The Breeding Bird Survey 2013

The population trends of the UK's breeding birds

BTO Looking out for birds

JNCC Joint Nature Conservation Committee

rspb giving nature a home

THE 2013 BBS REPORT

This is the nineteenth annual report of the BTO/JNCC/RSPB Breeding Bird Survey (BBS), containing the population trends of widespread UK bird species during the period 1994–2013.

The BBS is the main scheme for monitoring the population changes of the UK's common breeding birds, providing an important indicator of the health of the countryside. BBS trends are produced each year for over 100 species, and the results are widely used to set priorities and inform conservation action.

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THE BBS PARTNERSHIP

The Breeding Bird Survey is run by the British Trust for Ornithology (BTO) and is jointly funded by the BTO, the Joint Nature Conservation Committee (JNCC) (on behalf of the statutory nature conservation bodies: Council for Nature Conservation and the Countryside, Natural England, Natural Resources Wales and Scottish Natural Heritage), and the Royal Society for the Protection of Birds (RSPB).

The members of the BBS Steering Committee in 2013 were Stephen Baillie (Chair, BTO), Deborah Procter (JNCC), Mark Eaton (RSPB), Andy Musgrove (BTO) and James Pearce-Higgins (BTO).

THE BBS TEAM AT THE BTO

Sarah Harris, having recently taken over from Kate Risely, is the BBS National Organiser, responsible for the day-to-day running of the BBS, liaising with BTO Regional Organisers and volunteers, maintaining the database, promoting the scheme, and producing the annual report.

Dario Massimino, Research Ecologist in the Population Ecology and Modelling Team, worked on the bird population trends in 2014 and Andy Musgrove and Stuart Newson produced the mammal population trends. David Noble is the Principal Ecologist for Monitoring at the BTO, responsible for strategic developments in biodiversity monitoring. Andy Musgrove is the Head of the Monitoring Team, which runs the BBS and other surveys. James Pearce-Higgins is the new Director of Science at the BTO, and took overall supervision of BBS from Stephen Baillie in July 2014.

Contact the BBS National Organiser:
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Email: bbs@bto.org, Tel: 01842 750050

BBS website: www.bto.org/bbs

ACKNOWLEDGEMENTS

We are grateful to the following people for their help in 2013: Dawn Balmer, Neil Calbrade, Iain Downie, Mark Hammond, Andrew Joys, Maria Knight, John Marchant, Richard Minter, James Pearce-Higgins, Warren Read, Sandra Sparkes, Justin Walker and Karen Wright.

Many people have contributed to the scheme's development and organisation, including Nicholas Aebischer, Mandy Andrews, Mark Avery, Ian Bainbridge, Helen Baker, Richard Bashford, Jessa Battersby, George Boobyer, Andy Brown, Steve Buckland, Nick Carter, Steve Carter, Dan Chamberlain, Rachel Coombes, Humphrey Crick, Sarah Davis, Sarah Eglington, Steve Freeman, Colin Galbraith, David Gibbons, John Goss-Custard, Rhys Green, Jeremy Greenwood, Richard Gregory, Rob Keen, Ian McLean, Mike Meharg, Ian Mitchell, David Morris, Dorian Moss, Nancy Ockendon, Will Peach, Ken Perry, Mike Raven, Brenda Read, Angela Rickard, Ken Smith, David Stroud, Pierre Tellier, Chris Thaxter, Richard Thewlis, Derek Thomas, Mike Toms, Lawrence Way, Richard Weyl and Lucy Wright.

We acknowledge the support of the Northern Ireland Environment Agency who funded professional fieldworkers to cover 52 squares in Northern Ireland, and the help of Shane Wolsey, the BTO Ireland Officer, who organised the fieldwork in 2013. Natural England, Scottish Natural Heritage and Forestry Commission Scotland have contributed to additional surveys on Upland BBS and Scottish Woodland BBS squares. We are very grateful to the RSPB for funding the initial development of BBS-Online, and to the BTO Information Systems Team who have continued to develop the system and provide technical support.

The cover photo of a Marsh Tit is by Neil Calbrade and the BBS logo is by Andy Wilson, modified for the 20th BBS season.

Report production was by Sarah Harris. We are grateful to John Marchant for proofreading the report. The report was printed by Reflex, Thetford, using paper from responsible sources.

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INSIDE...

STARLING, SPOTTED REDSHANK: JOHN HARDING, YELLOW WAGTAIL: JILL PAKENHAM, BROWN HARE: TOM MASON

CITATION

Harris, S.J., Risely, K., Massimino, D., Newson, S.E., Eaton, M.A., Musgrove, A.J., Noble, D.G., Procter, D. & Baillie, S.R. 2014. *The Breeding Bird Survey 2013*. BTO Research Report 658. British Trust for Ornithology, Thetford.

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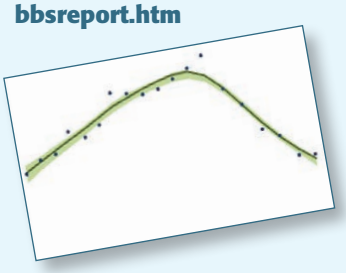
ONLINE RESOURCES

Further information, including population trend graphs, can be found at www.bto.org/bbs, and a full species-by-species discussion of these results, and those from other surveys, can be found on the BirdTrends website at www.bto.org/birdtrends.

This report can be downloaded from www.bto.org/bbs/results/bbsreport.htm



BBS NEWS

The BBS reaches a new milestone

The latest BBS news, the WCBS update and the value of recording non-native species

By **Sarah Harris**, BBS National Organiser, BTO

The Breeding Bird Survey has now been running for over 20 years. This is a fantastic achievement and one possible only with volunteer help. We hope this survey will continue to grow and develop for many more years and thank everyone for their contributions!

RECORDING NON-NATIVE SPECIES

In 2012, a partnership project led by the Centre for Ecology & Hydrology with BTO, the Marine Biological Association and the Botanical Society of Britain and Ireland reported a total of 1,875 non-native species with self-sustaining populations in Great Britain. These species encompassed all taxonomic groups, with a large proportion being plants, and originated from all around the world, although the largest numbers were from Europe. The number of species arriving appears to have increased over time. From 1600 to 1799 Great Britain gained almost one new non-native species per year. During the last 200 years this figure has increased to 6.8 per year.

Certain non-native species to establish in Great Britain have become permanent features, some an increasing burden due to their human or ecological impacts. Invasive species are considered one of the five major threats to biodiversity and are estimated to cost the UK economy £1.7 billion every year. In order to identify priorities and implement appropriate conservation measures, it is critical to record any non-native species and track changes in their distribution and abundance as well as investigate potential impacts.

The BBS is an important part of the process of gathering information on the spread and population trends of non-native birds, of which there are fifteen species with well-established breeding populations, and also non-native mammals, of which seventeen have established themselves at least once. BBS data have previously been used to assess the impact of non-native deer and grey squirrels on woodland birds.

Wider Countryside Butterfly Survey 2013

A record-breaking 857 WCBS squares were sampled in 2013, of which 374 squares were covered by BBS volunteers, on BBS squares; 44% of the total squares covered. The remainder were covered by Butterfly Conservation volunteers.

Forty-five species were recorded, during the warmest and sunniest season since 2006. Unsurprisingly, the remote areas of Scotland received the lowest coverage, but there is always the chance of discovering something new, like the colony of Large Heath found in Aberdeenshire in 2013!

As with the BBS, coverage of remote areas and generation of long-term data is incredibly valuable to the project and we appreciate everyone's contributions.

The 2013 WCBS report is available from the BTO web pages, if you are interested in taking part in the WCBS on your BBS square, please email bbs@bto.org for further information or visit the BBS web pages.

BROWN ARGUS: AMY LEWIS

Reducing paper usage

The BBS partner organisations wish to continue to reduce the amount of paper used where possible. If you wish to receive your BBS report electronically, please email bbs@bto.org. Unless informed otherwise, we will continue to send paper reports to volunteers.

WCBS packs containing recording forms and instruction sheets will no longer be sent unless requested. In 2013 packs were sent out to all WCBS volunteers and many were not needed, as volunteers can download the forms online and enter their data electronically.

If you wish to receive a pack in 2015, please email bbs@bto.org, call 01842 750050 or write to BBS, BTO, The Nunnery, Thetford, Norfolk IP24 2PU and we will happily send a pack to you.

FIND OUT MORE...

Roy, H.E. *et al.* (14 authors) 2014. Non-Native Species Information Portal: documenting the arrival of non-native species in Britain. ***Biological Invasions, doi.10.1007/s10530-014-0687-0.***

TWO DECADES OF BBS – A CELEBRATION

Two species, two fortunes

A focus on two species whose population change has been monitored over the 20 years of the BBS

By **Sarah Harris**, BBS National Organiser, BTO

BLACKCAP: TONY MARFELL

STARLING DECREASE

The BBS, along with other long-term monitoring schemes, has documented the population decline of the Starling. Despite remaining in the BBS's ten most commonly recorded species in the UK, the Starling is on the red list of Birds of Conservation Concern. The largest decrease in abundance is in southern and central England and northeast Scotland. In contrast, increases in abundance are shown in Northern Ireland, western Scotland and the Outer Hebrides. However, recent BBS trends have indicated a decline in Scotland as a whole, where trends were initially going up.

Information from the Nest Record Scheme shows increasing clutch sizes and fledglings per breeding attempt and a decline in nest failure rates at both egg and chick stage. Research suggests that one of the key drivers for this overall decline is decreased juvenile survival rates, post-fledging, though environmental conditions outside the breeding season, food availability or predation issues may also be important. Agricultural intensification is thought to impact negatively on Starlings' foraging opportunities.

Interestingly, the decline in Starling abundance may have benefited Great Spotted Woodpeckers by decreasing the amount of nest site interference by Starlings.

FIND OUT MORE...

Balmer, D.E., Gillings, S., Caffrey, B.J., Swann, R.L., Downie, I.S. & Fuller, R.J. 2013. *Bird Atlas 2007–11*: the breeding and wintering birds of Britain and Ireland. ***BTO Books, Thetford***.

PECBMS 2014. Trends of common birds in Europe, 2014 update. ***(www.ebcc.info/index.php?ID=557)***.

Robinson, R.A., Siriwardena, G.M. & Crick, H.Q.P. 2005. Status and population trends of the Starling *Sturnus vulgaris* in Great Britain. ***Bird Study,* 52**: 252–260.

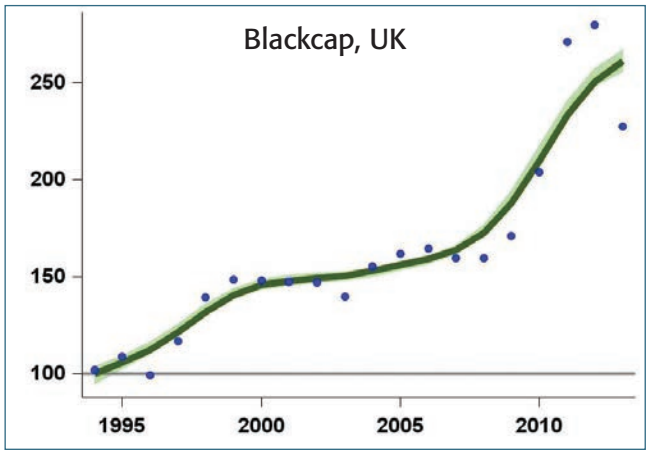
Smith, K.W. 2005. Has the reduction in nest-site competition from Starlings *Sturnus vulgaris* been a factor in the recent increase of Great Spotted Woodpecker *Dendrocopos major* numbers in Britain? ***Bird Study,* 52**: 307–313.

BLACKCAP INCREASE

During the twenty years of BBS data collection, we have witnessed an increase in Blackcap abundance in the UK. Atlas data have shown that Blackcaps have also expanded their range in Scotland and Northern Ireland (with a large expansion in the Republic of Ireland). A moderate increase in numbers has also been recorded across Europe.

The driver of the increase remains unknown, but there are some clues emerging from a combination of data from BBS and other monitoring schemes. Climate change is believed to have resulted in earlier egg laying dates, almost two weeks earlier than in 1968, and is thought to have contributed to the species being able to expand its range northwards. In some localities, overgrazing by deer may reduce the quality of the understorey, which Blackcaps rely on for nesting and foraging.

Climatic warming and an increase in food availability at garden feeding stations may also explain why a growing number of Blackcaps from Europe have opted to overwinter in the UK rather than the Mediterranean Basin and North Africa.



▲ BBS index 1994–2013 showing smoothed trend (dark green), its confidence interval (pale green) and annual index values (dots)

TWO DECADES OF BBS – A CELEBRATION

Volunteer stories

Volunteers from across the UK take part in the BBS. Here we discover, from Nick in the lowlands and Sean in the uplands, what it has been like surveying two contrasting habitats over the years

By **Nick Tardivel** and **Sean Morris**, two long-standing BBS volunteers

NICK TARDIVEL SURVEYING: JILL TARDIVEL

THE LOWLANDS OF KENT

The dates for the BBS are amongst the first into the diary each year. It has become a fixture and, though I sometimes wonder why I do it, I always enjoy the early morning walk – along the lanes and through woodland, on a south-facing slope near Canterbury in Kent. I had not realised that I had been doing this survey for 20 years until receiving a thank-you this year from the BTO!

Apart from occasional grazing by horses, the square is largely arable farmland within further arable farmland. The area is not devoid of character as there are tree-lined hedgerows and woodlands that frame the scene and provide habitats for birds.

