

1988-1991 Breeding Atlas

Title

Atlas of Breeding Birds in Britain and Ireland: 1988-1991.

Description and Summary of Results

The 1968-1972 Breeding Atlas published (in 1976) maps of the presence of each species breeding in each 10-km square of the National Grids over all of Britain and Ireland. The 1981/82-1983/84 Winter Atlas followed in 1986 although this included a measure of relative abundance rather than just presence.

In the late 1980s planning for a repeat breeding atlas started and from the start it was planned as a more ambitious project than the first one. In particular there was to be a measure of abundance included but it was thought essential that determining the basic distribution was a priority to enable direct comparison. In the event the methods adopted even regarding the presence of species in a 10-km square were not quite the same as in the earlier Breeding Atlas but comparisons of range were possible.

Fieldwork was planned for four years this time 1988-1991, but the basic unit remained the 10-km squares of the National Grids. It covered the whole of Britain and Ireland (in cooperation as before with the Irish Wildbird Conservancy, and this time the Scottish Ornithologists' Club came in as a partner explicitly). However the three levels of breeding evidence were reduced to two and the fieldwork involved both recording the species list in each 10-km square and specific recording in 2x2-km squares (tetrads) in order to get an estimate of the relative abundance in the 10-km square.

As before the majority of the fieldwork was done by volunteers and the resulting publication was another milestone. Distribution maps at 10-km square resolution were published as before and there were further maps showing distribution change from the 1968-1972 atlas (in some cases these were quite marked and with both increases and decreases between the two periods) and a coloured, smoothed 'contour map' showing where a species was commoner and scarcer was produced.

The list and number of species recorded in each 10-km square are as complete as they can be, but those squares visited for less time (especially the more remote areas) are likely to have fewer species recorded and it is the rarer and more elusive species (eg nocturnal) ones which will not be recorded in these circumstances. However it is considered that the maps as published are a true representation of the distribution of the species at a national level, while accepting that there will be some gaps in individual squares. The list and number of species recorded in each tetrad is not, however, complete since effort was limited to two 1-hour periods (or a single 2-hour period in more remote areas).

The relative abundance maps show where a species is more and less common. The field methods used to compile these were potentially subject to some biases and hence a 'Key Squares Survey' was carried out at the same time but independently to determine the extent of these. The results of the comparisons though showed that the fears expressed at

the start of the survey were largely misplaced. On average there was no significant overall bias caused by observers choosing their tetrads, although some species were affected (about 15% with some positive and some negative). There was no evidence that there were any regional differences in such biases, and despite initial concerns, the frequency index used for all species actually gave reasonable results even for the very common species although the point counts were able to add detail for some.

Methods of Data Capture

Specific fieldwork was conducted by mainly volunteer observers although professional help was used in remoter areas. Two main kinds of survey work were carried out and a third, the 'Key Squares Survey' was done to check for biases:

1) Timed Tetrad Visits (TTVs) (although not called this at the time): Observers visited a tetrad (2-km square) for two hours (and only two hours), with a stated preference for this period to be split into two 1-hour visits, one early in the season and one late. During this time a species list was compiled and the individuals of some (specified) species were counted. Tetrads were eligible for coverage if their centre was on land. Coverage of a minimum of eight such tetrads in each 10-km square was requested although the choice of which ones was left to the observer(s) with the proviso that they should aim to represent the major habitats within the 10-km square. Where there were fewer than eight eligible tetrads, all tetrads were surveyed. The species lists in each tetrad were then used to calculate the proportion of tetrads visited in which each species was recorded in the two hours, a figure which was then used as the index of relative abundance in the 10-km square. For the specified count species, the relative abundance index was based on the mean count across surveyed tetrads.

2) Supplementary Records: In addition to the TTVs records of any other species in the 10-km square were requested. Observers were particularly asked to look for elusive species such as nocturnal ones which were likely to be missed during TTVs.

