



WATERWAYS BREEDING BIRD SURVEY INSTRUCTIONS



AN INTRODUCTION TO THE WATERWAYS BREEDING BIRD SURVEY (WBBS)

WBBS extends the methodology of the BTO/JNCC/RSPB Breeding Bird Survey (BBS) to linear waterways. Random stretches of river and canal are covered, equivalent to BBS's randomly selected 1-km squares. Within each stretch, volunteer observers survey a whole number of complete 500-metre sections, twice each breeding season, using BBS-style transect methods. WBBS data:

- facilitate **representative** monitoring of specialist waterbird species in the UK;
- provide monitoring data specific to waterways for **all species** of breeding birds; and
- enable direct comparison of bird (and mammal) distribution with data from the Environment Agency's **River Habitat Survey**, thus aiding the conservation of waterway biodiversity.

Stretches of waterway to be covered are of two kinds. The main sample has been drawn from randomly selected tetrads (2x2-km national grid squares). It is important that annual coverage is achieved for as many as possible of these stretches. In addition, the sample includes a number of self-selected plots that were previously covered by the BTO's mapping census along waterways, the Waterways Bird Survey (WBS), which ran from 1974 to 2007. Beyond the BTO survey, the WBBS method can also be applied to pre- and post-project evaluations, for waterway management, to intensive surveys of catchments, and to other studies.

Like BBS, WBBS is designed to be a quick, simple and, most importantly, an enjoyable birdwatching exercise. Observers make just three visits to their waterway stretches, the first to check access and record habitat types, and the second and third to record birds.

WBBS shares the main aims of BBS, which are as follows:

- 1 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 UK. Knowing to what extent bird populations are increasing or decreasing is fundamental to bird conservation. Monitoring birds has the added advantage that they act as valuable indicators of the health of the countryside.
- 2 To promote a greater understanding of the population biology of birds and in particular to focus on factors responsible for declines. The BBS is a key component of the BTO's Integrated Population Monitoring programme.
- 3 To promote bird conservation through the involvement of large numbers of volunteers in survey work in the UK.

TIPS FOR WBBS VOLUNTEERS:

- Record all birds (except juveniles) seen or heard, including flyovers and any species for which you are also recording nest counts.
- Birds seen or heard at *any* distance beyond 100 metres to the side of your transect line (the midline of the waterway) should be recorded in the third distance category, or as 'in flight'.
- A completed Habitat Recording Form is needed **every year**. Please fill in at least the first two levels on the green form: further detail is extremely useful.
- Ensure that only the number of birds recorded is written in each box on the count summary forms. Additional information (such as +, ♀ or ♂) complicates the forms and should be omitted.
- Species can be listed in any order on the Count Summary Sheet, or input online in any order.

Fieldworkers should not risk placing themselves or others in danger. The Trust does not accept any responsibility or liability for any actions of fieldworkers, nor for any consequences that may follow from them. Please read and follow the BTO's health and safety guidelines at www.bto.org/volunteer-surveys/taking-part/health-safety

WBBS differs from BBS in that:

- *the transects run alongside rivers and canals, rather than being matched to straight lines through grid squares;*
- *count sections are each 500 metres (BBS 200 metres). This is because the Environment Agency's River Habitat Survey uses this larger size of unit.*

WBBS differs from the now-discontinued Waterways Bird Survey (1974–2007) in that:

- *BBS-style transect methods are used, rather than territory mapping;*
- *stretches are selected randomly;*
- *all species of birds are included (not just riparian species as in WBS).*

FORMS

You will need one Habitat Recording Form (green), one Mammal Summary Sheet (pink), two Field Recording Sheets and two Count Summary Sheets for each stretch you have agreed to cover. The survey pack also includes a 'general information' sheet (blue) and a 'letter of introduction' to landowners, which can be photocopied or sent to you as a pdf if more are needed. All forms, together with these instructions, are available for download on the survey's web pages at www.bto.org/volunteer-surveys/wbbs/taking-part.