The survey route is relatively easy as it follows two north–south lanes running parallel through the square. Whilst one of these is right on the line required (200m from the west edge of the square), the other runs along the outer edge of the square. To get from one lane to the other there is access through mixed woodland and, with permission to use a farmer's field, the route runs along the edge of the woodland for two transect sections before joining the lane. The most difficult part is negotiating the fence to get in to the road. The fence seems to become more of a barrier each year! Maybe that's an age thing?

The species recorded vary a little each year but there is always a core of regulars. The Wrens, Blackbirds, Chaffinches and Song Thrushes (still some about), and a Green Woodpecker or two are always there. Woodpigeons are almost too numerous to count. I pass only one house en route and the House Sparrows, which I recorded here, disappeared after 1999 and I no longer see this species. I have not seen Mistle Thrush since 2005.

The highlights are the species which occur in small numbers or intermittently. There were five singing Nightingales one year in the 1990s before a decline until none were recorded for several years. After recent coppicing in the wood they have returned and there were two pairs last year, only one this.

Turtle Doves were present in 2003 and 2004 and then not again until 2009. Cuckoo is intermittent with one in 2003 and another in 2009.

Apart from Chaffinches, finches are thin on the ground. I see Bullfinch occasionally and there were a pair of Linnets in the roadside hedge for three years and a second pair near the house for a couple of years. Greenfinches make occasional appearances.

There are few birds of prey. Kestrel and Sparrowhawk have been recorded only a couple of times each during the 20 years. However, Buzzards, which are returning to Kent as a breeding species, are now regularly seen. They nest in the valley. This season I had Tawny Owl calling; these birds have taken residence in a couple of the boxes we have erected in the wood and we ringed two broods this season.

Generally, apart from the Woodpigeons, Pheasants and Chaffinches, bird numbers are lower than 20 years ago but there are still enough to make for a busy survey.

It is not just the birds that make the survey: I have encountered foxes regularly and my route crosses well-used badger tracks. I have seen deer prints once, but there is no evidence of a regular presence in the woodland.

I should also mention the support I have had from my wife Jill who runs me out and collects me from the site and from the Aspinall Estate and Mr Howland, who allow me access across their land so that I can complete the survey.

When I look back over the last 20 years on my BBS patch, it is interesting to dip into the subtle changes taking place in the local countryside and relate these to the trends read about in the press.

TWO DECADES OF BBS – A CELEBRATION

THE UPLANDS OF RUM

I have been surveying two upland BBS squares here on the Isle of Rum in the Inner Hebrides for approximately 15 years. In both, the terrain is challenging to walk, to say the least, with thigh-deep heather on spongy moss in places. However, the hard walking can be rewarded with some exciting birds to record, with species such as Red-throated Diver being a regular fly-over and occasional sightings of Golden Eagle.

The most common and regular species present on the mixed heather/grass moor, where the habitat has remained constant over the years, is the Meadow Pipit, which means Cuckoo is also regularly recorded. The other square, with scrubby woodland, has good numbers of Willow Warblers with a supporting cast of Chaffinch and Wren. This square is more varied and starts off in mature woodland heading out onto hill ground with regenerating scrubby woodland. The habitat was altered slightly over ten years ago when some small stands of lodgepole pine were clear-felled. As expected, more species have been recorded in the wooded square over the years, with 45 compared to 31 species on the heathland square. Whilst numbers vary from year to year I have not noticed any long-term increase or decline in these species on these squares.

One thing that has changed over the years is the way I use technology to navigate over the relatively featureless moorland terrain. I have the BBS transect routes saved on a handheld GPS, with the start of each transect section saved as a waypoint. This means just an occasional glance at the GPS screen is required to make sure I am still on the transect line and the unit gives a helpful beep as I approach the end of each transect section. This means I can concentrate on recording birds without the need for map reading or distance pacing.

I used to be sent all the recording forms and instructions by post and the data were returned to the BTO as paper copies via the Regional Organiser. Now I download and print the relevant field sheets from the BTO website and all the data are entered online. This is fantastic and much greener as far less paper is involved and the BTO often have the data instantly.

I enjoy doing the BBS as it makes my birdwatching count towards conservation and the national picture of bird trends. It also gets me out to parts of the island that I don't visit and there is always the chance of seeing something special. I will never forget my most exciting morning's BBS ever, back in May 2005. I was walking the first line of transects when suddenly a male Hen Harrier was alarm-calling over my head. The Hen Harrier is a protected species under Schedule 1 of the Wildlife and Countryside Act but, after arranging for it to be added to my Schedule 1 permit, I located the nest and was able to monitor its progress through to successful fledging for the Nest Record Scheme. This was also the first known record of Hen Harrier breeding on the Isle of Rum and a record that may have been missed had I not been visiting the area for the BBS. The harriers also returned to breed successfully in 2006.

▲ The Hen Harrier pulli monitored by Sean on his BBS square in 2005.

HEN HARRIER PULLI, UPLAND BBS SQUARE: SEAN MORRIS

The use of BBS data in conservation

Influencing policy and measuring progress using BBS data collected over the last 20 years

By **Mark Eaton**, RSPB, and **Deborah Procter**, JNCC

The scientifically robust results from BBS give us some of our best information on changes in the UK's wildlife, and provide the first insights into the factors that are driving these changes. As a result, they are a valuable tool to inform policies and direct further research on the conservation of birds, wildlife and the wider environment. They contribute to the knowledge-base that enables the UK and devolved governments to develop policies, and measure progress against national goals and international obligations such as those set out by the Convention on Biological Diversity's (CBD) Strategic Plan for Biodiversity 2011–20 and the European Union's Biodiversity Strategy. Analyses of BBS data allow us to understand the impact of the policies which direct land management, development and the use of natural resources on birds and the wider environment.

MEASURING THE HEALTH OF OUR NATURE

Possibly the highest-profile and most policy-relevant impact of the BBS is through the wild bird indicators, for the UK, England, Scotland and Wales, that are synthesised using data from BBS alongside other monitoring schemes.

The UK Wild Bird Indicators, produced by BTO and RSPB under contract to Defra and published each autumn, provide a high-level overview of how our wild bird populations are faring. In addition, they are thought to provide an indication – along with similar indicators for butterflies and bats – of the state of the UK's biodiversity more widely. Indicators based largely on the BBS are produced for the breeding birds of farmland (19 species), woodland (38) and water and wetland (26). The indicators are produced by calculating an average from the annual index values for the relevant constituent species, with all species indices set to the same starting value of 100 in the first year of the indicator. A fall in the indicator value to 50 would indicate a halving (on average) of the species within it, a rise to 200 a doubling. By incorporating data from the forerunner to the BBS, the Common Birds Census, the UK indicators start in

GREY PARTRIDGE: NEIL CALBRADE

TWO DECADES OF BBS – A CELEBRATION

1970 (1975 for water and wetland) and so look at change over more than 40 years.

Since its first publication in 1998, the UK Farmland Bird Indicator has served to highlight the massive declines in farmland bird populations that occurred in the late 1970s and 1980s. Subsequent research (e.g. Chamberlain *et al.* 2000) identified how changes in farmland management, such as the simplification of farming systems, changes in sowing seasons, loss of uncropped habitats and increased usage of agrochemicals had driven declines in species such as Grey Partridge, Skylark and Corn Bunting. By splitting the Farmland Bird Indicator into lines for generalist and specialist species, we can see how it is the latter species which have shown the greatest declines and have indeed continued to decline, whereas a number of generalist species such as Woodpigeons and Jackdaws have increased.

In response to this loss, Government policy drove the development of 'agri-environment schemes' in each of the UK's four countries – a diversion of existing production-based payments to enable farmers to be paid for wildlife-friendly farming that helps birds, other wildlife and the environment more widely. The effectiveness of such schemes has been assessed with BBS data; for example, analyses have shown that measures designed to improve winter seed availability have been successful in reducing the rate of decline in seed-eating species such as Yellowhammer and Linnet (Baker *et al.* 2012). Despite this, however, BBS species trends tell us that many farmland birds continue to decrease, and the Farmland Bird Indicator continues to fall, albeit at a slower rate then previously; it appears that the uptake of agri-environment measures by farmers is not yet sufficient to reverse declines.

SETTING CONSERVATION PRIORITIES

As well as triggering policy responses to issues facing habitats and ecosystems, BBS data have been invaluable in identifying individual species in need of targeted conservation interventions. These were once listed as priority species under the UK Biodiversity Action Plan but the devolution of conservation responsibilities to national Governments has meant the development of four lists, such as the Section 41 list in England, Section 42 list in Wales and the Scottish Biodiversity List, that identify priority species at country level. Population trends, including those produced by the BBS, are a vital component of the assessments made to draw up these country lists. Other assessments of species' status also use BBS data to inform conservation priorities: of the 56 species red-listed by Birds of Conservation Concern 3 (Eaton *et al.* 2009), 21 were listed on account of breeding population declines measured by the BBS.

BBS data also contribute to the Priority Species Indicator, developed by the BBS partners within a wider partnership of conservation organisations and first published by the UK Government in 2013. This indicator, which incorporates data from mammals and insects as well as birds, will track the fortunes of those species that have been identified as priorities for conservation effort within the UK's four countries, and thus assess if UK is successful in meeting the CBD's 'Aichi' target of improving and sustaining the status of threatened species.

Both in its contribution to this new indicator and at the level of individual bird species, BBS data will inform assessments of whether national conservation strategies are succeeding in recovering the fortunes of our most threatened species, as well as future revisions of national lists and Birds of Conservation Concern 4 which is due for publication in 2015.

FUTURE SCENARIOS

Effective conservation policies should not just seek to address current concerns, but also be prepared for future scenarios. Most obviously, at present, they should address the changes coming due to the progression of climate change. Analyses of BBS data have detected current impacts of climate change (Davey *et al.* 2011) and enabled predictions of how birds will respond through the 21st century (e.g. Renwick *et al.* 2012). Such knowledge will allow the development of policies and strategies that will enable us to adapt to and mitigate the impacts of climate change.

FIND OUT MORE...

Baker, D.J., Freeman, S.N., Grice, P.V. & Siriwardena, G.M. 2012. Landscape-scale responses of birds to agri-environment management: a test of the English Environmental Stewardship scheme. *Journal of Applied Ecology,* **49**: 871–882.

Chamberlain, D.E., Fuller, R.J., Bunce, R.G.H., Duckworth, J.C. & Shrubb, M. 2000. Changes in the abundance of farmland birds in relation to the timing of agricultural intensification in England and Wales. *Journal of Applied Ecology,* **37**: 771–788.

Davey, C.M., Chamberlain, D.E., Newson, S.E., Noble, D.G. & Johnston, A. 2011. Rise of the generalists: evidence for climate driven homogenization in avian communities. *Global Ecology and Biogeography,* **21**: 568–578.

DEFRA 2012. UK Farmland Bird Indicator (1970–2012) *www.gov.uk/government/publications/wild-bird-populations-in-the-uk*

Eaton, M.A. *et al.* (9 authors) 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.

Renwick, A.R., Massimino, D., Newson, S.E., Chamberlain, D.E., Pearce-Higgins, J.W. & Johnston, A. 2012. Modelling changes in species' abundance in response to projected climate change. *Diversity & Distributions,* **18**: 121–132.

BBS RESEARCH

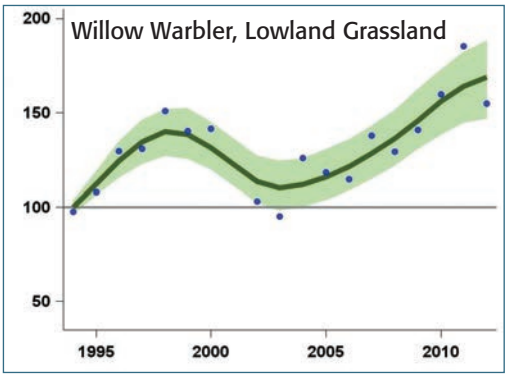
Producing habitat-specific population trends

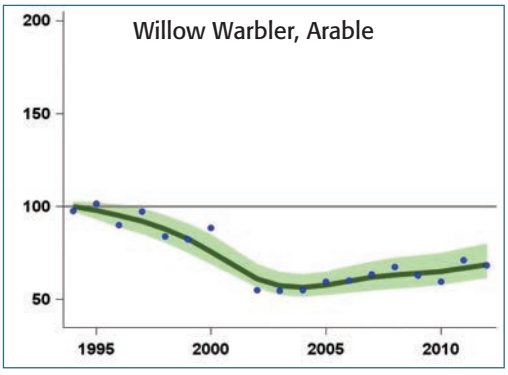
Researchers in the BTO's Population Ecology and Modelling team are looking beyond national trends to see how species are faring in different habitats

By **Martin Sullivan**, Research Ecologist, BTO

Twenty years of monitoring through the BBS have revealed mixed fortunes for the UK's birds, with dramatic population declines in species such as the Turtle Dove, and equally impressive increases in the populations of species such as the Nuthatch. As well as documenting these changes, BBS is a useful tool for understanding the processes that drive them.

One approach has been to see how population trends vary between different habitats, as differences in a species' population trends between habitats could indicate pressures that are faced in some habitats but not in others. Of particular value here are the habitat data collected by BBS surveyors. Making use of the broad habitat classification at the 200m transect level, separate habitat-specific population trends can be produced by including only those bird observations recorded in a particular habitat type. In this way, a single 1km square can contribute to more than one habitat-specific trend, depending on the habitats recorded at the transect-section level.





Recent analyses, focusing on 94 species, have identified 24 species for which there have been opposing trends, with populations increasing in one or more habitats whilst declining in others. One of these species has been the Willow Warbler, which has increased in semi-natural grassland/heathland, but declined in deciduous woodland, urban/suburban settlements and arable farmland. These differences could reflect changes in habitat quality that have made some habitats (e.g. arable farmland) worse for Willow Warblers or other habitats (e.g. semi-natural grassland) better for them. Climate change could also have played a part, with long-distance migrants such as Willow Warblers tending to do better in uplands and more northerly habitats. This chimes with previous BTO research that has shown regional differences in population trends of Willow Warblers and other long-distance migrants, with population trends more-positive in the north than in the south.

