

# Breeding Bird Survey

## Title

BTO/JNCC/RSPB Breeding Bird Survey

## Description and Summary of Results

The Breeding Bird Survey (BBS) is a breeding-season survey designed to monitor the changes in numbers of birds each year across the UK. It was launched in 1994, after two years of trials, with the aim of improving the geographical scope of UK bird monitoring. The previous monitoring survey, the Common Birds Census (CBC) was carried out on only 200-300 sites each year, due to the more intensive survey methods employed. Trends from the two surveys have, however, been linked to enable production of a continuous set of trend data from the early 1960s to the present. BBS results are now increasingly being used to set conservation priorities by Government and non-Governmental organisations.

The BBS involves over 2500 (mostly volunteer) participants who survey more than 3200 sites, and these numbers enable BTO to monitor the annual population changes of over 100 bird species.

Population trends are generated for the UK as a whole, for the four constituent countries (England, Scotland, Wales and Northern Ireland) and for nine English Government Office Regions (North West, North East, Yorkshire & the Humber, East Midlands, East of England, West Midlands, South East, South West and London) although there are not enough data to enable trends for all species in all regions, as not all species occur throughout.

In addition to birds, many observers record the mammals and/or butterflies they see on their transects, although the butterflies are recorded on separate visits.

The results are used for many purposes and can be viewed most clearly in the published annual reports and on the Breeding Birds of the Wider Countryside website ([www.bto.org/birdtrends](http://www.bto.org/birdtrends)).

More details of the survey and taking part can be found at [www.bto.org/bbs](http://www.bto.org/bbs)

## Methods of Data Capture

Survey sites are randomly selected 1-km squares of the National Grid. Volunteers make two early-morning visits each year (the first in April or early May, and the second in late May or June) to their square to record the birds that are seen or heard while walking along a set transect route. This route ideally consists of two 1-km parallel straight lines 500m apart and 250m from the edge of the square. However, practical considerations mean that the actual route is usually a compromise between this and what is physically possible given the terrain and access permission. The route is divided into ten 200m sections, and in each section birds are recorded in three distance bands, within 25m, 25-100m and more than 100m from the transect line. Birds flying over are recorded separately.

Observers are also asked to record the main habitats on each section. This is normally done on a separate visit before the first bird recording visit.

The ideal is for each volunteer to survey the same square (or squares) each year.

Full instructions and recording forms are available from

<http://www.bto.org/volunteer-surveys/bbs/taking-part/download-forms-instructions>.

### **Purpose of Data Capture**

The aim of the BTO/JNCC/RSPB Breeding Bird Survey (BBS) is to monitor changes in the numbers of widespread bird species in the UK, using counts of birds along transects in a randomly selected series of 1-km squares of the National Grid.

### **Geographic Coverage**

All of the UK. The number of sites actually covered in 2012 was 2640 in England, 380 in Scotland, 270 in Wales, 116 in Northern Ireland, 20 in the Channel Islands but none in the Isle of Man. This was the second highest annual total (after 2007).

### **Temporal Coverage**

1994 to the present and continuing. (A Pilot Survey to test the methods and feasibility was carried out in 1992 and 1993.)

The first visit should be 1 April - 15 May, and the second 16 May - 30 June in each year. Any habitat recording will normally be done on a separate visit.

### **Other Interested parties**

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

### **Organiser(s)**

The national organiser is Sarah Harris with support from the rest of the Monitoring Team (David Noble and Andy Musgrove in particular). Previous organisers were Richard Bashford (1994-2000), Mike Raven (2001-2007) and Kate Risely (2007-2014). Richard Gregory, when a BTO staff member, was responsible for overseeing most of the setting up and pilot trials involving links to the Common Birds Census.

### **Current Staff Contact**

bbs@bto.org

## **Publications**

An annual report (a separate publication and published as a BTO Research report) is produced in early summer each year covering the previous year's work. Electronic copies can be viewed (downloaded) at:

[www.bto.org/volunteer-surveys/bbs/bbs-publications/bbs-reports](http://www.bto.org/volunteer-surveys/bbs/bbs-publications/bbs-reports)

An annual report in *BTO News* normally follows the separate publication above.