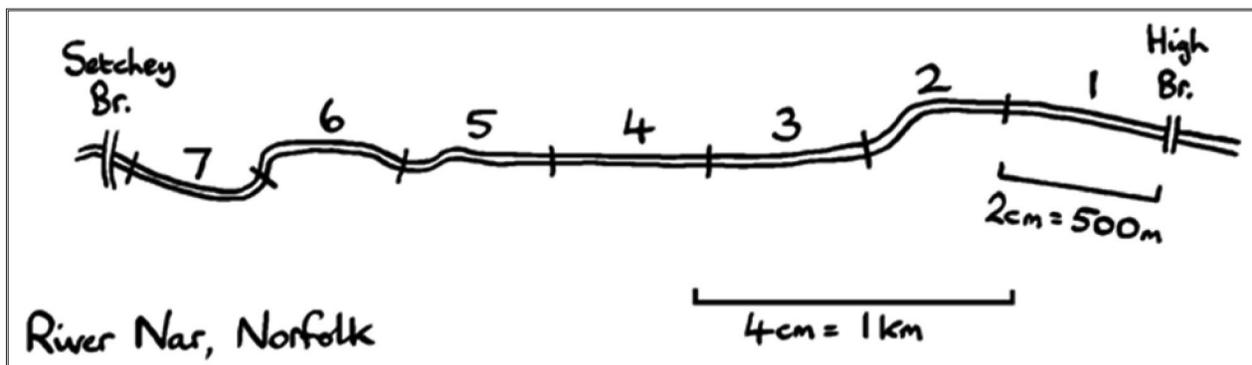
FINDING A ROUTE

Each of the WBBS's randomly selected stretches is defined by a **nominal** 1-km grid reference and by a 'primary map' that shows (a) the selected tetrad and (b) the outer limits of waterway within which the actual survey stretch can be chosen. There may be up to 8–9 km of waterway between these limits. If you are asked to cover a random site that has not previously been surveyed, either your BTO Regional Organiser (RO) or staff at HQ will provide you with a copy of the primary map, and you may choose the start and end points for the survey. **If this is a repeat survey, please use the route and transect section numbering that has already been established.**

Both start and end should be within the limits set on the primary map. Ideally, the stretch would include the section of waterway that passes through the selected tetrad, but this is not a requirement. **The length of the stretch must be a whole number of 500-metre units.** The minimum coverage for any WBBS stretch is just a single 500-metre unit. Ideally, however, there would be more, and up to ten such units could be covered in a row (5 km). Your transect walk should keep as close as possible to the waterway. Measure out and mark the 500-metre sections on your map before you start, and carry the map with you in the field.

NB: it is essential that the original nominal 1-km reference be retained, and used as given, even if it is a poor match to the location of the actual survey.

In choosing your stretch, you will need to bear in mind any physical difficulties in walking it, and the need to obtain permission to enter private land. Avoid any areas that may be dangerous to walk. In the example below, seven 500-metre sections are surveyed, i.e. 3½ kilometres in total.



In cases where not even a single 500-metre section is coverable (e.g. it is physically dangerous to visit, or access permissions are withheld), please report this to your RO. It is very important not to reject stretches on the grounds that they appear uninteresting – stretches containing few species are just as valuable as those with many species.

If circumstances prevent you from completing your fieldwork, please let your RO know urgently, in case another observer can be found to take over.

SUMMARY OF FIELDWORK	
March – April:	make a reconnaissance visit, to set up or check the census route and complete the habitat recording form
early April – mid May:	complete the ‘Early’ transect count, and either complete its summary sheet or enter the data online
mid May – late June:	same for the ‘Late’ transect count
July – August:	if you have not submitted online, return all your data forms to Regional Organisers, or directly to BTO Thetford if there is no organiser for your region

WHEN TO VISIT

The main part of the breeding season, roughly between 1 April and 30 June in the lowlands of southern Britain, should be divided into two counting periods (early-season visit = April to mid May; late-season visit = mid May to late June) and one visit should be made in each half. **Visits should be at least four weeks apart.** The first should coincide with the main activity period of the resident breeding birds in an area, while the second should take place after the arrival of the latest migrant breeding birds. Where local conditions dictate, for example, at higher altitudes and further north, visits should be shifted later in the season.

Counts should be made during the morning, beginning ideally between 6 am and 7 am, and no later than 9 am (unless your stretch is unusually difficult to get to). Please try to keep the starting times of counts similar within a breeding season, preferably to within half an hour, and both times and dates similar across years. Counts will be more productive the earlier you are able to start.