One species where differences in population trends might be expected is the Cuckoo, as the species they parasitise occur in some very different habitat types. Striking differences in habitat-specific population trends are evident, with steep declines in farmland contrasting

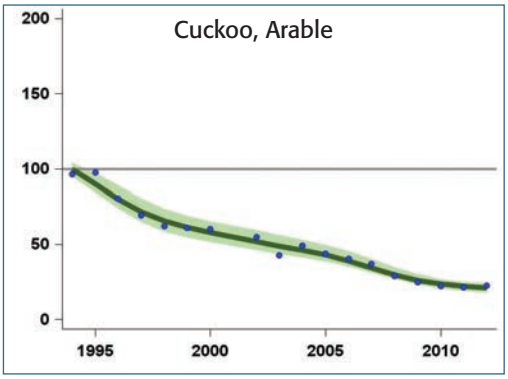
WILLOW WARBLER: CHRIS KNIGHTS

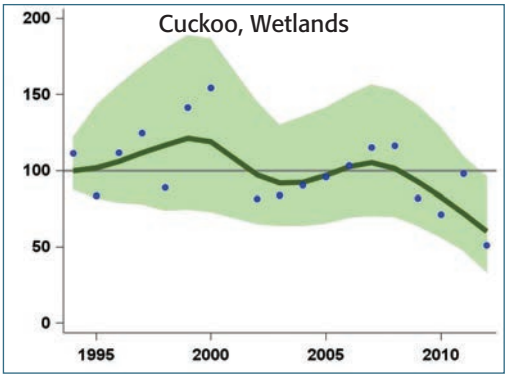
BBS RESEARCH

with much more moderate declines in wetlands. Whilst previous BTO research has not found support for the idea that Cuckoos are struggling to time their migration to match the breeding seasons of different hosts, these differences in habitat-specific trends could be due to differences in food availability in different habitats, or to something relating to the different migration routes identified through satellite-tracking work by the BTO. These results, and those for Willow Warblers, indicate the importance of considering processes in both the breeding and non-breeding seasons when investigating the declines of migrant birds.

Contrasting with these declines, national trends from the BBS show that Green Woodpeckers are increasing rapidly. However, the rate of increase varies between habitats. For example, populations have increased in both deciduous woodland and areas with rural settlements, but the increase has been more rapid in rural settlements.

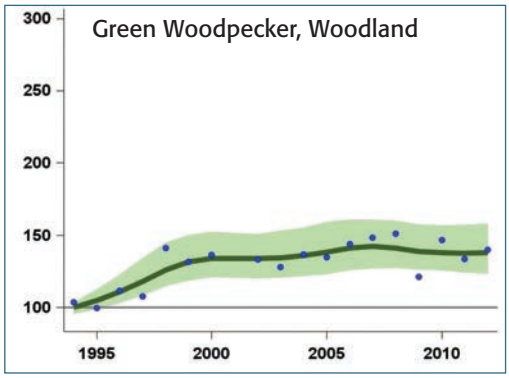
CUCKOO: EDMUND FELLOWES

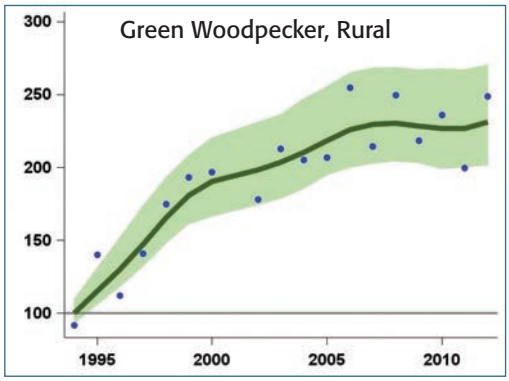




▲ All graphs show BBS index 1994–2013 showing smoothed trend (dark green), its confidence interval (pale green) and annual index values (dots)

Populations in deciduous woodland stabilised around the turn of the century, while in rural settlements populations have stabilised more recently. This pattern fits well with what we would expect if Green Woodpeckers were selecting their preferred habitats first, but moving into less preferred habitats as their population increased. We can quantify habitat preference by comparing the habitat in transect sections where Green Woodpeckers occur with the overall availability of habitats in those BBS squares. Green Woodpeckers show a stronger preference for deciduous woodland than for rural settlements but, as the deciduous woodland becomes full of Green Woodpeckers, they increasingly move into less preferred habitats, such as areas with rural settlements. Analyses of habitat-specific population trends show that similar changes in habitat associations are found in many bird species. Such processes are thought to be important in regulating populations, and understanding them will help us predict how populations will respond to environmental change.





FIND OUT MORE...

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SURVEY COVERAGE

Creeping up on the coverage record!

3,671 BBS squares surveyed in 2013

An impressive 3,671 squares were surveyed in 2013, just 47 squares short of the all-time record in 2007. We are so grateful to all those who contributed to the 2013 season and are particularly impressed by those who celebrated 20 years of surveying a BBS square! Every contribution to the survey is valuable, so thank you all.

Of the 3,671 surveys covered, 101 were 'Adjacent Upland' and 25 were 'Scottish Woodland' squares, all of which were surveyed by volunteers. These figures also continue to rise year-on-year, increasing the sampling of these under-recorded habitats.

Of the total BBS squares covered in 2013, 52 in Northern Ireland were surveyed by three professional fieldworkers funded by the Northern Ireland Environment Agency. The remaining 3,619 squares were surveyed by 2,854 volunteers.

Once again, Natural England funded professional fieldworkers to cover 264 Upland Breeding Bird Survey sites, which boosted the upland bird sample in England. Although incorporated into trends, they are not included in the coverage totals in Table 1.

Number of BBS squares surveyed

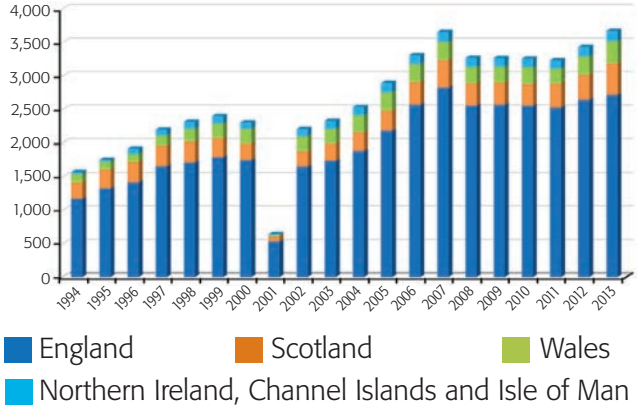


Table 1 Number of BBS squares surveyed

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
England	1,173	1,325	1,420	1,657	1,713	1,792	1,749	533	1,652	1,738	1,885	2,179	2,569	2,815	2,555	2,569	2,555	2,529	2,641	2,717
Scotland	245	283	308	313	309	275	246	78	231	255	274	305	336	483	333	331	331	358	380	471
Wales	122	121	116	138	192	223	213	22	215	214	254	271	271	269	242	233	246	223	270	331
N Ireland	25	17	65	75	85	95	83	0	97	109	102	120	107	131	121	116	115	110	116	127
Channel Islands	1	1	7	6	7	7	7	7	7	7	11	13	19	16	15	17	16	15	20	25
Isle of Man	4	4	4	6	6	5	3	0	3	4	6	3	5	4	1	0	0	0	4	0
UK Total	**1,570**	**1,751**	**1,920**	**2,195**	**2,312**	**2,397**	**2,301**	**640**	**2,205**	**2,327**	**2,532**	**2,891**	**3,307**	**3,718**	**3,267**	**3,266**	**3,263**	**3,235**	**3,431**	**3,671**

BBS Online

In 2013, data for 3,431 squares were submitted online, 91% of the total submissions.

In 2014 an updated online system was launched. Feedback has been, for the most part, very positive. All suggestions have been invaluable and although there will not be any major changes in the near future, we are always looking to improve things further.

One concern that has been brought to our attention is the time taken to enter data. Generally this improved as the user became more familiar with the system and many have found it faster to use than the old system. Time can be saved when entering data as there is no need to scan through your notes in order to summarise records; each notation is entered as you come to it. The new system also offers the ability to submit the optional detectability data, which paper forms do not.

We aim to minimise paper use wherever possible (see page 4). While paper forms will remain available, we encourage all BBS volunteers to switch to online data submission if possible.

Handy hint

When entering data online, using the 'Tab' button on your keypad is a far more efficient way of moving around the screen than clicking with the mouse. Tab through the boxes to be completed, using the associated keyboard letters and numbers to select from the drop-down menus.

Distribution of coverage in 2013

Map includes Adjacent Upland and Scottish Woodland squares, surveyed by volunteers

Scotland

Just 12 squares below the all-time record of 483 in 2007, 471 squares were covered in 2013.

More volunteers are needed in the northwest of Scotland as well as in other more remote areas of the country. 'What's Up?' is a project run by BTO Scotland offering training and mentoring with the aim of further improving volunteer coverage in these more remote areas.

Twenty-five Scottish Woodland squares were covered along with 30 Adjacent Upland squares.

Northern Ireland

Four squares below the 2007 record, 127 squares were covered in Northern Ireland in 2013 of which 75 were surveyed by volunteers.

The remaining squares were covered by three professional fieldworkers funded by the Northern Ireland Environment Agency.

England

The majority of BBS squares covered are in England and this year the number of squares surveyed increased from 2,641 in 2012 to 2,717. Fifty-three of these were Adjacent Upland squares.

Professional fieldworkers surveyed 264 Upland Breeding Bird Survey squares in 2013, boosting the under-represented uplands of England (not shown on map).

Wales

Wales hit an all-time high with 331 squares covered, 60 more than the previous record in 2005 and 2006.

This amazing achievement is thanks to a combination of targeted volunteer recruitment by Regional Organisers, increased mentoring and training workshops run by BTO Cymru and Regional Organisers for existing and new volunteers. Much of this was funded by Natural Resources Wales.

Channel Islands

Twenty-five squares were surveyed by volunteers on the Channel Islands in 2013 (not shown on map).

SPECIES RECORDED

What was seen during the 2013 surveys?

A grand total of 224 species were recorded in 2013, the average number of species recorded per square being 31. Five or fewer species were recorded on 44 squares and this is no less valuable than the 77 species recorded on a square in the Lune Valley, Lancashire. We appreciate the self-discipline involved with surveying a less 'eventful', urban or remote square!

Population trends are run for species which reach the threshold needed to produce statistically reliable results. Although species below this threshold are not reported in the trend totals, their information is used for many other analyses and is therefore just as valuable. For some increasing species, population trends may one day become possible to calculate.

A complete list of species recorded and the number of squares per species is available at www.bto.org/volunteer-surveys/bbs/latest-results/species-lists

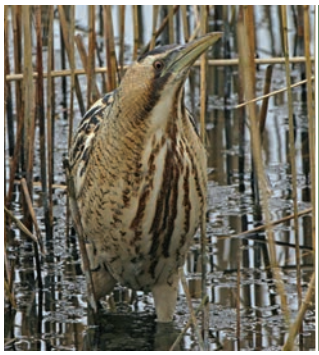
The top 10 species most commonly recorded included House Sparrow, a species generally declining in the east but increasing in parts of western Britain, and Starling, another species in widespread decline. Woodpigeon remains at the top of the list, as it has since 1998; prior to this, it was second to Starling. The least recorded in the list below were only observed the once or twice, a rare treat for the BBS surveyors.

MOST COMMON...

1.	Woodpigeon	138,798
2.	Blackbird	64,662
3.	Rook	62,686
4.	Chaffinch	56,910
5.	Carrion Crow	54,416
6.	Jackdaw	53,642
7.	House Sparrow	44,802
8.	Starling	41,450
9.	Wren	40,220
10.	Blue Tit	38,147

LEAST COMMON...

1.	Spotted Redshank	1
2.	Long-eared Owl	1
3.	Little Gull	1
4.	Ruff	1
5.	Jack Snipe	1
6.	Bearded Tit	1
7.	Red-breasted Goose	1
8.	Spoonbill	2
9.	Black Redstart	2
10.	Bittern	2



BITTERN, BLACK REDSTART: RON MARSHALL, JACKDAW: NEIL CALBRADE, BLUETIT, HOUSE SPARROW: JILL PAKENHAM

Years the BBS has been running.....20!
Species recorded in 2013.....224
Individual birds counted.....1,125,152

BBS BACKGROUND AND METHODS

The BBS was launched, in 1994, to provide more representative habitat and geographical coverage than the main survey running at the time, the Common Birds Census (CBC). The CBC ended in 2000, and the overlap period between 1994 and 2000 allowed the BTO to develop methods for calculating long-term trends (from the 1960s to the present) using information from both schemes.

The BBS is a line-transect survey based on randomly located 1km squares. Squares are chosen through stratified random sampling, with more squares in areas with more potential volunteers. The difference in sampling densities is taken into account when calculating trends. BBS volunteers make two early-morning visits to their square during the April–June survey period, recording all birds encountered while walking two 1km transects across their square. Each 1km transect is divided into five 200m sections for ease of recording. Birds are recorded in three distance categories, or as 'in flight', in order to assess detectability and work out species density. To assess further the detectability of species the option of recording how birds were first detected (by Song, Call or Visually) was introduced in 2014. Observers also record the habitat along the transects, and record any mammals seen during the survey. Surveying a BBS square involves around six hours of fieldwork per year, and the aim is for each volunteer to survey the same square (or squares) every year.

