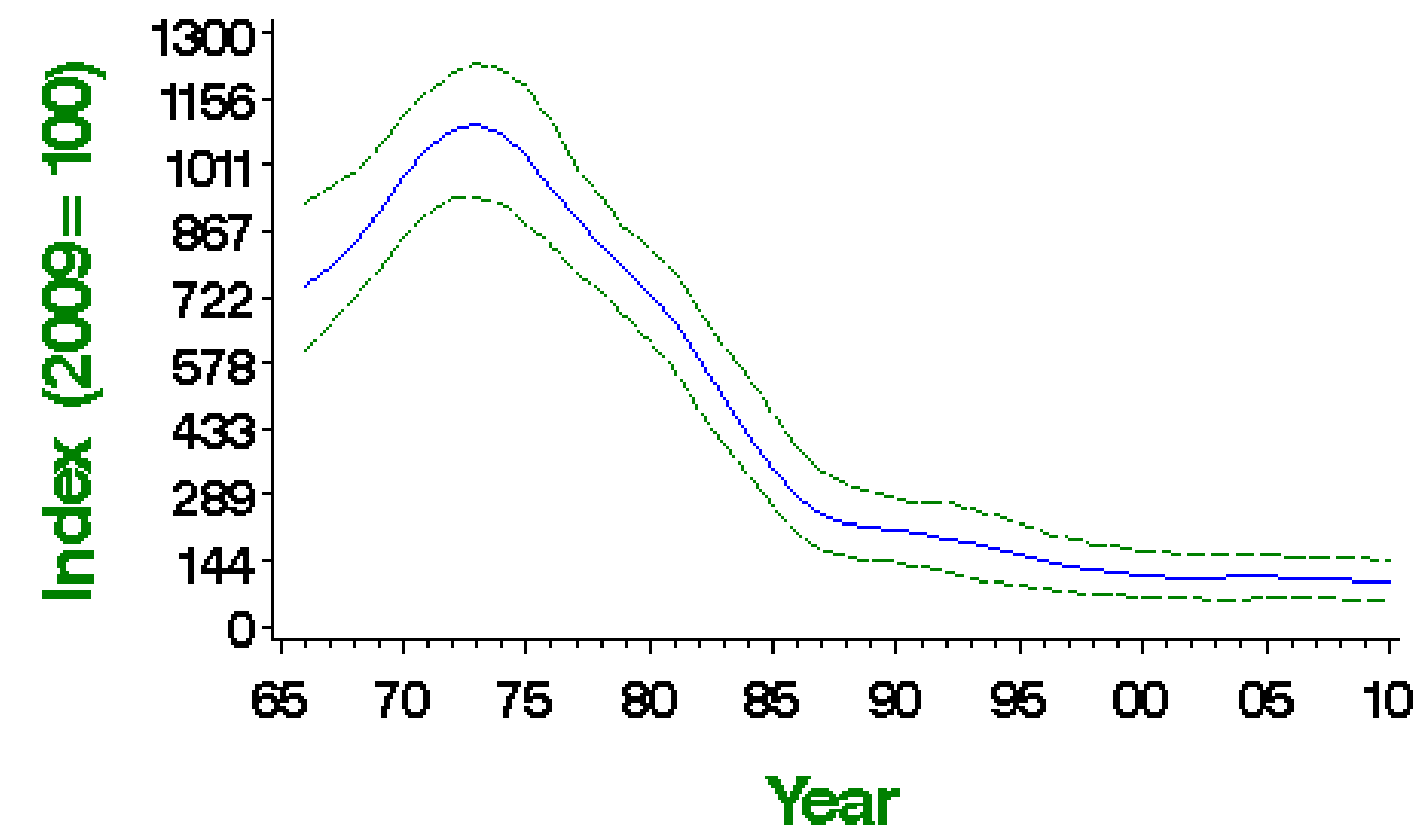
Conservation listings:	Europe: SPEC category 2 (declining) (BiE04) UK: red (>50% population decline, historical decline) (BoCC3) UK Biodiversity Action Plan: click here , priority species
Long-term trend:	UK, England: rapid decline
Population size:	8,500-12,200 territories in 2000 (1988-91 Atlas estimate updated using CBC/BBS trend: BiE04, APEP06)
Migrant status:	Resident
Nesting habitat:	Ground nester
Primary breeding habitat:	Farmland
Secondary breeding habitat:	
Breeding diet:	Animal
Winter diet:	Vegetation

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 reduced rate. Corn Buntings have declined rapidly across Europe since 1980 (PECBMS 2011a) 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).

