

# Garden Bird Feeding Survey

## Title

Garden Bird Feeding Survey (GBFS) 1970/71 - present

## Description and Summary of Results

Monitoring schemes for relatively widespread breeding species now cover a range of habitats, but for longer-term trends in breeding populations, the available data are biased towards farmland and woodland. For passerines, our knowledge of trends in the winter is relatively limited compared to spring and summer, and for many declining species such as Tree Sparrow *Passer montanus*, Yellowhammer *Emberiza citrinella* and Reed Bunting *E. schoeniclus* this is a key gap. There are some sources of information such as the 1981/82-1983/84 Winter Atlas that give us insight into the winter distribution and ecology of many species, but this gives no indication of trends in numbers.

Private gardens are likely to hold high proportions of the national breeding population for some species and are also known to be important for many species in winter, especially as an estimated 40-50% of households provide food for birds at some time during the year. However data from long-term surveys of birds using gardens are not incorporated into any national indices of population change, even though they are sources of valuable data for many common and widespread bird species, especially in winter.

The Garden Bird Feeding Survey (GBFS) started in autumn 1970 and has continued in every winter since. The GBFS was the first attempt anywhere to monitor the birds occurring in gardens and it continues at much the same low level that it has done from the start although some of its functions have now been taken over by Garden BirdWatch (GBW) which started in 1995 and is a year-round survey.

Each winter, observers in up to about 250 gardens (often 200 or so) record, on a weekly basis from 1 October to 31 March, the numbers of birds that visit feeders or water which are provided. Any one garden remains in the survey as long as the participant wishes to continue. Each year a few drop out and suitable replacements, usually now selected from among the membership of Garden BirdWatch, are invited to consider joining the GBFS project. New gardens are selected to match (as far as possible) those that drop out in terms of location (region of the country) and type (suburban or rural).

Over the 40-odd years of the survey there have been some large changes in the number and variety of birds visiting gardens and coming to food provided for them. The most commonly occurring species (in terms of the percentage of gardens in which they occurred) have been Robin *Erithacus rubecula*, Blackbird *Turdus merula*, Blue Tit *Cyanistes caeruleus*, and Greenfinch *Carduelis chloris* followed by Dunnock *Prunella modularis*, Song Thrush *Turdus philomelos*, Great Tit *Parus major*, Starling *Sturnus vulgaris*, House Sparrow *Passer domesticus* and Chaffinch *Fringilla coelebs*. However some species are recorded at a relatively high proportion of sites but in a low proportion of weeks (eg Sparrowhawk *Accipiter nisus*, Pied Wagtail *Motacilla alba*, Wren *Troglodytes troglodytes*, Redwing *Turdus*

*iliacus*, Long-tailed Tit *Aegithalos caudatus*, Rook *Corvus monedula*, Siskin *Carduelis spinus*), indicating that these species are widespread but infrequent visitors to garden feeders. In an analysis of the 41 commonest species over the first 30 years of the survey, three species showed an initial increase followed by a decline, 21 species increased overall but for several of them the increase was only in the last ten years, and only five species showed a significant long-term decline: House Sparrow, Pied Wagtail, Song Thrush, Mistle Thrush *Turdus viscivorus* and Starling. There was no suggestion that particular groups of species (eg taxonomic groups or groups defined in terms of predominant diet or according to population status) showed larger or smaller changes. The majority of species also showed variation within winters, occurrence typically peaking at some time in midwinter. Several species showed significant interactions between week and year, indicating that the seasonal pattern of occurrence at garden feeding stations has varied over time, with nine species now showing the estimated peak occurrence date to be earlier in the winter. For the remaining species, there were differences in the shape of the relationship between years but no obvious difference in the date of peak occurrence. Although the probability of bird occurrence was associated clearly with fluctuations in temperature in the majority of species, it was unlikely that variations in temperature could explain relatively large year-to-year changes in garden use by birds.

### **Methods of Data Capture**

Gardens are selected to ensure that they are broadly representative of a range of garden types and to retain a consistent geographical distribution.