As BBS squares are randomly selected, they can turn up within any kind of habitat. Some squares can never be surveyed, and these truly 'uncoverable' sites are removed from the system. However, squares that are temporarily inaccessible, or which are not taken up due to their remote location, are retained in order to maintain the integrity of the sampling design.

The BBS National Organiser, based at BTO, is responsible for the overall running of the scheme, and is the main point of contact for the network of volunteer Regional Organisers (ROs). ROs are responsible for finding new volunteers and allocating squares to observers in their region. At the end of the season they validate submissions made online, and collect paper submissions and return them to BTO. We are very grateful for the assistance of the ROs.

The BBS provides reliable population trends for a large proportion of our breeding species. Trends can also be produced for specific countries, regions or habitats. For these analyses, we take the higher count from the two visits for each species, summed over all four distance categories and ten transect sections. Only squares that have been surveyed in at least two years are included in the analyses. Population changes are estimated using a log-linear model with Poisson error terms. Counts are modelled as a function of year and site effects, weighted to account for differences in sampling densities across the UK, with standard errors adjusted for overdispersion.

Since 2009, data from additional randomly selected 1km squares surveyed as part of the Scottish Woodland BBS and the Upland BBS have been included in the BBS sample. These squares were surveyed using the same methodology as standard BBS squares, and results were incorporated into trends accounting for additional sampling effort.

Work has been carried out to assess the reliability of BBS trends, to ensure that reported trends are based on reliable data and sufficient sample sizes. This work has resulted in the following exclusions and caveats:

- We do not report population trends for five species of gull (Black-headed, Common, Lesser Black-backed, Herring and Great Black-backed), as a large proportion of the records are of non-breeding, wintering or migratory individuals.
- Trends for rare breeding species with substantial wintering populations (e.g. Fieldfare) are excluded.
- Trends for Cormorant, Grey Heron, Little Egret and Common Tern are reported with the caveat that counts may contain a high proportion of birds away from breeding sites.
- Trends for Tawny Owl and Barn Owl are reported with the caveat that the BBS monitors nocturnal species poorly.
- Counts for six wader species (Oystercatcher, Golden Plover, Lapwing, Snipe, Curlew and Redshank) are corrected to exclude counts from non-breeding flocks, and observations of Golden Plover in unsuitable breeding habitat are also excluded.

Studies using BBS data

Baker, D.J., Grice, P.V. & Siriwardena, G.M. 2013. How has Environmental Stewardship affected English farmland bird populations? Results and lessons from a national assessment. *Aspects of Applied Biology,* **118**: 47–54.

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Further reading

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Eaton, M.A., Balmer, D.E., Bright, J., Cuthbert, R., Grice, P.V., Hall, C., Hayhow, D.B., Hearn, R.D., Holt, C.A., Knipe, A., Mavor, R., Noble, D.G., Oppel, S., Risely, K., Stroud, D.A. & Wotton, S. 2013. The state of the UK's birds 2013. *RSPB, BTO, WWT, NRW, JNCC, NE, NIEA, & SNH, Sandy, Bedfordshire. (www.bto.org/sites/default/files/u16/downloads/SUKB/State_UK_Birds_2013.pdf).*

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POPULATION TRENDS

United Kingdom

Redstarts increased by 44% between 1995 and 2012

The latest national population trends for 110 common and widespread birds

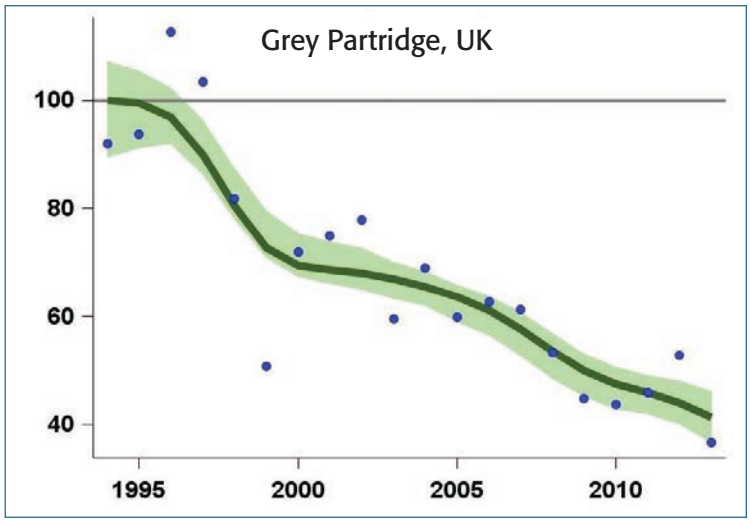
UK population trends have been calculated for a total of 110 species. These are common and widespread species that have been recorded on an average of at least 40 BBS squares per year. **Little Egret**, **Gadwall** and **Nightingale** are also included in this total as they meet the reporting threshold for England, within which their populations are concentrated. **Goosander** has now met the reporting criteria and is a new addition to the trends. **Teal** lies just below the threshold for reporting. Increased coverage or species range could allow trends for this species in the future.

WAGTAIL TALES

All three UK breeding wagtail species are in long-term decline. **Yellow Wagtail** declined by 43%, **Grey Wagtail** by 32% and **Pied Wagtail** by 11% between 1995 and 2012. Both **Grey** and **Pied Wagtail** trends closely match those of the Waterways Breeding Bird Survey which show a rapid decline for the two species along waterways. **Pied Wagtail** BBS trends, as a whole, are fluctuating; this suggests waterways may be the common factor affecting these two species. **Grey Wagtail** moved to the amber list in 2002 and **Pied Wagtails** breeding in the UK are of the race *yarrellii,* a race almost entirely restricted to the UK and Republic of Ireland; therefore, population changes are of global conservation significance. In contrast, the **Yellow Wagtail**, also a near-endemic race, *flavissima*, is a long-distance migrant and changes on their wintering grounds could be contributing to their decline. In the UK, research suggests changes in agricultural practices are impacting on their foraging and breeding habitats, reducing breeding success.

FARMLAND DECLINES

Both **Grey Partridge** and **Skylark** are in long-term decline, with a 56% and 24% decline respectively. In 2013, both species hit an all-time low. Research has identified strong candidates for causes of decline and management solutions that are effective at local scales. Most notably, unsprayed conservation headlands in cereal crops, increasing insect availability for **Grey Partridge** chicks and undrilled patches ('Skylark plots') which provide access into dense winter cereal crops for **Skylark**. Further research is required to investigate how to scale up these management practices and find other management solutions that will benefit the national populations.



▲ BBS index between 1994–2013 showing smoothed trend (dark green), its confidence interval (pale green) and annual index values (dots)

SIGNIFICANT CHANGES

From 1995 to 2012, a total of 74 are scientifically significant changes in the long-term species trends. Forty of these are increases, including **Ring-necked Parakeet** (1,060%), **Red Kite** (805%), **Greylag Goose** (203%) and three arid zone migrants: **Redstart** (44%), **Reed Warbler** (21%) and **Whitethroat** (35%). The greatest long-term declines are for **Turtle Dove** (88%), **Willow Tit** (83%) and **Wood Warbler** (66%).

BIRDS OF CONSERVATION CONCERN

The BBS monitors 20 red-listed species, of which 14 have declined since the start of the survey, and two – **Tree Sparrow** and **Lesser Redpoll** – have increased, following earlier severe declines. Of the 38 amber-listed species monitored, 12 have declined, and 11 increased.

'ADD-ON' SQUARES

Data from additional squares in English uplands and Scottish woodlands were included in trends for all species. Add-on squares were surveyed using the same methodology as standard BBS squares, and the difference in sampling was accounted for in the trend calculations.

For species-by-species results see the BirdTrends website:
www.bto.org/birdtrends

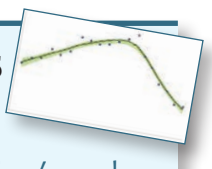
Table 2 UK population trends during 2012–13 and 1995–2012

Species	Sample	12–13	95–12	LCL	UCL
Mute Swan	251	2	29*	2	62
Greylag Goose	204	-19	203*	22	506
Canada Goose	479	7	54*	24	108
Shelduck	145	-1	-10	-44	25
Gadwall	39	26	107*	18	234
Mallard	1,306	-4	17*	6	28
Tufted Duck	155	6	42*	1	90
Goosander	40	-36	-6	-48	100
Red-legged Partridge	554	-10	19*	7	33
Red Grouse	144	-19*	13	-8	34
Grey Partridge	226	-31*	-56*	-63	-46
Pheasant	1,822	2	32*	24	40
(Cormorant)	239	14	27	-9	68
(Little Egret)	34	11	1,666	not estimable	
(Grey Heron)	654	-12	-12	-22	0
Little Grebe	68	0	9	-28	47
Great Crested Grebe	71	-8	8	-31	43
Red Kite	104	17	805*	450	1,723
Sparrowhawk	349	-32*	-4	-17	10
Buzzard	969	-12*	79*	62	101
Moorhen	642	2	-14*	-21	-4
Coot	269	-2	24*	5	51
Oystercatcher	336	3	-13*	-23	-1
Golden Plover	66	-19	-6	-26	22
Lapwing	682	6	-42*	-51	-33
Curlew	519	-11	-43*	-49	-32
Common Sandpiper	68	-7	-10	-31	11
Redshank	85	-5	-44*	-62	-17
Snipe	164	5	11	-8	38
(Common Tern)	66	-5	-24	-58	76
Feral Pigeon	679	5	-17*	-31	-4
Stock Dove	789	0	12	-1	28
Woodpigeon	2,494	-3	42*	35	51
Collared Dove	1,355	0	16*	8	27
Turtle Dove	147	-13	-88*	-91	-85
Cuckoo	708	-2	-49*	-55	-43
(Barn Owl)	46	49*	277*	144	551
Little Owl	96	-23	-51*	-60	-36
(Tawny Owl)	91	-42*	-25*	-41	-4
Swift	1,032	-3	-38*	-48	-27
Kingfisher	53	4	-36*	-54	-11
Green Woodpecker	813	-2	38*	29	52
Gt Spotted Woodpecker	1,066	0	139*	120	154
Kestrel	664	-36*	-35*	-39	-26
Hobby	43	-16	8	-25	68
Peregrine	46	-8	-28	-54	9
Ring-necked Parakeet	64	-2	1,060*	355	4,293
Magpie	1,890	-5*	-1	-6	3
Jay	769	17*	25*	15	35
Jackdaw	1,719	-9*	53*	40	69
Rook	1,308	-17*	-17*	-25	-9
Carrion Crow	2,368	2	17*	9	26
Hooded Crow	135	-9	7	-21	41
Raven	297	5	14	-32	109
Goldcrest	769	-26*	-9	-21	8

Species	Sample	12–13	95–12	LCL	UCL
Blue Tit	2,313	-4*	5*	2	10
Great Tit	2,189	-1	43*	38	49
Coal Tit	814	-24*	11	0	27
Willow Tit	49	-1	-83*	-88	-77
Marsh Tit	147	-10	-29*	-42	-14
Skylark	1,736	-13*	-24*	-30	-18
Sand Martin	131	5	20	-25	139
Swallow	1,973	-17*	32*	25	41
House Martin	933	-23*	-5	-16	7
Long-tailed Tit	953	-34*	15*	5	31
Wood Warbler	52	63	-66*	-80	-46
Chiffchaff	1,495	-27*	88*	78	103
Willow Warbler	1,396	-15*	0	-6	8
Blackcap	1,588	-19*	137*	124	156
Garden Warbler	444	-12	-14*	-26	-2
Lesser Whitethroat	270	-14	-6	-21	8
Whitethroat	1,355	5	35*	25	47
Grasshopper Warbler	83	13	-6	-28	53
Sedge Warbler	299	-8	4	-15	26
Reed Warbler	128	-14	21*	2	62
Nuthatch	492	-8*	91*	70	117
Treecreeper	350	-11	6	-9	21
Wren	2,444	-4*	-3	-8	0
Starling	1,743	1	-51*	-56	-47
Dipper	60	23	-22	-49	15
Blackbird	2,471	-4*	21*	17	24
Song Thrush	1,980	-3	5	0	11
Mistle Thrush	1,157	-9*	-34*	-39	-28
Spotted Flycatcher	191	-14	-49*	-63	-37
Robin	2,368	1	7*	4	11
Nightingale	33	-14	-43*	-64	-12
Pied Flycatcher	40	0	-53*	-68	-33
Redstart	167	-12	44*	21	66
Whinchat	76	12	-55*	-69	-40
Stonechat	149	-27	-3	-28	33
Wheatear	346	-10	2	-18	20
Dunnock	2,061	-4	21*	15	29
House Sparrow	1,599	-7*	-2	-8	5
Tree Sparrow	179	-8	128*	76	201
Yellow Wagtail	157	-13	-43*	-53	-31
Grey Wagtail	213	1	-32*	-45	-18
Pied Wagtail	1,251	-9	-11*	-19	-4
Tree Pipit	140	0	6	-26	36
Meadow Pipit	809	-13*	-17*	-26	-8
Chaffinch	2,487	-7*	11*	7	16
Bullfinch	606	-23*	5	-5	18
Greenfinch	1,789	-13*	-23*	-28	-18
Linnet	1,199	-25*	-25*	-31	-18
Lesser Redpoll	169	-36*	48*	20	95
Common Crossbill	58	-80*	74*	26	212
Goldfinch	1,625	-15*	112*	97	126
Siskin	182	-39*	77*	34	126
Yellowhammer	1,182	-10*	-14*	-20	-8
Reed Bunting	497	10	14*	0	32
Corn Bunting	144	-12	-39*	-52	-24

- Trends are percentage changes, and are marked with an asterisk (*) where the 95% confidence limits of the change do not overlap zero (indicating that there has been a significant change).
- Trends for species in brackets are reported with caveats (see p15).
- The sample is the mean number of squares per year on which the species was recorded during 1994–2013.
- The trend since the start of the survey, covering the years 1994–2013, has been smoothed, and the end years truncated. This trend is labelled as 1995–2012.
- LCL and UCL are the lower and upper 95% confidence limits for the 1995–2012 trend.
- Red-listed and amber-listed species from 'Birds of Conservation Concern 3' are shown in the relevant colour.