WEATHER

Please do not attempt to census birds in conditions of heavy rain, poor visibility or strong wind. Please record weather conditions in the boxes provided on the forms which describe cloud cover, rain, wind speed, and visibility. Choose one number (1–3) from each of the four headings below and enter these in the box provided on the field and summary sheets. If weather conditions change during the visit, please select the single category (1, 2 or 3) that best represents the overall conditions.

Cloud cover		Rain		Wind		Visibility	
0 – 33%	= 1	None	= 1	Calm	= 1	Good	= 1
33 – 66%	= 2	Drizzle	= 2	Light	= 2	Moderate	= 2
66 – 100%	= 3	Showers	= 3	Breezy	= 3	Poor	= 3

Note that **zero is not a valid code** in this context. Perfect weather is ‘1 1 1 1’.

COUNTY CODES

Observers are asked to use a standard county code to indicate where the census was carried out (which is not necessarily their home county). All UK (and Isle of Man) codes start with GB followed by two letters: for example, Norfolk is GBNK. A full list of county codes is given in Appendix 1 on page 7.

RECORDING BIRDS

Please record all the birds you encounter as you walk alongside the waterway. Do not record birds that are behind you as you begin the census nor any beyond the end of the stretch.

From your chosen starting point begin to walk your route at a slow and methodical pace. We recommend that you pause briefly to listen for bird songs and scan for birds flying overhead. Please remember to note the starting and finishing times of your visit (using the 24-hour clock). Record all the birds you see and hear on the field recording sheets in the appropriate transect sections 1–10 and in the appropriate distance category (see below). The recording boxes on the field sheet are divided into ten numbered sections for your convenience. Please don't worry about birds at the boundary of two sections: record them in whichever section seems more appropriate, but not in both. Try to record each individual bird once (not more). So for example a Mistle Thrush that can be heard singing from several transect sections, or a Mute Swan swimming on ahead of the observer, should be recorded just once, in the section and distance band where it was first detected.

We strongly encourage observers to use the standard BTO two-letter species codes (short-listed in Appendix 2). Please familiarise yourself with the most likely codes before you go into the field. If a species is not listed in Appendix 2, please give its full common name. There is no need to record the activity or sex of the birds you encounter, although you may wish to do so for your own interest. Please distinguish juvenile birds recorded from adults in those species where this is possible (e.g. Bjuv, juvenile Blackbird), or do not record juvenile birds on your field sheets, because it is important to **exclude juveniles from the summary sheets**. Please include any escaped birds, and any feral waterfowl (e.g. Muscovy Duck), whether or not the species is on the official British or Irish list. Use **ZF** and **ZL** for domestic-type Mallard and Greylag, to distinguish them from those in wild-type plumage (**MA** and **GJ**).

On both field and summary sheets, birds should be noted in the appropriate distance category. Put each bird into one of the following four categories, when they are first noted:

- 1 within 25 metres either side of the line;
- 2 between 25 and 100 metres either side of the line;
- 3 more than 100 metres either side of the line (no upper distance limit); or
- F birds in flight only (at any distance).

Please note that distances are measured perpendicular (i.e. at right angles) to the transect line. A bird seen 200m ahead of the observer but close to the transect line should be recorded in category 1. We recommend that observers measure out 25m and 100m using a tape measure and/or pacing, before fieldwork begins, to familiarise themselves with estimating these distances.

Category F relates to those birds seen only in flight. Draw an arrow through the species' two-letter code when you record it on your field sheet (e.g. ~~BZ~~) to indicate that a bird is in flight. If a bird is seen to take off or land it should be recorded in the appropriate distance category (1–3) at that position. **NB: Skylarks in display flight and hovering Kestrels should be recorded in the relevant distance category. Record Swifts, Swallows and martins in the 'in flight' category, unless they are perched or seen entering or leaving a nest site.**

COUNT SUMMARIES

Please either input online or complete the summary sheets (one for each field recording sheet) as soon as possible after each field visit and preferably on the same day. The form summarises the information so that it can be analysed. For each visit, simply transfer the number of individual birds (excluding juveniles) that were recorded in each numbered section of the transect, 1–10, for each of the four distance bands. Print the two-letter species codes in the appropriate boxes (and add a **full stop** for single-letter codes, e.g. B. = Blackbird). Where you surveyed fewer than ten sections, leave the remaining boxes blank.

