BB Protocol

Breeding birds

Aim

To record the annual distribution and abundance of breeding birds within selected areas of ECN sites

Method

The Breeding Bird Survey is a key component of the Integrated Population Monitoring Programme operated by BTO. It aims, *inter alia*, to provide information on year-to-year and longer-term changes in population levels for a wide range of breeding birds across a variety of habitats throughout the United Kingdom. The scheme was designed to overcome the limitations of its forerunners (CBC and WBS) by:

i. selecting sample sites randomly,
ii. increasing the number of sample sites,
iii. using counts instead of mapping territories, thus
iv. reducing the sampling effort at each site, whilst
v. improving representativeness.

The method described below summarises the procedures set out in the instructions to BBS observers (BTO 1995), from which publication further details may be obtained.

Location

At sites where the CBC method (BC Protocol) has been used previously or is still in use during the overlap period, at least one 1 km square, but preferably more, should be selected at random from those squares containing part of the former survey area. At moorland sites, where the BM Protocol has been used previously or is still in use during the overlap period, the same squares should be used as were used previously. At sites where neither BC Protocol nor BM Protocol has been used previously, at least one 1 km square, but preferably more, should be selected at random from all available squares.

Sampling

Transect establishment

Birds are counted on transect lines. In each 1 km square there should be, ideally, two parallel transect lines, oriented north/south or east/west, each 1 km long. Transect lines should be 500 m apart and 250 m from the edge of the square. Each transect line is divided into five equal sections of 200 m, to provide a total of ten consecutively numbered sections. The start of each section should be marked, using either permanent landmarks or easily visible temporary markers. In practice, the transect line may need to deviate from the ideal because of the need to avoid barriers and this is acceptable if the diversion does not result in the two lines being closer together than 200 m. Minor intrusions into adjacent squares are also acceptable where they provide the only practical way to carry out the survey. The exact route taken by the transect lines is marked on a map. The same route is followed every year.

Habitat recording

Habitat recording enables bird populations to be related to habitat features and to changes in those features. Habitat features are recorded separately at the beginning of each recording year for each 200 m section of the transects, taking into account habitats occurring within 25 m of each side of the line. A form is available for the recording of habitat features, identified by code numbers (see page 180). Important changes in habitat which occur during the recording year are also noted on the recording form.

Habitat codes allow the description, for each section, of both the predominant habitat, termed the first habitat, and a second habitat if this exists. For each

habitat one habitat code is chosen from each of levels 1 and 2, and up to two from levels 3 and 4 of the habitat classification.

Where the actual transect route differs from the ideal of two parallel transects, the average distance from the ideal is estimated and an additional, separate, list of habitat codes for the ideal transect is also recorded.

Frequency and timing

In the lowlands of southern Britain, the main part of the breeding season, roughly between 1 April and 30 June, should be divided into two counting periods, early-April to mid-May and mid-May to late June, and one visit should be made in each period. Visits should be at least four weeks apart. The first should coincide with the main activity period of the resident breeding birds in the area, whilst the second should take place after the arrival of the latest migrant breeding birds. Visits should be made later at sites which are further north or at higher altitudes.

Counts should be made in the morning, starting ideally between 0600 and 0700 BST, and no later than 0900. The starting time should be consistent both within a breeding season and between years.

Counting should not be attempted in conditions of heavy rain, poor visibility or strong wind, and prevailing weather conditions should be recorded on the forms provided.

Bird recording

All birds encountered whilst the observer walks along the two transects are recorded. The first transect line (sections 1-5) is walked at a slow and methodical pace, starting from the chosen starting place, and noting the starting time of the transect. After completing the first transect line, bird recording stops, the time is recorded and the observer moves to the start of the second transect line (sections 6-10), where the time is recorded and bird recording re-starts. An average visit should take approximately 90 minutes.

The observer should pause briefly and listen for bird songs and scan for birds flying overhead whilst walking along the two linear transects. All birds seen or heard are recorded on the field recording forms in the appropriate transect sections, 1-10, and in one of the following four categories:

1 within 25 m either side of the line;
2 between 25 m and 100 m either side of the line;
3 more than 100 m either side of the line, including birds outside the 1 km square boundary; or
F birds in flight only (at any distance).

The distances are estimated at right-angles to the line and observers should familiarise themselves with estimating the 25 m and 100 m distances before beginning fieldwork. A bird seen 200 m ahead of the observer but close to the transect line should be recorded in Category 1. Category F relates to birds flying over. If a bird is seen to take off or land, it should be recorded in the appropriate distance category (1-3) at that position. The same individual bird should not be recorded twice.

Standard BTO species codes should be used (see page 177) and this requires the observer to be familiar with the codes of the species most likely to be encountered. Juvenile birds should be distinguished from adults in species where this is possible.

Birds nesting in dense colonies within the square (rook, sand martin and gulls) will not be adequately censused by the standard method and observers should count or estimate the number of nests in the whole 1 km square. Colony counts

should be conducted separately from the transects and only for the species listed above.

Following each field visit, observers should produce summaries of the number of adult birds of each species seen in each distance band of the ten sections of each transect (see page 181).

Author

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Reference

British Trust for Ornithology. 1995. *Breeding Bird Survey instructions*. Thetford: BTO.

Specification of results and recording conventions

The measurement variables listed below are those required for each BB sampling location at an ECN Site. Sites submitting data to the ECNCCU should refer to the accompanying Data Transfer documentation for the specification of ECN dataset formats, available on the restricted access Site Managers' extranet. Contact ecnccu@ceh.ac.uk if you need access to this documentation.

The first 4 key parameters uniquely identify a sample or recording occasion in space and time, and must be included within all datasets:

• Site Identification Code (e.g. T05)	Unique code for each ECN Site
• Core Measurement Code (e.g. PC)	Unique code for each ECN 'core measurement'
• Location Code (e.g. 01)	Each ECN Site allocates its own code to replicate sampling locations for each core measurement (e.g. for different surface water collection points)
• Sampling Date (/time)	Date on which sample was collected or data recorded. This will include a time element where sampling is more frequent than daily

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Core measurement: vertebrates – birds (BI Protocol)

Breeding birds (BB)
Two visits are made to transects within 1 km squares each year, one in April to mid-May ('early'), and one in mid-May to late June ('late'). The BTO Breeding Birds Survey (BBS) method records habitat and bird counts by species along the transect on to field forms using standard notations, given overleaf. The following variables are recorded.

Variable	Units	Precision of recording
Site Identification Code		
Core Measurement Code		
Location Code		
Year		
County	BTO code[4]	
1 km square code	Nat. Grid reference	
Transect section	numeric code (1-10)	
Habitats	BTO codes[5]	
Visit (Sampling) date		
Visit code	character code (E=early, L=late)	
Weather	BTO codes[6]	
Start time	BST 24-h clock	1 min
Finish time	BST 24-h clock	1 min
Species seen	BTO code[2]	
Distance category (from transect)	BTO code[7]	
Bird activity	BTO code[3]	
Number by species and distance	count	1

Recording forms

1. Standard CBC summary sheets and BBS field recording forms are available from the Census Unit, British Trust for Ornithology, The Nunnery, Thetford, Norfolk IP24 2PU, UK. (Note that the CBC summary sheets are normally completed by the BTO from interpretation of the maps sent in by recorders.) The BTO normally arrange for the preparation of CBC outline maps of the survey area.
2. A field recording form for moorland birds is available from the CCU.

Notes