TREND GRAPHS ONLINE:



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POPULATION TRENDS

England

Jay increased by 16% in England between 1995 and 2012

England-specific trends for 102 species, with the addition of Common Sandpiper and Little Egret

Trends are calculated for species recorded on an average of at least 30 BBS squares in England per year. A total of 102 such species were recorded in 1994–2013. Increased coverage in England could result in greater sample sizes for **Dipper**, **Peregrine**, **Mandarin** and **Common Crossbill**, enabling these species to reach the reporting threshold for trends in the future.

OYSTERCATCHERS MOVE IN

Long-term trends from 1995 to 2012 show an increase in **Oystercatcher** populations in England (57%) and decline across the UK as a whole (13%). Research suggests an increase in nest failure rates has occurred as birds move into less favourable habitats, such as inland wet meadows, and the risk of nest trampling has increased. Climate change is thought to be a major driver of earlier laying dates.

There have been widespread declines across Europe. The cause for this increase inland is not yet understood.

SIGNIFICANT CHANGES

A large proportion of the UK bird species are in England. Teamed with the relatively large area of England, therefore, trends for England tend to be similar to those in the UK.

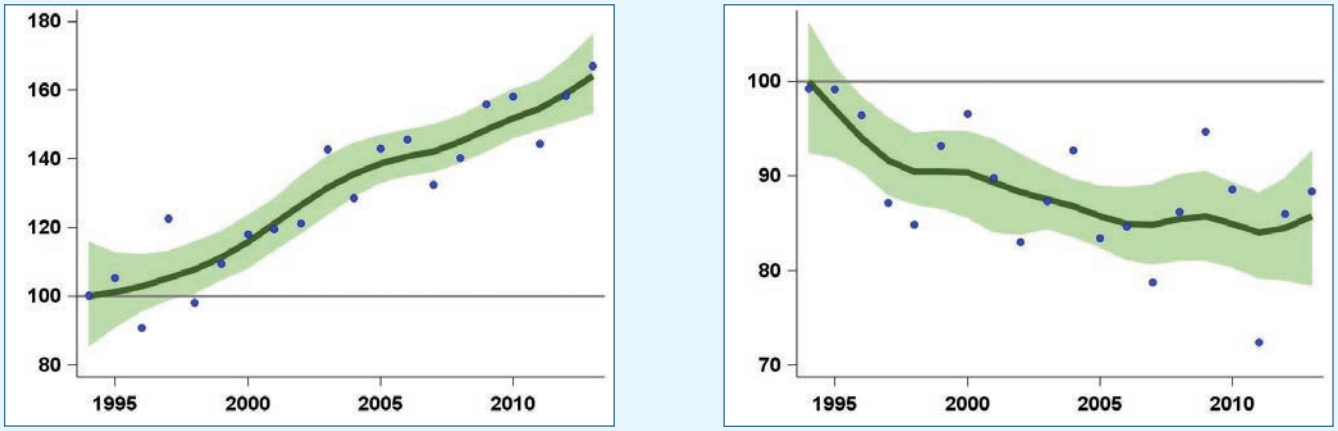
Overall, 2013 was not a good year for numbers. Two short-term significant increases and 30 short-term decreases were revealed in trends running from 2012 to 2013. Of these trends, only **Jay** (15%) and **Whitethroat** (6%) made short-term increases and **Kestrel** (35%), **Tawny Owl** (33%), **Goldcrest** (32%) and **Grey Partridge** (32%) showed the greatest short-term declines.

'ADD-ON' SQUARES

Data from additional squares in English uplands, surveyed by professional fieldworkers, were included in trends for all species. Add-on squares were surveyed using the same methodology as standard BBS squares, and the difference in sampling was accounted for in the trend calculations.

OYSTERCATCHER: JILL PAKENHAM

BBS index for Oystercatcher, England (left) and UK (right), 1994–2013



Oystercatcher trends showing smoothed trend (dark green), its confidence interval (pale green) and annual index values (dots)

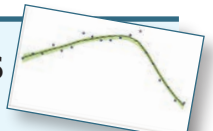
Table 3 Trends in England during 2012–13 and 1995–2012

Species	Sample	12–13	95–12	LCL	UCL
Mute Swan	214	-7	15	-9	47
Greylag Goose	169	14	278 *	120	559
Canada Goose	445	16	34 *	3	79
Shelduck	119	2	19	-15	44
Gadwall	37	23	107 *	31	285
Mallard	1,098	0	28 *	16	41
Tufted Duck	135	1	36 *	2	72
Red-legged Partridge	537	-15 *	13 *	2	25
Red Grouse	86	-1	7	-20	37
Grey Partridge	203	-32 *	-52 *	-60	-41
Pheasant	1,537	3	32 *	23	40
(Cormorant)	199	-1	17	-12	52
(Little Egret)	31	12	1,636	not estimable	
(Grey Heron)	538	-4	-19 *	-30	-8
Little Grebe	54	30	3	-35	53
Great Crested Grebe	65	-11	-9	-29	17
Red Kite	76	6	>10,000*	4,950	13,807
Sparrowhawk	290	-27 *	-7	-18	7
Buzzard	653	-5	175 *	128	226
Moorhen	594	3	-15 *	-23	-6
Coot	243	0	21	0	47
Oystercatcher	186	5	57 *	33	86
Lapwing	572	5	-25 *	-34	-16
Curlew	338	2	-30 *	-39	-23
Common Sandpiper	30	0	-29	-58	15
Redshank	61	17	-28 *	-49	-4
Snipe	90	17	-13	-31	10
(Common Tern)	61	-12	25	-22	146
Feral Pigeon	561	9	-26 *	-36	-12
Stock Dove	727	-3	8	-6	22
Woodpigeon	1,999	-1	46 *	38	54
Collared Dove	1,184	1	15 *	8	27
Turtle Dove	145	-13	-88 *	-91	-85
Cuckoo	559	-17 *	-68 *	-71	-65
(Barn Owl)	43	27	273 *	147	452
Little Owl	93	-25	-50 *	-61	-36
(Tawny Owl)	78	-33 *	-26	-43	3
Swift	892	-2	-36 *	-48	-23
Kingfisher	47	3	-33 *	-52	-9
Green Woodpecker	760	-2	49 *	38	61
Gt Spotted Woodpecker	935	0	116 *	102	136
Kestrel	585	-35 *	-21 *	-27	-11
Hobby	41	-16	6	-31	59
Ring-necked Parakeet	64	-2	1,061 *	356	4,942
Magpie	1,585	-1	-1	-7	5
Jay	666	15 *	16 *	4	26
Jackdaw	1,380	-4	61 *	48	75
Rook	1,041	-7	-12 *	-23	-1
Carrion Crow	1,953	0	25 *	14	34
Raven	134	-10	8	-57	326
Goldcrest	546	-32 *	13	0	36

Species	Sample	12–13	95–12	LCL	UCL
Blue Tit	1,880	-3 *	4	-1	9
Great Tit	1,779	0	36 *	30	42
Coal Tit	544	-11 *	20 *	5	43
Willow Tit	44	-21	-83 *	-89	-77
Marsh Tit	133	-14	-31 *	-44	-14
Skylark	1,388	-17 *	-25 *	-29	-21
Sand Martin	84	20	4	-35	37
Swallow	1,525	-20 *	35 *	25	45
House Martin	730	-21 *	-27 *	-38	-14
Long-tailed Tit	844	-26 *	10 *	1	25
Chiffchaff	1,261	-27 *	86 *	77	99
Willow Warbler	939	-6	-34 *	-39	-27
Blackcap	1,359	-14 *	113 *	100	128
Garden Warbler	363	-6	-28 *	-36	-19
Lesser Whitethroat	258	-10	-5	-21	9
Whitethroat	1,168	6 *	34 *	26	45
Grasshopper Warbler	38	-14	-37	-53	4
Sedge Warbler	190	-3	-7	-27	23
Reed Warbler	121	-18	21 *	1	53
Nuthatch	418	-9 *	92 *	68	116
Treecreeper	262	-22 *	0	-14	17
Wren	1,919	-7 *	-4 *	-10	-1
Starling	1,426	3	-59 *	-63	-56
Blackbird	1,975	-4 *	18 *	14	23
Song Thrush	1,551	-6 *	10 *	4	16
Mistle Thrush	921	-2	-42 *	-47	-37
Spotted Flycatcher	136	-25 *	-63 *	-72	-52
Robin	1,876	1	13 *	9	17
Nightingale	32	-20	-41 *	-60	-5
Redstart	95	8	20	-5	51
Whinchat	34	9	-41 *	-67	-13
Stonechat	68	-20	-11	-48	44
Wheatear	199	-8	30 *	1	70
Dunnock	1,684	-5 *	15 *	9	22
House Sparrow	1,312	-9 *	-11 *	-18	-2
Tree Sparrow	142	-17	81 *	42	143
Yellow Wagtail	154	-14	-43 *	-53	-30
Grey Wagtail	144	24	-17	-34	3
Pied Wagtail	953	-11 *	-17 *	-24	-9
Tree Pipit	74	-8	-48 *	-66	-22
Meadow Pipit	444	-1	-12 *	-23	-2
Chaffinch	1,945	-6 *	9 *	6	14
Bullfinch	469	-18 *	5	-6	16
Greenfinch	1,508	-10 *	-21 *	-27	-16
Linnet	974	-28 *	-23 *	-29	-14
Lesser Redpoll	69	-24	21	-18	95
Goldfinch	1,343	-10 *	104 *	86	118
Siskin	68	-33	101	-8	377
Yellowhammer	1,029	-11 *	-24 *	-28	-19
Reed Bunting	378	5	24 *	7	43
Corn Bunting	137	-14	-35 *	-50	-21

- Trends are percentage changes, and are marked with an asterisk (*) where the 95% confidence limits of the change do not overlap zero (indicating that there has been a significant change).
- Trends for species in brackets are reported with caveats (see p15).
- The sample is the mean number of squares per year on which the species was recorded during 1994–2013.
- The trend since the start of the survey, covering the years 1994–2013, has been smoothed, and the end years truncated. This trend is labelled as 1995–2012.
- LCL and UCL are the lower and upper 95% confidence limits for the 1995–2012 trend.
- Red-listed and amber-listed species from 'Birds of Conservation Concern 3' are shown in the relevant colour.

TREND GRAPHS ONLINE:



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POPULATION TRENDS

Scotland

Kestrels decreased by 65% in Scotland between 1995 and 2012

Scotland-specific bird trends for 62 species reveal that 16 species have increased significantly since the survey started

Trends are calculated for species recorded on an average of at least 30 BBS squares in Scotland per year. **Tree Sparrow**, **Stock Dove**, **Greylag Goose** and **Common Crossbill** are just under the threshold for reporting trends. Increased coverage or species abundance could result in trends for these species being calculated in the future.

AERIAL FEEDERS

Long-term trends (1995–2012) show **House Martins** are increasing in Scotland (125%) and declining in England (27%). The drivers for these trends are largely unknown. The long-term BBS data-set is vital in monitoring common and widespread species and, in turn, highlighting species in need of further, tailored monitoring. **Swift** is in long-term decline in Scotland (62%), as in the UK as a whole (38%). A reduction in suitable nesting sites is thought to be a possible factor in their decline. In 2013, **Sand Martin** reached the sample threshold and trends are now run for this species.

WADER WOES

Curlew are in long-term decline throughout the UK (43%) and in Scotland they declined by 55% between 1995 and 2012. Drainage of farmland and other habitat loss in the lowlands and reduced breeding success in the uplands appear to be the biggest problems. **Lapwing** is another wader in long-term decline in Scotland (58%); research shows afforestation and changes in agricultural practice have shaped the decline in the uplands. Increased coverage could expand our ability to monitor **Golden Plover** populations in Scotland; currently the trends are not statistically significant.

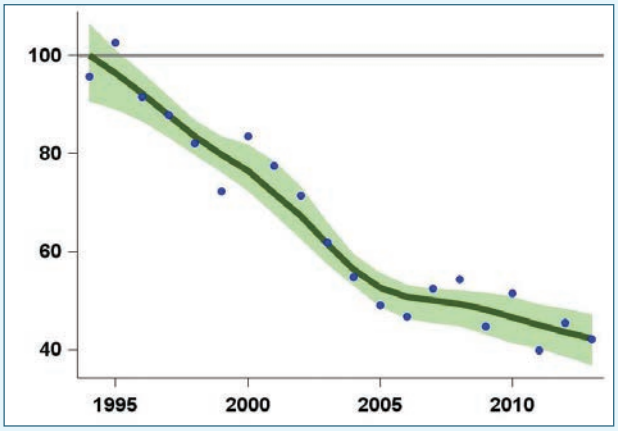
SIGNIFICANT CHANGES

Sixty-two Scottish bird trends were calculated. Of these, 28 were significant since the start of the survey, with 16 species having increased in this time. The steepest declines between 1995 and 2012 were for **Kestrel** (65%), **Swift** (62%), **Lapwing** (58%) and **Curlew** (55%). The greatest increases were for **Chiffchaff** (457%), **Blackcap** (372%), **Great Spotted Woodpecker** (369%) and **Goldfinch** (160%).