Please **cross through species registrations** on the field recording sheet as you transfer information to the summaries (see page 5) – this simple procedure, followed by a final check for uncanceled registrations, greatly reduces the chance of duplicating records or missing them off. **Please leave the 'Obs. Code' box blank** or, only if you are sure you know it, insert your WBBS/BBS observer code.

If you have difficulty distinguishing adult and young birds, simply estimate, to the best of your ability, how many adults were present. We appreciate that mixed-aged flocks of corvids or Starlings, for example, will present problems later in the season and ask that you observe and record with great care. Colonial nesters should be entered in the box provided (see below).

COLONIAL NESTING BIRDS

Birds nesting in dense colonies (e.g. Rook, Sand Martin and gulls) will not be censused adequately using the standard method and we ask observers also to count or estimate the number of nests in any colonies of these species that are visible from the transect line. Colony counts should be conducted separately from the transects and **only** for those species listed above. See example table below.

EXAMPLE FIELD AND SUMMARY SHEETS

Example of completed field or summary sheet heading

Observer name	J. H. MARCHANT				Obs. code (office use only)	
Nominal 1-km square reference (eg TL1234)	T M 1 1 8 5				County code (eg GBSY)	G B N K
Visit date (eg 09/05/12)	11 / 05 / 12				Early or late visit (E/L)	E
Weather codes (1, 2 or 3)	Cloud 2	Rain 1	Wind 1	Visibility 2	Start time (e.g. 07:18)	07 : 12
					Finish time	08 : 33

Recording birds in the field.....and transferring counts onto summary sheets

100m	25m	25m	100m	100m	25m	25m	100m		
3	2	1	2	3	3	2	1	2	3
S	CTI	MA ♂ ↑ 2m+1	MA ♂	S	CTI	MA ♂ ↑ 2m+1	MA ♂	S	CTI

Example of count summary sheet

Two-letter species code and name	Distance category	Number of birds recorded on each 500-metre transect section									
		1	2	3	4	5	6	7	8	9	10
MA	1	3		2	12						
MA	2							2			
MA	3										
MA	F	2									

Colony Counts

Species code and name	Date of count (e.g. 15/04/12)	Best estimate of apparently occupied nests (=pairs)
R O Rook	30/04/12	128
S M Sand Martin	/ /	
BH BLACK-HEADED Gull	17/05/12	22
	/ /	

HABITAT RECORDING

Habitat recording is essential to WBBS because it allows changes in bird numbers to be related to changes in habitat available to them. WBBS habitat forms use the coding scheme which is common to a wide range of BTO projects and can be used without specialist knowledge. Codes are listed on the back of the green form. We advise that habitat details are best recorded on your reconnaissance visit, or following a count. Please do not record birds and habitat at the same time.

Habitat should be recorded on a separate row for each of the 500-metre transect sections in your stretch. Please record what you feel to be the most appropriate codes for each section. Codes allow you to describe both the habitat of the waterway itself, termed the waterway habitat on the form, and that of the surrounding area (primary and secondary habitats). In many cases two habitat types will have equal importance in the area surrounding the waterway, and the order in which they are entered does not matter. For each habitat, choose one habitat code from each of levels 1 and 2, and up to two codes from levels 3 and 4. Please complete as much detail as you feel able: the first two levels for each habitat are the most important.

Because section numbers from the habitat form act as the primary key for the WBBS database (alongside the nominal 1-km reference), **it is essential that at least a basic habitat form be returned each year with every survey submitted on paper.**

The example below describes a river running through an area of arable farmland. In both 500-metre sections, the river itself is over 3 metres wide, is known to be fished, has light boat traffic, is oligotrophic (see habitat form), and is slow-running. Transect section 1 comprises tilled land with a hedgerow without trees, an active farmyard, and autumn-sown cereal growing. There is no secondary habitat and so this is left blank. Transect section 2 is a similar area also containing woodland. The waterway and primary habitat codes are the same as for section 1 and the secondary habitat codes are for the woodland, i.e. coniferous, young plantation with low disturbance, moderate shrub layer and sparse field layer.