The results feed into both the annual '*State of the UK's Birds*' reports and the 'Breeding Birds of the Wider Countryside' report ([www.bto.org/birdtrends](http://www.bto.org/birdtrends)).

There have been several papers reporting the results in more detail, in particular:

Newson, S.E., Woodburn, R.J.W., Noble, D.G., Baillie, S.R. & Gregory, R.D. 2004. Evaluating the Breeding Bird Survey for producing national population size and density estimates. *Bird Study* 51: 42-54.

A list of publications is available at:

[www.bto.org/volunteer-surveys/bbs/bbs-publications/publications](http://www.bto.org/volunteer-surveys/bbs/bbs-publications/publications)

## **Available from NBN?**

No.

## **Computer data -- location**

The definitive dataset is held in the online Oracle database. This is associated with an application used by volunteers to input their own data. Data submitted on paper are checked, input and then loaded into the database once each year. Each year two 'snapshot' files from the database used in the production of the annual report are retained.

## **Computer data -- outline contents**

The numbers of each species seen in each distance band on each 200m section of each transect. Habitat and mammal data are held similarly.

## **Computer data -- description of contents**

The Oracle database holds the data in various tables accessed primarily by the online web application used by observers to input their data.

The two annual 'snapshot' files kept at the Nunnery for each year are ebird and ehab.

The format of ebird is:

Cols: 1-4 Observer number; 5-10 1-km square grid reference; 11-14 County (as GBxx where xx are 2 letters as per standard BTO coding); 15-20 Date (as DDMMYY); 21 E(for Early Visit) or L (Late Visit); 22-25 Codes for Cloud, Rain, Wind, Visibility; 26-29 Start time of first transect HHMM; 30-33 Finish time of first transect HHMM; 34-37 Start time of second transect HHMM; 38-41 finish time of second transect HHMM; 42-43 blank; 44-45 2-letter species code; 46 Distance Band (1, 2, 3 or F); 47-76 Count of bird in each 200m stretch (3 cols for each of 10 stretches).

The format of ehab is:

Cols: 1-4 Site Number; 5-8 Year; 9-14 1-km square grid reference; 15-18 County (as GBxx as above); 19-20 blank; 21 Type; 22 Transect (1-10 200m stretch); 24-34 letter and 10 2 col numbers; 35-45 ditto; 46-48 Distance; 49-59 as 24-34; 60-70 ditto; 71 Date of recording habitat.

### **Information held in BTO Archives**

All BBS paper material is stored. Paper forms which have been input to the computer are kept for a period before disposal (some of the early years' count summary and mammal forms have been) although all the field sheets have been kept as there is a chance that extra information could one day be retrieved, eg if people have marked singing birds or activity. The habitat forms from all years are kept separately, as these have sketch maps of routes marked.

Note that many observers now input their data direct into the online database and so BTO has never had paper forms for these. Hence the paper archive is by definition incomplete.

### **Notes on Access and Use**

Potential analysts and users are strongly advised to discuss any use of the data with relevant BTO staff before they start.

### **Other information needed**

### **Notes on Survey Design**

The BBS is a line-transect survey based on randomly selected 1-km squares. Squares are chosen through stratified random sampling, with more squares in areas with more potential volunteers. The difference in sampling effort is taken into account when calculating trends. As BBS squares are randomly selected, they can turn up on any area of land in the UK. Some squares can never be surveyed (for example entirely in the sea or lakes or on completely inaccessible land), 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, although it is recognised that some will seldom, if ever, be surveyed. Note that observers are not allowed to reject sites because they "are unlikely to have any worthwhile birds".

### **Specific Issues for Analysis**

At present the analysis programs are written in SAS but they can be used (with suitable modifications to the file location statements) on either Windows or Unix.