'ADD-ON' SQUARES

Data from additional squares in Scottish woodlands were included in trends for all species recorded. Add-on squares were surveyed using the same methodology as standard BBS squares, and the difference in sampling was accounted for in the trend calculations.

Curlews declined by 55% in Scotland between 1995 and 2012



Curlew trend for Scotland showing smoothed trend (dark green), its confidence interval (pale green) and annual index values (dots)

CURLEW: MARGARET HOLLAND, KESTREL: JOHN HARDING

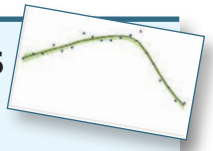
Table 4 Trends in Scotland during 2012–13 and 1995–2012

Species	Sample	12–13	95–12	LCL	UCL
Mallard	105	-16	-14	-28	12
Red Grouse	52	-21	-6	-31	20
Pheasant	141	2	18	-2	42
(Grey Heron)	51	-27	3	-25	32
Buzzard	143	-14	24	-2	56
Oystercatcher	133	3	-26*	-39	-16
Golden Plover	38	-19	-19	-39	15
Lapwing	88	17	-58*	-67	-46
Curlew	125	-7	-55*	-63	-45
Common Sandpiper	33	0	-12	-35	14
Snipe	58	2	13	-10	43
Feral Pigeon	65	21	8	-35	79
Woodpigeon	210	-8	11	-10	38
Collared Dove	54	15	0	-32	43
Cuckoo	72	14	3	-20	31
Swift	52	88*	-62*	-72	-46
Gt Spotted Woodpecker	49	9	369*	236	525
Kestrel	41	-49*	-65*	-77	-45
Magpie	50	-14	25	-8	100
Jackdaw	121	-27*	21	-9	56
Rook	114	-40*	-35*	-53	-9
Carrion Crow	196	21	1	-16	25
Hooded Crow	52	-21	-29	-50	15
Raven	47	35	36	-18	114
Goldcrest	92	-27*	-4	-36	29
Blue Tit	167	-12	5	-9	19
Great Tit	154	3	56*	27	85
Coal Tit	132	-28*	1	-16	25
Skylark	211	1	-27*	-37	-12
Sand Martin	31	16	42	-29	407
Swallow	180	-12	37*	8	61

Species	Sample	12–13	95–12	LCL	UCL
House Martin	67	-38*	125*	32	277
Long-tailed Tit	30	-72*	38	-16	137
Chiffchaff	51	-7	457*	242	867
Willow Warbler	215	-18*	29*	11	45
Blackcap	61	-30*	372*	213	718
Whitethroat	83	3	93*	38	171
Sedge Warbler	56	-13	29	-16	100
Treecreeper	37	-14	1	-35	40
Wren	224	2	1	-14	16
Starling	150	-3	-33*	-52	-17
Blackbird	199	-3	31*	10	54
Song Thrush	176	8	-8	-24	11
Mistle Thrush	76	-21	-18	-46	14
Robin	199	0	8	-7	22
Stonechat	35	-24	-21	-57	32
Wheatear	81	-10	-16	-36	14
Dunnock	142	3	61*	30	94
House Sparrow	97	-7	40*	12	90
Grey Wagtail	31	-47	-41*	-63	-1
Pied Wagtail	136	-7	-12	-28	11
Tree Pipit	33	14	86*	24	162
Meadow Pipit	212	-7	-25*	-35	-13
Chaffinch	242	-7	13*	4	26
Bullfinch	41	-38*	26	-18	63
Greenfinch	106	-36*	-32*	-50	-14
Linnet	91	-7	-29*	-47	-3
Lesser Redpoll	47	-45*	31	-13	98
Goldfinch	95	-28*	160*	73	281
Siskin	76	-39*	65*	13	127
Yellowhammer	109	-8	35*	9	61
Reed Bunting	60	24	1	-36	44

- Trends are percentage changes, and are marked with an asterisk (*) where the 95% confidence limits of the change do not overlap zero (indicating that there has been a significant change).
- Trends for species in brackets are reported with caveats (see p15).
- The sample is the mean number of squares per year on which the species was recorded during 1994–2013.
- The trend since the start of the survey, covering the years 1994–2013, has been smoothed, and the end years truncated. This trend is labelled as 1995–2012.
- LCL and UCL are the lower and upper 95% confidence limits for the 1995–2012 trend.
- Red-listed and amber-listed species from 'Birds of Conservation Concern 3' are shown in the relevant colour.

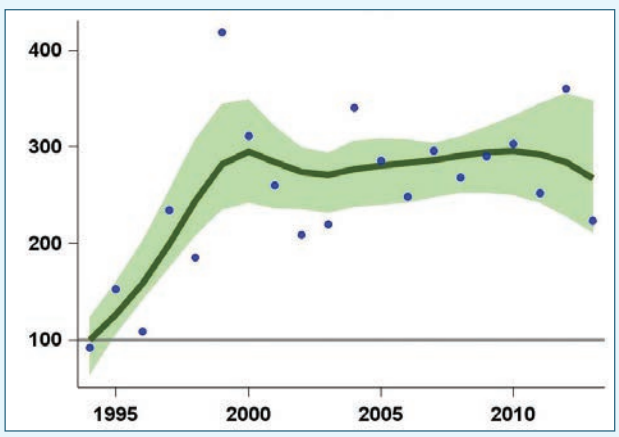
TREND GRAPHS ONLINE:



www.bto.org/bbs/graphs

BBS index for House Martin, Scotland, 1994–2013

HOUSE MARTIN: DAVID HUTTON



House Martin trend for Scotland showing smoothed trend (dark green), its confidence interval (pale green) and annual index values (dots)

POPULATION TRENDS

Wales

Yellowhammer decreased by 59% in Wales between 1995 and 2012

Wales-specific trends for 54 species, including Stock Dove for the first time

Trends are calculated for species recorded on an average of at least 30 BBS squares in Wales per year. **Stock Dove** reached the reporting threshold, undoubtedly thanks to the record coverage in Wales in 2013. **Reed Bunting**, **Siskin**, **Canada Goose** and **Grey Wagtail** remain just under the sample threshold for reporting trends. Increased coverage or species abundance could result in trends for these species being calculated in the future.

HOUSE SPARROW INCREASE

House Sparrow abundance has increased by 96% in Wales since the start of the survey. The last 25 years have seen a decline in abundance in the UK as a whole but this has been shown by BBS trends to vary between habitats and regions. Although declines are greater in urban than in rural areas, breeding performance is the same in both situations. This suggests other factors are causing the breeding performance to vary spatially, as is seen when comparing Welsh and English trends. Trends are not so positive for **Starlings** where the population decline was 70% from 1995 to 2012. Changes in agricultural practices have been found to have reduced food availability (see page 5).

SIGNIFICANT CHANGES

The greatest long-term increases in Wales between 1995 and 2012 were for **Great Spotted Woodpecker** (193%), **Blackcap** (124%), **House Sparrow** (96%) and **Goldfinch** (80%). The species to have declined the most long-term are **Starling** (70%), **Yellowhammer** (59%), **Curlew** (56%) and **Goldcrest** (52%). Overall, trends for 24 species have changed significantly, of which 15 have increased and nine decreased, including **Magpie** (33%). Although an overall decline has been seen for **Magpie** during the BBS, prior to the survey, the population increased greatly and now looks to have been fluctuating at a more stable level throughout the BBS period.

MAGPIE: JILL PAKENHAM

Table 5 Trends in Wales during 2012–13 and 1995–2012

Species	Sample	12–13	95–12	LCL	UCL
Mallard	67	-12	-17	-55	46
Pheasant	94	-8	35*	7	79
(Grey Heron)	42	-6	-16	-39	20
Buzzard	141	-13	-1	-19	23
Curlew	35	-11	-56*	-72	-33
Feral Pigeon	34	-44*	43	-16	137
Stock Dove	31	25	75*	1	243
Woodpigeon	188	-15*	26*	7	51
Collared Dove	73	5	4	-37	70
Cuckoo	57	0	-43*	-66	-21
Swift	65	-47*	-43*	-59	-3
Green Woodpecker	46	11	-38*	-61	-11
Gt Spotted Woodpecker	79	10	193*	107	294
Magpie	162	-16*	-33*	-54	-1
Jay	74	12	37	0	67
Jackdaw	139	-9	25	-15	86
Rook	78	57	-24	-51	12
Carrion Crow	203	5	15	-4	35
Raven	90	-13	29	-17	108
Goldcrest	81	-20	-52*	-67	-21
Blue Tit	178	-7	11	-3	28
Great Tit	171	-1	48*	30	73
Coal Tit	74	-23*	-23	-47	12
Skylark	103	-9	-5	-25	16
Swallow	172	-9	38*	13	65
House Martin	87	-33*	1	-26	42
Long-tailed Tit	60	-52*	26	-3	92

Species	Sample	12–13	95–12	LCL	UCL
Chiffchaff	140	-32*	59*	31	99
Willow Warbler	160	-3	-7	-22	14
Blackcap	124	-33*	124*	89	204
Garden Warbler	57	-20	-11	-37	34
Whitethroat	83	2	-9	-22	9
Nuthatch	71	-9	44*	4	81
Treecreeper	40	19	10	-26	47
Wren	197	-3	-14	-29	1
Starling	79	7	-70*	-80	-60
Blackbird	197	-9*	38*	26	52
Song Thrush	167	-7	14	-3	28
Mistle Thrush	100	-12	-1	-26	32
Robin	193	-8	-17*	-26	-7
Redstart	59	-18	46*	18	88
Stonechat	35	-49*	59*	1	180
Wheatear	53	-2	-9	-32	15
Dunnock	153	-23*	35*	13	56
House Sparrow	125	-5	96*	60	137
Pied Wagtail	114	-27*	0	-21	32
Tree Pipit	33	-16	1	-34	52
Meadow Pipit	87	-8	-6	-20	10
Chaffinch	198	-5	-8	-24	7
Bullfinch	63	-12	-7	-29	21
Greenfinch	112	-8	-15	-39	1
Linnet	91	-18	-28	-46	2
Goldfinch	128	-12	80*	41	129
Yellowhammer	34	-10	-59*	-69	-41

POPULATION TRENDS

Northern Ireland

Northern-Ireland-specific population trends for 35 species

Trends are calculated for species recorded on an average of at least 30 BBS squares in Northern Ireland per year. **Lesser Redpoll** and **Buzzard** reached the threshold for population trends to be calculated and **Sedge Warbler**, **Mallard**, **Raven** and **Grey Heron** remain just below the reporting threshold. Increased coverage or species abundance could result in trends for these species being calculated in the future.

LINNET LOW

Linnets suffered a short-term decline of 37% between 2012 and 2013. Little is known about the drivers of **Linnet** population change. The breeding performance of **Linnet** shows complex spatial variations. Research found no trend-specific difference in adult and first-year survival rates and research studies suggest that breeding performance, food availability and the number of nesting attempts during a breeding season combine to influence the population trends.

SIGNIFICANT CHANGES

Since the start of the BBS, 11 species have increased significantly, the greatest changes being for **Great Tit** (163%), **Hooded Crow** (138%) and **Pheasant** (124%). Two have decreased significantly: these are **Skylark** (54%) and **Meadow Pipit** (29%). The latter is now moved from green to red on the 2014–19 Birds of Conservation Concern in Ireland list, produced by BirdWatch Ireland and the RSPB, for Northern Ireland and the Republic of Ireland combined.

LINNET: JILL PAKENHAM

Channel Islands and the Isle of Man

A new record of 25 squares were covered on the Channel Islands, and 79 species were recorded. No BBS squares were surveyed in the Isle of Man in 2013.

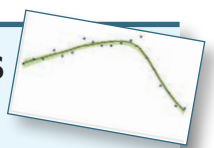
Table 6 Trends in Northern Ireland during 2012–13 and 1995–2012

Species	Sample	12–13	95–12	LCL	UCL
Pheasant	41	-17	124*	21	261
Buzzard	30	-19	>10,000	not estimable	
Woodpigeon	82	-10	88*	42	145
Collared Dove	32	-36*	110*	8	199
Magpie	82	-5	16	-14	49
Jackdaw	75	-13	108*	43	176
Rook	72	-26*	-8	-39	40
Hooded Crow	80	1	138*	69	211
Goldcrest	44	5	14	-30	39
Blue Tit	75	7	0	-30	31
Great Tit	72	-15*	163*	87	216
Coal Tit	62	-30*	80*	22	138
Skylark	32	-5	-54*	-65	-47
Swallow	83	-3	0	-25	43
House Martin	43	17	82*	8	205
Chiffchaff	34	-50*	21	-8	63
Willow Warbler	78	-21*	92*	35	134
Blackcap	36	-30	>10,000	not estimable	

Species	Sample	12–13	95–12	LCL	UCL
Wren	90	11*	13	-15	55
Starling	78	27	30	-1	95
Blackbird	85	-1	31	-6	60
Song Thrush	75	2	18	-12	60
Mistle Thrush	57	-4	-17	-65	53
Robin	87	9	-1	-24	17
Dunnock	68	4	63*	3	124
House Sparrow	53	-7	58	-9	156
Pied Wagtail	44	26	31	not estimable	
Meadow Pipit	62	4	-29*	-46	-2
Chaffinch	89	2	51*	13	71
Bullfinch	32	-26	20	-29	37
Greenfinch	49	-20	-15	-49	38
Linnet	36	-37*	13	-37	68
Lesser Redpoll	30	-4	80	not estimable	
Goldfinch	48	-39	814	not estimable	
Reed Bunting	32	4	-19	-53	67

- Trends are percentage changes, and are marked with an asterisk (*) where the 95% confidence limits of the change do not overlap zero (indicating that there has been a significant change).
- Trends for species in brackets are reported with caveats (see p15).
- The sample is the mean number of squares per year on which the species was recorded during 1994–2013.
- The trend since the start of the survey, covering the years 1994–2013, has been smoothed, and the end years truncated. This trend is labelled as 1995–2012.
- LCL and UCL are the lower and upper 95% confidence limits for the 1995–2012 trend.
- Red-listed and amber-listed species from 'Birds of Conservation Concern 3' are shown in the relevant colour.