In all cases observers were asked to note whether the species was 'Seen' or 'Breeding' in the 10-km square. 'Seen' was defined as being seen in the breeding season in suitable habitat. 'Breeding' was defined by a series of specific activities, for example apparently holding territory, nest found, recent fledglings seen. A full list of activities considered to be 'Breeding' is in the book (p.4). (The category 'Breeding' as used in this project comprised those categories recorded as Probable and Confirmed Breeding in the 1968-1972 Breeding Atlas (and in the subsequent Bird Atlas 2007-11). 'Seen' broadly equated to Possible Breeding in the 1968-1972 Atlas although the treatment of migrants and the requirement that individuals be in suitable breeding habitat were subtly different. The Change maps were based on the 1968-1972 Atlas levels being reduced to the two of this one.)

In some cases records from such as Local Bird Reports, seabird colony counts and other surveys were added to the dataset to provide a more complete species list and/or more accurate abundance information for each 10-km square.

3) The 'Key Squares Survey': In order to determine if there were any systematic biases arising from the TTVs due to variation in observer effort, differing proportion of "one-visit"

tetrads and observers choosing which tetrads to visit, a second survey was run concurrent to the main survey, the Key Squares Survey. This involved:
In Britain 1 in 9 and in Ireland 1 in 36 10-km squares selected on a regular grid. Within each, 15 allocated tetrads were surveyed for one hour in early season and one in late season using the same methods in the field as for TTVs. In addition, to try to obtain a more precise measure of abundance for species which are very common and would be likely to occur in every TTV, a 10-minute point count was carried out as near to the centre of the tetrad as possible on both the early and the late season visit and all birds seen or heard to an unlimited distance were counted. The habitat at the point was also recorded.
All Key Squares Surveys were done separately and independently of the main survey with a request that different observers should do it if at all possible.

Purpose of Data Capture

To compile as complete a list of breeding species as possible for each 10-km square.
To compile a species list for a tetrad in a two-hour time slot (note that this is unlikely to be a complete list of species which occur in the tetrad).

Geographic Coverage

All of Britain and Ireland. All 10-km squares with more than a very small amount of land were visited. In the more populated (by humans) parts a high proportion of the 2-km squares in each were visited for the standard time but in the less well-populated areas only the minimum eight were usually visited.

Note that the specified purpose was to compile as complete a list as possible at the 10-km square resolution. By definition the species list in tetrads is not complete but is only those recorded in the two-hour time slot. Also of course only a proportion of the tetrads were visited.

Temporal Coverage

Records for 10-km squares were collated over the breeding seasons of 1988-1991 inclusive. The timed visits for any one tetrad were carried out between 1 April and 31 July (with a stated preference for one visit of one hour in April-May and one in June-July although in the more remote areas this was not always possible), and for any one tetrad such visits were only done in one of these years.

Other Interested parties

The project was organised by BTO in conjunction with the Scottish Ornithologists' Club (SOC) and BirdWatch Ireland (BWI) (known as Irish Wildbird Conservancy (IWC) at the time). The project was funded by the Central Electricity Generating Board (CEGB) which became the National Grid Company, National Power, PowerGen and Nuclear Electric when the company split up during the course of the funding period.

Other funds were provided by the Nature Conservancy Council (NCC) (and then Joint Nature Conservation Committee after the NCC was split up), World Wildlife Fund (now called Worldwide Fund for Nature), and the Carnegie Trust.

Organiser(s)

David Gibbons for the BTO, Jim Reid for the SOC and Rob Chapman for BWI.

Current Staff Contact

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Publications

The atlas was published as:

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

There are articles and notices about the atlas in *BTO News* numbers 150, 153, 154, 160, 161, 167, 172, 173, 182 and 188 and many other national and local (county) journals and magazines contained publicity and/or articles describing preliminary results.

Several local bird clubs carried out a concurrent survey of their counties using the tetrad as the unit of distribution. Some of these were published as atlases in their own right and others published tetrad maps as part of an overall avifauna of the county.

Available from NBN?

Yes.

The dataset on the NBN Gateway contains presence data for both 10-km squares (the final files used to compile the published maps) and 2-km squares for those tetrads which were surveyed.