CBC/BBS UK 1966–2010

Corn Bunting



Smoothed population index, relative to an arbitrary 100 in the year given, with 85% confidence limits in green

Population changes in detail

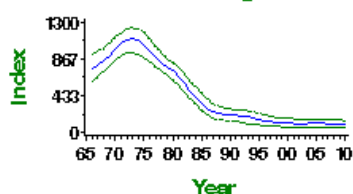
Source	Period (yrs)	Years	Plots (n)	Change (%)	Lower limit	Upper limit	Alert	Comment
CBC/BBS UK	42	1967-2009	70	-87	-94	-76	>50	
	25	1984-2009	96	-76	-88	-61	>50	Small CBC sample
	10	1999-2009	142	-15	-33	4		
	5	2004-2009	147	-8	-26	14		
CBC/BBS England	42	1967-2009	67	-85	-92	-70	>50	
	25	1984-2009	92	-75	-87	-58	>50	Small CBC sample
	10	1999-2009	136	-6	-21	8		
	5	2004-2009	140	-8	-28	12		
BBS UK	14	1995-2009	143	-33	-45	-22	>25	
	10	1999-2009	140	-14	-28	-1		
	5	2004-2009	146	-5	-22	13		
BBS England	14	1995-2009	136	-29	-41	-13	>25	
	10	1999-2009	134	-7	-24	6		
	5	2004-2009	140	-4	-21	13		

Tables show changes with their 90% confidence limits. Alerts are flagged for significant changes only. See [here](#) for more information.



CBC/BBS UK 1966–2010

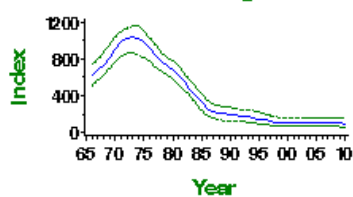
Corn Bunting



CBC/BBS UK graph

CBC/BBS England 1966–2010

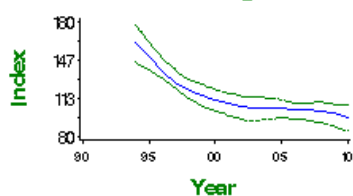
Corn Bunting



CBC/BBS England graph

BBS UK 1994–2010

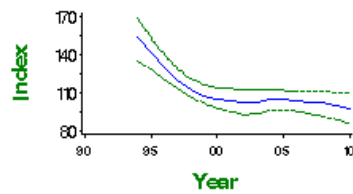
Corn Bunting



BBS UK graph

BBS England 1994—2010

Corn Bunting



BBS England graph

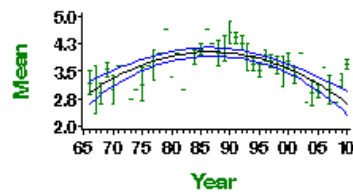
Demographic trends

Variable	Period (yrs)	Years	Mean annual sample	Trend	Modelled in first year	Modelled in 2009	Change	Alert	Comment
Brood size	41	1968-2009	12	Curvilinear	3.12 chicks	2.75 chicks	-11.9%		Small sample
Nest failure rate at egg stage	41	1968-2009	10	None					Small sample
Nest failure rate at chick stage	41	1968-2009	12	Curvilinear	4.41% nests/day	1.94% nests/day	-56.0%		Small sample
Laying date	41	1968-2009	14	Linear decline	Jun 28	Jun 13	-15 days		Small sample

For details of analytical methods for the Nest Record Scheme, the Constant Effort Sites (CES) and the Retrapping Adults for Survival (RAS) scheme, please follow links [here](#).