TREND GRAPHS ONLINE:



www.bto.org/bbs/graphs

POPULATION TRENDS

English regions

Snipe joins the 78 species with population trends in English regions

Population trends for 78 common and widespread birds in different regions of England since 1995

Trends are reported for species found on an average of at least 30 squares per year in that region. More detailed information is available on the BBS website, including population changes between 2012 and 2013 and population trend graphs.

NORTH WEST
Garden Warbler and **Tree Sparrow** bring the total species trends to 57.

NORTH EAST
Thirty-five species trends, now with **Mallard**, **Collared Dove** and **Swift**.

YORKSHIRE
An increase of four species; **Greylag Goose**, **Canada Goose**, **Grey Partridge** and **Snipe**, creates a total of 54 species trends.

EAST MIDLANDS
No changes to the 2012 species trend list. The list remains at 54 species trends.

EAST OF ENGLAND
Sixty-six species trends with the addition of **Oystercatcher**.

WEST MIDLANDS
Fifty-one species trends with no changes to the 2012 species trend list.

SOUTH EAST
Remains with 67 species trends as **Greylag Goose** joins the list and **Spotted Flycatcher** no longer reaches the 30-square threshold.

SOUTH WEST
Reduction to 60 species trends as **Spotted Flycatcher** no longer reaches the 30-square threshold in any region.

LONDON
The addition of **Green Woodpecker** and **Chiffchaff** bring the total of species trends to 27.

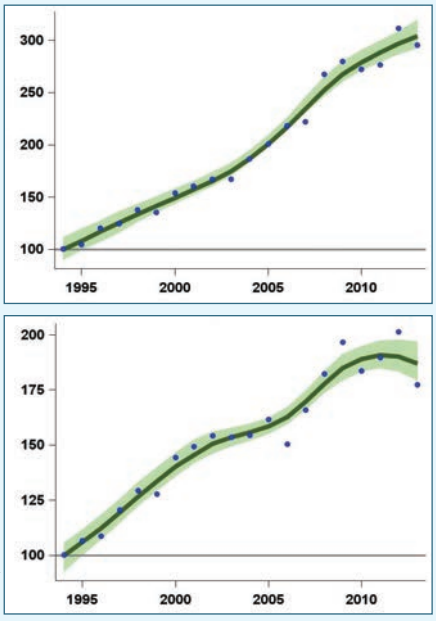
Region		Counties	Squares 2013
1	North West	Cheshire, Cumbria, Lancashire, Greater Manchester, Merseyside	284
2	North East	Cleveland, County Durham, Northumberland	107
3	Yorkshire & Humber	East Yorkshire, North Lincolnshire, North Yorkshire, South Yorkshire, West Yorkshire	277
4	East Midlands	Derbyshire, Northamptonshire, Leicestershire & Rutland, Lincolnshire, Nottinghamshire	283
5	East of England	Bedfordshire, Cambridgeshire, Essex, Hertfordshire, Norfolk, Suffolk	380
6	West Midlands	Birmingham, Herefordshire, Shropshire, Staffordshire, Warwickshire, Worcestershire	218
7	South East	Berkshire, Buckinghamshire, Hampshire, Isle of Wight, Kent, Oxfordshire, Surrey, Sussex	619
8	South West	Avon, Cornwall, Devon, Dorset, Gloucestershire, Somerset, Wiltshire	438
9	London	Greater London	111

Buzzard movement east

Buzzard increases have varied across English regions over the last 20 years. The map to the right shows how the population trends have varied across those where the sample size reached the threshold.

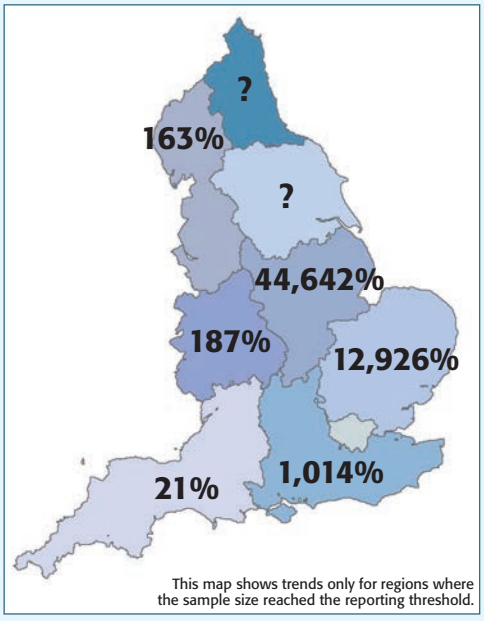
The BBS index for Buzzard in the UK appears to be stabilising, whereas the English index continues to increase. As the population reaches its carrying capacity throughout England, will the index value stabilise for England too?

BBS index for Buzzard, England (above) and UK (below), 1994–2013



Buzzard trends showing smoothed trend (dark green), its confidence interval (pale green) and annual index value (dots)

Buzzard increase across English regions between 1995 and 2012



This map shows trends only for regions where the sample size reached the reporting threshold.

Table 7 Trends in English regions during 1995–2012

Species	North West		North East		Yorkshire		East Midlands		East of England		West Midlands		South East		South West		London	
Mute Swan									**31**	42			**5**	55	**12**	33		
Greylag Goose					**867***	32			**117***	42			**88**	31				
Canada Goose	**88***	67			**186***	31	**102***	40	**1**	55	**4**	66	**15**	109	**13**	45		
Shelduck									**32**	35								
Mallard	**18**	157	**58**	31	**33***	98	**25***	101	**3**	187	**101***	113	**20**	225	**45***	147	**-13**	41
Red-legged Partridge					**15**	49	**-34***	76	**-11**	176	**40**	35	**97***	117	**136***	54		
Red Grouse					**78***	47												
Grey Partridge					**-64***	30	**-43***	31	**-41***	43			**-73***	32				
Pheasant	**112***	140	**36**	67	**76***	138	**21**	145	**-12**	269	**77***	135	**23***	374	**54***	262		
(Cormorant)									**-12**	47			**71**	44	**-32**	32		
(Grey Heron)	**-27***	79			**-33**	34	**-11**	49	**-41***	81	**-3**	58	**-14**	118	**-17**	79		
Red Kite													**7,624***	52				
Sparrowhawk	**-34**	33							**-3**	46			**-14**	66	**3**	47		
Buzzard	**163***	71					**>10,000***	41	**>10,000***	46	**187***	90	**1,014***	139	**21***	215		
Moorhen	**-38***	70			**12**	38	**-22**	57	**-17**	125	**-23**	60	**-20***	140	**1**	64		
Coot	**8**	31							**-10**	38			**28**	62				
Oystercatcher	**13**	58			**208***	42			**102***	30								
Lapwing	**-27***	115	**-15**	45	**9**	104	**-6**	61	**-20**	73	**-21**	39	**-47***	104				
Curlew	**-48***	94	**-40***	48	**24***	107												
Snipe					**1**	35												
Feral Pigeon	**-31**	75			**-36**	58	**-29**	47	**-22**	74	**-47***	43	**-22***	106	**-24**	66	**-23***	69
Stock Dove	**117***	56			**29**	50	**-43***	70	**-6**	136	**44***	81	**14**	187	**14**	118		
Woodpigeon	**63***	215	**20**	78	**92***	158	**39***	182	**54***	314	**30***	176	**29***	465	**47***	332	**55***	78
Collared Dove	**44***	131	**-6**	30	**-8**	76	**26***	106	**68***	207	**-25**	114	**6**	286	**16**	184	**15**	51
Turtle Dove									**-89***	68			**-88***	49				
Cuckoo	**-51***	35			**-63***	42	**-84***	51	**-69***	111	**-72***	54	**-63***	166	**-77***	77		
Swift	**-42***	112	**-52***	31	**-6**	81	**-46**	79	**-23**	149	**-29***	75	**-47***	168	**-54***	140	**-52***	57
Green Woodpecker							**179***	41	**143***	162	**24**	62	**35***	297	**15**	125	**78***	30
Gt Spotted Woodpecker	**120***	88			**90***	44	**145***	56	**74***	143	**135***	100	**108***	291	**152***	152	**87***	35
Kestrel	**-19**	72			**-44***	56	**4**	60	**-17**	106	**-17**	43	**-26***	133	**-32***	76		
Ring-necked Parakeet																	**>10,000***	35
Magpie	**-7**	183	**-14**	31	-18	**93**	**11**	135	**29***	234	**-15***	157	**10***	397	**-9**	278	**28***	77
Jay	**59**	69							**58***	112	**-12**	60	**-4**	222	**14**	103	**2**	38
Jackdaw	**80***	138	**4**	57	55*	**109**	**122***	109	**125***	211	**72***	133	**71***	348	**37***	258		
Rook	**-44***	91	**-21**	46	-45*	**102**	**25**	91	**8**	175	**10**	84	**9**	238	**-16**	210		
Carrion Crow	**56***	225	**-9**	77	69*	**164**	**50***	169	**91***	290	**4**	174	**12**	448	**2**	329	**52***	78
Raven															**-21**	62		
Goldcrest	**58**	43							**35**	68	**53***	41	**10**	180	**-14**	123		
Blue Tit	**-4**	203	**-27***	59	10	**140**	**22**	167	**16***	291	**-4**	174	**9***	453	**2**	317	**25***	77
Great Tit	**38***	188	**-1**	53	48*	**121**	**56***	154	**21***	276	**34***	169	**25***	441	**54***	306	**137***	72
Coal Tit	**34**	70	12	**39**	146*	**40**	**23**	36	**0**	60	**74***	47	**-14**	142	**4**	97		
Marsh Tit													**-30***	51				
Skylark	**-33***	125	**-39***	67	15	140	**-32***	148	**-23***	268	**-24***	112	**-29***	305	**31**	213		
Swallow	**25***	197	**39***	71	38*	149	**130***	141	**29***	221	**62***	140	**19**	307	**59***	284		
House Martin	**-26**	99			-9	64	**-32**	55	**-29***	99	**-23**	79	**-57***	146	**-16**	144		
Long-tailed Tit	**19**	82			53	47	**53***	72	**24**	144	**-5**	85	**-19***	232	**20**	136	**68***	31
Chiffchaff	**247***	96	**166***	36	245*	65	**316***	86	**93***	193	**130***	133	**41***	347	**44***	276	**166***	30
Willow Warbler	**12**	149	**-12**	65	0	112	**-36***	90	**-76***	117	**-21**	90	**-73***	153	**-52***	154		
Blackcap	**206***	112	**64***	37	**95***	78	**105***	109	**83***	229	**120***	130	**111***	365	**141***	258	**153***	42
Garden Warbler	**-30**	30					**35**	32	**-40***	58	**-17**	44	**-32***	97	**-15**	62		
Lesser Whitethroat							**2**	32	**2**	70			**-34***	54	**-19**	40		
Whitethroat	**23**	85	**49***	36	**10**	75	**82***	126	**14***	239	**42***	102	**62***	284	**38***	197		
Sedge Warbler									**-17**	46			**7**	34	**10**	32		
Reed Warbler									**-13**	40			**5**	31				
Nuthatch	**335***	38									**159***	48	**54***	171	**92***	80		
Treecreeper													**4**	88	**-14**	47		
Wren	**16***	214	**-14**	73	**-2**	163	**7**	172	**0**	288	**-5**	170	**-11***	443	**-5**	325	**28***	72
Starling	**-57***	175	**-62***	55	**-57***	116	**-54***	127	**-46***	229	**-65***	130	**-64***	327	**-70***	192	**-51***	76
Blackbird	**47***	214	**-3**	68	**45***	155	**21***	179	**0**	306	**35***	177	**0**	465	**24***	334	**-26***	78
Song Thrush	**44***	163	**-22**	59	**25***	105	**27**	126	**-14***	226	**80***	146	**-13***	402	**20***	276	**-35***	49
Mistle Thrush	**-10**	123	**-22**	38	**-51***	78	**-30***	82	**-61***	134	**-4**	86	**-59***	224	**-41***	123	**-52***	33
Robin	**25***	204	**-12**	66	**22***	136	**20***	167	**16***	286	**26***	174	**1**	448	**9**	321	**82***	75
Wheatear	**-5**	54			**68***	45												
Dunnock	**29***	177	**6**	55	**0**	119	**23***	158	**13**	261	**36***	160	**-1**	401	**25***	294	**12**	58
House Sparrow	**18**	157	**-24**	39	**5**	91	**9**	114	**-35***	194	**-1**	138	**-34***	292	**18**	221	**-70***	66
Tree Sparrow	**204***	30			**232***	34	**53**	32										
Yellow Wagtail							**-67***	35	**-40***	47								
Grey Wagtail															**-38***	30		
Pied Wagtail	**-16**	129	**-18**	46	**-21**	96	**-41***	90	**-17**	147	**10**	84	**-24***	194	**-18***	145		
Meadow Pipit	**-8**	94	**-7**	54	**19**	101	**-14**	40	**-39**	43			**-42***	48	**145**	49		
Chaffinch	**23***	214	**4**	77	**31***	161	**40***	177	**26***	305	**-13**	173	**0**	454	**-4**	330	**137***	54
Bullfinch	**19**	40					**50**	43	**-11**	61	**30**	52	**-34***	128	**-4**	103		
Greenfinch	**-17**	154	**-9**	42	**-14**	100	**-5**	133	**-11**	249	**-5**	139	**-35***	367	**-34***	265	**41**	60
Linnet	**-24**	94	**-18**	46	**-6**	89	**-21**	109	**-19***	166	**10**	73	**-43***	216	**-26***	172		
Goldfinch	**140***	158	**70***	48	**145***	109	**148***	120	**63***	198	**254***	119	**49***	302	**88***	245	**327***	44
Yellowhammer	**-37***	57	**-46***	40	**-16**	81	**0**	128	**-18***	214	**-39***	104	**-32***	244	**-14**	158		
Reed Bunting	**11**	63			**25**	41	**67***	56	**34***	79			**-29***	59	**81**	32		
Corn Bunting									**-17**	39			**-63***	30				

- This table shows the smoothed trend since the start of the survey (in bold) and sample sizes (regular).
- The sample is the mean number of squares per year on which the species was recorded during 1994–2013.
- Trends are percentage changes, and are marked with an asterisk (*) where the 95% confidence limits of the change do not overlap zero (indicating that there has been a significant change).
- Red-listed and amber-listed species from 'Birds of Conservation Concern 3' are shown in the relevant colour.
- Trends for species in brackets are reported with caveats (see p15).