Access for the public is restricted to the 10-km square level, and nothing is visible for those species which had any records withheld, moved or otherwise hidden in the published atlas and which records are still considered sensitive by the Rare Breeding Birds Panel. All species which were in this category in the original book have been reviewed by the Rare Breeding Birds Panel and only retained as sensitive if the Panel considers there is still a risk of persecution or disturbance if the real locations were to be revealed. Access to the sensitive data can be made available to NBN users on application to the BTO.

Species which contain sensitive records and whose maps and data are therefore not available to the public are:

Red-throated Diver (Ireland only), Black-throated Diver (Ireland only), Slavonian Grebe, Whooper Swan, Honey Buzzard, White-tailed Eagle, Montagu's Harrier, Goshawk, Golden Eagle, Peregrine (Ireland only), Black-tailed Godwit, Wood Sandpiper, Purple Sandpiper, Temminck's Stint, Red-necked Phalarope, Marsh Warbler, Golden Oriole.

Computer data -- location

The BTO Windows Network central area.

Computer data -- outline contents

The files gibbonsbysquare.txt and gibbonsbyspecies.txt contain the real and "as published" 10-km square data. The two files are identical except for their order of sorting.

The files gibbtetradsbyspecies.txt and gibbtetradsbysquare.txt are the tetrad data as used, again identical except sort order.

The file surveyed_tetrads.csv contains a list of tetrads which were actually surveyed with TTVs.

There are 8 directories containing more detailed information.

Computer data -- description of contents

The main files:

These files were created in February 2010 by Simon Gillings and include the non-mapped species and correcting the original files as needed. Both the actual 10-km locations and the locations as mapped in the book are included. The format is: cols 1-5: numeric species code as in the Oracle database; 7-8: two-letter species code where one exists - there are gaps for subspecies; 10-13: real 10-km location; 15-18: 10-km location as published -- gaps are where the record was completed hidden; 20: real breeding evidence; and 22: breeding evidence as published (S=seen, B=breeding).

The tetrad files:

Each row of data is 119 columns long. The format of these columns is:

1-4 10-km square reference; 5-6 Year (88, 89, 90, 91 or 11 when year not known); 7-8 No. of tetrads visited (0 to 25); 9-10 No. of tetrads visited once only (0 to 25); 11 No. of visits to tetrad A (0, 1 or 2); 12 No. of visits to tetrad B (0, 1 or 2) and similarly to 35 No. of visits to tetrad Z (0, 1 or 2); 36-37 Species two-letter code; 38-40 Species data for tetrad A; 41-43 Species data for tetrad B etc to 110-112 Species data for tetrad Z (zero means the species was recorded in that tetrad during the visit(s), a count (1-999) is entered for 'count species'); 113-114 No. of tetrads the species was recorded in (1-25); 115-118 Total count across all visited tetrads (1-9999; count species only); 119 Evidence of breeding category (S=Seen, B=Breeding) (but note that the S or B in column 119 is not necessarily definitive for the 10-km square -- use the other file for this).

Eight main directories:

cis -- files used for the Countryside Information Survey; dmap -- some miscellaneous maps in DMAP format; keysqsurvey -- data from Key Squares part of project; mainsurvey -- the tetrad data in 12 files; maps -- the abundance maps as published; other -- includes the main presence files; progs -- some programs used for analysis; trials -- 1 file from Pilot Survey.

Information held in BTO Archives

One Transfer Case in the BTO Archives contains Pilot survey data and some letters. It was agreed in 1999 that the original paper copies of the data need not be kept; and so, except for a sample, these were destroyed.

Notes on Access and Use

Other information needed

Notes on Survey Design

There was an extensive Pilot Survey conducted in the breeding season of 1987. This was reported to the Atlas Working Group as a BTO Research Report (Gibbons, D.W. 1987 *The 'New Atlas' pilot fieldwork*. (A report on the 'New Atlas' pilot fieldwork (1987) to the Atlas Working Group.) *BTO Research Report* no. 30. 57 pp.). The methods used for the project followed from these trials.

Specific Issues for Analysis

Analysts must acknowledge that the tetrad species lists are incomplete. They may be used for presence-only modelling but not presence-absence modelling.

The relative abundance scores for a particular species are likely to be non-linearly related to absolute abundance.