Brood size 1966—2010

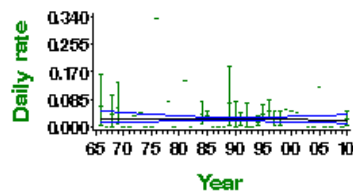
Corn Bunting



Mean number of chicks per nest - green bars represent standard error and black line shows long-term trend

Egg stage nest failure rate

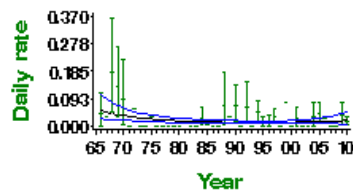
Corn Bunting



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Chick stage nest failure rate

Corn Bunting



Proportion of nests failing per day during incubation - green bars represent 95% confidence limits and black line shows long-term trend

Causes of change

Changes in farming practice are believed to have been responsible for declines, through impacts on reduced seed and/or invertebrate abundance. The demographic causes are unclear and there is conflicting evidence as to whether breeding or wintering effects have been the primary driver.

Change factor	Primary driver	Secondary driver
Demographic	Unknown	
Ecological	Agricultural intensification	

Further information on causes of change

National-scale evidence gives no indication of a historical role for breeding success, but there are contemporary local correlations between agricultural practices and breeding success, including a notable effect on numbers of breeding attempts. Causes of change may be different in different populations, as some of this species' breeding habitats are completely different and isolated from each other. There is no way to test for effects of survival at all. Conversely, it is easy to test for effects on breeding success, especially locally and with respect to contemporary as opposed to historical land-use. This leads to a big imbalance in the amounts of evidence available.

Breeding performance per nesting attempt has increased considerably while population numbers have been declining (Crick 1997, Siriwardenaet al. 2000a), but it is also reported that fewer birds now raise a second brood, thus reducing productivity overall (Brickle & Harper 2002). Brood size has decreased since 1990 (see graph above). Ring-recovery sample sizes do not permit an analysis of survival rates, meaning that it is impossible to test for effects of survival (Siriwardena et al. 1998, 2000a). 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, Wilson et al. 2007). Donald & Evans (1994) found that 60% of Corn Buntings fed on winter stubbles, which were the only field type for which a consistent preference was detected.

Spring-sown cereals have been found to be a particularly important habitat for Corn Bunting (Brickle & Harper 2000, Fox & Heldbjerg 2008), and hence its reduction may have contributed to declines, as they provide long-lasting stubbles during the winter and abundant food in the form of surface grain when first sown. In the breeding season, spring cereals were among the most used habitats for nesting and for collecting chick food. Siriwardena et al. (2000b) provide evidence that mixed farming at the territory scale supported better breeding performance. However, Donald & Forrest (1995) found little evidence for breeding-season effects in their study using CBC data and suggest that numbers are more likely to have declined due to reduced winter food supplies resulting particularly from the loss of spring tillage, increased pesticide usage and improved harvesting and storage techniques.

A reduction in food availability has been implicated in the declines of this species. In arable-dominated areas in Scotland, Perkins et al. (2011) provide evidence showing that AES management (agri-environment schemes) that increased food availability reversed population declines. However, where a high proportion of Corn Buntings nested in grasslands, an additional AES option that delayed mowing was essential to achieving population increase. As part of a PhD study, Brickle (1999) modelled the population dynamics of Corn Buntings in Sussex, concluding that productivity was the most likely cause of decline in the South Downs, also finding evidence of indirect effects of pesticides. Brickle & Harper (1999) identified the main food items of chicks, most of which have declined in abundance on lowland farmland (Campbell et al. 1997). Boatman et al. (2004) further analysed the data from Brickle et al. (2000) and found that arthropod abundance in the vicinity of the nest had a significant effect on the survival of broods, although this was based only on two years' data, whilst Ewald et al. (2002) found that densities of Corn Bunting were higher where the number of pesticide applications was low. Brickle et al. (2000) found that chick weight and nest survival at the nestling stage were respectively positively and negatively correlated with invertebrate food availability, and chick food abundance was negatively correlated with the number of insecticide applications to cereal fields. However, the authors state that the contribution of this reduction in breeding performance to the Corn Bunting's decline depends on the mortality rates for fledged chicks and older birds, information for which is sparse.

Brickle & Harper (2002) found that, although predation accounted for the majority of nest failures in their Corn Bunting study population, there was a seasonal decline in the nest survival rate during incubation, which was largely due to increased losses through farming operations. Furthermore, they speculated that harvesting of cereal crops may reduce the availability of suitable breeding habitat late in the season, thus curtailing the length of the breeding season, and preventing double-brooding. A reduction in fecundity via these mechanisms provides one explanation for the collapse of the Corn Bunting population (Donald 1997, Brickle & Harper 2002).

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