BBS MAMMALS

Mammal monitoring

Mammal records received from 2,748 squares in 2013

Population trends for nine mammal species have been produced using counts made by BBS volunteers

Mammal records were received from 2,748 BBS squares. This is an increase of 141 squares since 2012. Records are based on mammals seen during BBS visits as well as records based on field signs or dead mammals and on local knowledge of the 1km square. This allows recording of a variety of species from the crepuscular **Hedgehog** to the diurnal **Brown Hare**.

Of the 2,748 BBS squares being monitored for mammals, 2,424 had live mammals which were seen and counted during a BBS visit. On 187 (6%) squares monitoring mammals, there was no evidence of mammals and, on the remaining 137 squares, only indirect evidence (local knowledge, signs of presence) was found.

Table 8 shows the trends for nine relatively widespread and visible mammal species. **Rabbit** and **Grey Squirrel** have both declined between 1995 and 2012: **Rabbit** by 56% and **Grey Squirrel** by 13%. The latter is quite a change from the 1995–2011 trend showing an increase of 56%. The drivers behind the sharp drop in numbers between 2012 and 2013 are unknown. Species that have increased significantly since 1995 are **Red Deer** by 26%, **Roe Deer** by 73% and **Reeves' Muntjac** by 114%. Although accounted for in the analyses, trends for species that herd, like **Red Deer,** should be interpreted with caution, as the presence or absence of a herd in a given BBS visit could heavily influence the overall trend for that species.

RED SQUIRREL: TOM MASON

All species recorded during the 2013 season are in Tables 9 and 10. Fifteen commonly recorded mammals can be found in Table 9 and a further 32 mammals are in Table 10. **Rabbit** remains the most commonly seen species, recorded on 1,725 squares. The trends show a decline in the population, however, thought to be a result of unstable, higher populations in previous years. **Reeves' Muntjac** were recorded on 197 squares, an increase from 171 in 2012. The significant increase of this species illustrates the value of recording non-native species.

European Beaver was a new addition to the species list and 2013 was the fourth year **Harbour Porpoise** has been recorded during a BBS. Five species of bat and four species of vole were also recorded.

More careful interpretation is required when looking at species detected mostly by signs or local knowledge but nethertheless it is possible to use this data in mammal trends. With mammals being recorded in less than 75% of the 3,671 squares covered in 2013, there is always the potential to receive more mammal data and all volunteers are encouraged to record mammals on their BBS squares whenever possible.

Table 8 UK mammal trends 1995–2013

Species	Trend 95–13	Sample
Brown Hare	**2**	636
Mountain/Irish Hare	**-33**	46
Rabbit	**-56 ***	1,281
Grey Squirrel	**-13 ***	653
Red Fox	**-11**	267
Red Deer	**26 ***	57
Roe Deer	**73 ***	357
Fallow Deer	**14**	55
Reeves' Muntjac	**114 ***	81

RED DEER: TOM MASON

Table 9 Commonly recorded mammals in 2013

Species	*Scientific name*	Squares recorded	Squares seen	Individuals
Grey Squirrel	*Sciurus carolinensis*	867	785	1,375
Brown Rat	*Rattus norvegicus*	87	22	31
Rabbit	*Oryctolagus cuniculus*	1,725	1,614	11,357
Brown Hare	*Lepus europaeus*	886	856	2,990
Mountain/Irish Hare	*Lepus timidus*	66	55	181
Hedgehog	*Erinaceus europaeus*	66	9	9
Mole	*Talpa europaea*	656	6	11
Domestic Cat	*Felis catus*	309	267	474
Red Fox	*Vulpes vulpes*	637	340	447
Badger	*Meles meles*	307	16	16
Stoat	*Mustela erminea*	61	25	35
Reeves' Muntjac	*Muntiacus reevesi*	197	160	199
Red Deer	*Cervus elaphus*	103	77	1,045
Fallow Deer	*Dama dama*	107	74	1,485
Roe Deer	*Capreolus capreolus*	667	559	1,212

◀ Table 8
- **Unsmoothed trends** (in bold) and sample sizes (regular).
- Population changes are shown for mammal species for which the sample size is at least 35 squares.
- Trends are percentage changes, and are marked with an asterisk (*) where significant at the 95% level or more.
- The sample is the mean number of squares on which the species was recorded each year during the survey period 1995–2013.

Tables 9 and 10 ▲ ▶
- **Squares recorded**: number of squares on which the species was recorded, including counts, field signs, dead animals and local knowledge.
- **Squares seen:** number of squares on which the species was seen and counted.
- **Individuals:** total number of individuals counted, taking the higher total from the two visits to each square.

Table 10 All other mammal species in 2013

Species	*Scientific name*	Squares recorded
Red Squirrel	*Sciurus vulgaris*	34
European Beaver	*Castor fiber*	1
Bank Vole	*Myodes glareolus*	19
Short-tailed Vole	*Microtus agrestis*	22
Orkney Vole	*Microtus arvalis*	3
Water Vole	*Arvicola amphibius*	7
Harvest Mouse	*Micromys minutus*	1
Wood Mouse	*Apodemus sylvaticus*	30
Yellow-necked Mouse	*Apodemus flavicollis*	3
House Mouse	*Mus domesticus*	12
Common Shrew	*Sorex araneus*	54
Pygmy Shrew	*Sorex minutus*	8
Water Shrew	*Neomys fodiens*	2
Lesser White-toothed Shrew	*Crocidura suaveolens*	1
Lesser Horseshoe Bat	*Rhinolophus hipposideros*	1
Daubenton's Bat	*Myotis daubentonii*	2
Noctule Bat	*Nyctalus noctula*	2
Pipistrelle Bat sp	*Pipistrellus pipistrellus/pygmaeus*	32
Brown Long-eared Bat	*Plecotus auritus*	3
Otter	*Lutra lutra*	35
Pine Marten	*Martes martes*	6
Weasel	*Mustela nivalis*	48
Polecat	*Mustela putorius*	1
American Mink	*Mustela vison*	21
Common Seal	*Phoca vitulina*	6
Grey Seal	*Halichoerus grypus*	4
Wild Boar	*Sus scrofa*	4
Sika Deer	*Cervus nippon*	16
Chinese Water Deer	*Hydropotes inermis*	8
Feral Goat	*Capra hircus*	7
Park Cattle	*Bos taurus*	1
Harbour Porpoise	*Phocoena phocoena*	1

20 YEARS BBS

SPECIAL THANKS

We would like to thank all surveyors and ROs for making the BBS the success it is today. Space does not permit all observers to be acknowledged individually here, but we would especially like to thank the ROs for their efforts.

BBS Regional Organisers in 2013:

ENGLAND

Avon	Dave Stoddard
Bedfordshire	Judith Knight
Berkshire	Sarah & Ken White
Birmingham & West Midlands	Steve Davies
Buckinghamshire	Roger Warren
Cambridgeshire	Mark Welch
Cheshire (Mid)	Paul Miller
Cheshire (North-East and South)	Mark Eddowes
Cleveland	Vic Fairbrother
Cornwall	Stephen Jackson (now Peter Kent)
Cumbria	Clive Hartley (now Colin Gay)
Derbyshire (North, South)	Dave Budworth
Devon	Stella Beavan
Dorset	**VACANT**
Durham	David Sowerbutts
Essex (North-East)	Ed Hutchings (now **VACANT**)
Essex (North-West)	Graham Smith
Essex (South)	**VACANT**
Gloucestershire	Gordon Kirk
Hampshire	Glynne Evans
Herefordshire	Chris Robinson
Hertfordshire	Chris Dee
Huntingdon & Peterborough	Mick Twinn
Isle of Wight	James Gloyn
Isles of Scilly	Will Wagstaff
Kent	Geoff Orton
Lancashire (East)	Tony Cooper
Lancashire (North-West)	Jean Roberts
Lancashire (South)	Stuart Piner
Leicestershire & Rutland	Dave Wright
Lincolnshire (East)	Phil Espin
Lincolnshire (North)	Chris Gunn
Lincolnshire (South)	Hugh Dorrington
Lincolnshire (West)	Peter Overton
London (North)	Ian Woodward
London (South)	Richard Arnold
Manchester	Judith Smith (now Antony Wainwright)
Merseyside	Bob Harris
Norfolk (North-East)	Chris Hudson
Norfolk (North-West)	Bob Osborne
Norfolk (South-East)	Rachel Warren
Norfolk (South-West)	Vince Matthews
Northamptonshire	Barrie Galpin
Northumberland	Muriel Cadwallender
Nottinghamshire	Lynda Milner
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Oxfordshire (South)	John Melling
Shropshire	Allan Dawes
Somerset	Penny Allwright (now Eve Tigwell)
Staffordshire (North, South, West)	Gerald Gittens
Suffolk	Mick Wright
Surrey	Penny Williams
Sussex	Helen Crabtree
The Wirral	Paul Miller
Warwickshire	Mark Smith
Wiltshire (North, South)	Bill Quantrill
Worcestershire	Harry Green
Yorkshire (Bradford)	Mike Denton
Yorkshire (Central)	Mike Brown
Yorkshire (East, Hull)	Geoff Dobbs
Yorkshire (Leeds & Wakefield)	Colin Bonnington
Yorkshire (North-East)	Mick Carroll
Yorkshire (North-West)	Gerald Light
Yorkshire (Richmond)	John Edwards
Yorkshire (South-East)	Aidan Gill
Yorkshire (South-West)	**VACANT**
Yorkshire (York)	Rob Chapman

SCOTLAND

Aberdeen	Paul Doyle (now Moray Souter)
Angus	Bruce Lynch (now **VACANT**)
Argyll (Mull, Coll, Tiree & Morven)	Rod Little (now Arthur Brown)
Argyll (mainland & Gigha) & Bute	**VACANT** (now Nigel Scriven)
Ayrshire	Brian Broadley
Benbecula & The Uists	Yvonne Benting
Borders	Graham Pyatt
Caithness	Donald Omand
Central	Neil Bielby
Dumfries	Edmund Fellowes
Fife & Kinross	Norman Elkins
Inverness (East & Speyside, West)	Hugh Insley
Islay, Jura & Colonsay	John Armitage
Kincardine & Deeside	Graham Cooper
Kirkcudbright	Andrew Bielinski
Lanark, Renfrew & Dunbarton	Andy Winnington
Lewis & Harris	Chris Reynolds
Lothian	Alan Heavisides
Moray & Nairn	Bob Proctor (now Melvin Morrison)
Orkney	Colin Corse
Perthshire	Richard Paul
Rhum, Eigg, Canna & Muck	Bob Swann
Ross-shire	Simon Cohen
Shetland	Dave Okill
Skye	Stephen Bentall
Sutherland	Bob Swann
Wigtown	Geoff Sheppard

WALES

BTO Wales Officer	John Lloyd
Anglesey	Geoff Gibbs
Brecknock	John Lloyd
Caernarfon	Geoff Gibbs
Cardigan	Moira Convery
Carmarthen	Terry Wells
Clwyd (East)	Anne Brenchley
Clwyd (West)	Mel ab Owain
Glamorgan (Mid, South)	Wayne Morris
Glamorgan (West)	Rhian Evans (now Lyndon Jeffery)
Gwent	Jerry Lewis
Merioneth	Rob Morton
Montgomery	Jane Kelsall
Pembrokeshire	Annie Haycock
Radnorshire	Carlton Parry

NORTHERN IRELAND

BTO Ireland Officer	Shane Wolsey
Antrim & Belfast	Ruth Wilson
Armagh	Stephen Hewitt
Down	Alastair McIlwain
Fermanagh	Michael Stinson
Londonderry	Lowell Mills (now **VACANT**)
Tyrone	Michael Stinson

CHANNEL ISLANDS

Channel Islands (excl. Jersey)	Phil Alexander
Jersey	Tony Paintin

ISLE OF MAN

Isle of Man	Pat Cullen

We would be grateful for help organising the BBS in regions currently without a Regional Organiser (marked **VACANT**). If you live in one of these regions and would be interested in taking on the role, please let us know.

Many thanks are due to the following ROs who retired during the past year, having supported the BBS in their regions: Penny Allwright, Paul Doyle, Rhian Evans, Clive Hartley, Ed Hutchings, Stephen Jackson, Rod Little, Bruce Lynch, Lowell Mills, Bob Proctor and Judith Smith.

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Finally, we would like to thank all the landowners who kindly allow volunteers to walk BBS transects on their land.

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BTO

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rspb giving nature a home

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