Observers record the maximum count in each week of each species they see at any one time coming to food and/or water provided for them through the 'winter' period, defined as the 26 weeks from October to March inclusive. Predatory species that are observed hunting birds that come to use the food and water provided by householders are also recorded.

When a garden is first registered the observer is asked to provide some details of where the garden is located, habitat characteristics (eg number of trees, presence of different features and briefly the surrounds etc), and what and how much food is put out on a regular basis. Counts are received from about 250 bird feeding stations each winter about half of which are classified as suburban and half rural.

Observers can vary the amount of time spent looking each week but, although no formal measure of effort is asked for, they are encouraged to be as consistent as they sensibly can. Many observers do miss one or two weeks each winter but overall there has been great consistency throughout the long survey period.

### **Purpose of Data Capture**

To monitor numbers of birds coming in to gardens to feed on artificially provided food. This monitoring is both within and between winters.

### **Geographic Coverage**

About 250 gardens are recorded each winter and there is approximately a 10% turnover each year although some gardens have been recording for many years. About half are classed as 'suburban' and half 'rural' and are well scattered across the UK. There is a stated intention to try to keep the regional spread approximately the same between years.

### **Temporal Coverage**

From the winter of 1970/71 to present, with recording weekly from 1 October to 31 March.

### **Other Interested parties**

It is and has been funded largely by the BTO on its own, although the Waltham Centre for Pet Nutrition and CJ Wildbird Foods helped to support the project in some years in the late 1980s and early 1990s, and the Leverhulme Trust funded the work associated with the 2005 Chamberlain et al. paper.

### **Organiser(s)**

David Glue was in overall charge of the survey from its inception until his death in March 2014, often with help from Fran Bowman. Others have organized and dealt with most of the administrative work at other times: Norman Pullen; Pip and Eve Willson; Joy Danter. After this it came in house and was run in conjunction with one or more other garden-based surveys (BASF Garden Bird Survey, Garden Bird Enquiry and since 1995 Garden BirdWatch) by, successively, Lys Muirhead, Paul Donald, Rachel Lindsay, Andrew Cannon, Mike Toms, Amy Lewis, Tim Harrison and since 2013 Clare Simm.

### **Current Staff Contact**

gbw@bto.org

### **Publications**

Each year a short summary report is sent to participants and this became a newsletter reporting the results for 2008/09. In most years there has been an annual report in *BTO News*.

David Glue edited a book on gardens and their birds and how to attract them, and which was based primarily on the results of the first 8-9 seasons of the GBFS (Glue, D.E. 1982. *The Garden Bird Book*. Macmillan, London).

A formal scientific and more substantial report of the results of the survey is:

Chamberlain, D.E., Vickery, J.A., Glue, D.E., Robinson, R.A., Conway, G.J., Woodburn, R.J.W. & Cannon, A.R. 2005. Annual and seasonal trends in the use of garden feeders by birds in winter. *Ibis* 147: 563-575.

A specific analysis of many data is:

Chamberlain, D.E., Gosler, A.G. & Glue, D.E. 2007. Effects of the winter beechmast crop on bird occurrence in British gardens. *Bird Study* 54: 120-126.

**Available from NBN?**

No.

**Computer data - location**

The BTO Windows network central area.

**Computer data -- outline contents**

Four files each winter (rural and suburban for each half) record the maximum count of each species in each garden in each week.

**Computer data -- description of contents**

The format of the main data files is:

cols 1-5 Year (as in 70-71); col 7 1 or 2 (1st or 2nd half of winter); col 9 r (rural) or s (suburban); col 11 site number; col 13 species number (lookup is file spnames); then 13 comma separated numbers referring to the number in each week (-1 = no records that week).

**Information held in BTO Archives**

All data arrive on paper forms which are then input. Data since the 2000/01 winter have been retained but the rest have been disposed of. Datasheets 1970/71–2005/06 excluding 3 years in 1970s have been scanned.

**Notes on Access and Use**

**Other information needed**

**Notes on Survey Design**

**Specific Issues for Analysis**