500-metre transect section	Waterway habitat (the waterway itself)				Primary habitat (surroundings)				Secondary habitat (surroundings)				Comments				
	Levels:				Levels:				Levels:								
	1	2	3	4	1	2	3	4	1	2	3	4					
1	G	7	3	10	2	S	E	4	2	6	7					10 = OCCASIONAL PLEASURE BOATS	
2	G	7	3	10	2	S	E	4	2	6	7	A	2	S	8	2	6

MAMMAL RECORDING (OPTIONAL)

Please submit your mammal records, too. Full instructions are on the Mammal Summary Sheet. Mammal data can be recorded online, section by section, alongside your bird records.

RETURN OF DATA

If you are not using WBBS-Online, please return completed forms to your RO by the end of August – earlier if possible. Forms returned for each waterway stretch should comprise: a map of your waterway stretch, with transect section numbers marked; one green habitat recording form; two field recording sheets; two count summaries; and the mammal recording form (if completed).

Online submission is encouraged — see the WBBS web pages.

**Many thanks for helping with this important project.
Enjoy your censusing!**

**If you have any queries about the WBBS, please contact either your Regional Organiser or:
WBBS, BTO, The Nunnery, Thetford, Norfolk IP24 2PU
Email: wbbs@bto.org Tel: 01842 750050 Fax: 01842 750030**

APPENDIX 1. COUNTY CODES

Please fill in the county on WBBS forms using the four-letter code from the list below.

England		Oxfordshire	GBOX	Wales	
Avon	GBAV	Shropshire	GBSA	Anglesey	GBAN
Bedfordshire	GBBD	Scilly Isles	GBSI	Clwyd	GBCW
Berkshire	GBBK	South Yorkshire	GBSY	Dyfed	GBDY
Buckinghamshire	GBBC	Staffordshire	GBST	Glamorgan (all)	GBGM
Cambridgeshire	GBCA	Somerset	GBSO	Gwent	GBGT
Cheshire	GBCH	Suffolk	GBSK	Gwynedd	GBGD
Cleveland	GBCV	Surrey	GBSR	Powys	GBPO
Cornwall (excl Scilly)	GBCO	Sussex (West & East)	GBSX		
Cumbria	GBCU	Tyne & Wear	GBTY		
Derbyshire	GBDB	Warwickshire	GBWK	Northern Ireland	
Devon	GBDV	West Midlands	GBWM	Antrim	GBUN
Dorset	GBDO	West Yorkshire	GBWY	Armagh	GBUR
Durham	GBDU	Wiltshire	GBWT	Down	GBUD
Essex	GBES			Fermanagh	GBUF
Gloucestershire	GBGL	Scotland		Londonderry	GBUL
Hampshire	GBHA	Borders Region	GBBR	Tyrone	GBUT
Hereford & Worcester	GBHF	Central Region	GBCR		
Hertfordshire	GBHT	Dumfries &		Channel Islands	
Humberside	GBHU	Galloway Region	GBDR	Alderney	CIAL
Isle of Wight	GBIW	Fair Isle	GBFI	Guernsey	CIGU
Kent	GBKE	Fife Region	GBFR	Herm	CIHE
Lancashire	GBLA	Grampian Region	GBGR	Jersey	CIJE
Leicestershire	GBLE	Highland Region	GBHR	Sark	CISA
Lincolnshire	GBLI	Lothian Region	GBLR		
London (Greater)	GBLO	Orkney	GBOR		
Manchester (Greater)	GBMA	Shetland (excl Fair Isle)			
Merseyside	GBME				
Norfolk	GBNK				
Northamptonshire	GBNH		GBSH		
Northumberland	GBNL	Strathclyde Region	GBSC	Isle of Man	
North Yorkshire	GBNY	Tayside Region	GBTR	Isle of Man	GBIM
Nottinghamshire	GBNT	Western Isles	GBWI		

APPENDIX 2. WBBS ONLINE DATA ENTRY

WBBS has joined the family of BTO online surveys and so you now have the option, if you wish, to bypass some of the paperwork and send us your data online instead. WBBS-Online can be reached via the WBBS or BBS web pages at www.bto.org.

Using WBBS should be straightforward for anyone familiar with BBS-Online. The online system in effect treats WBBS stretches as a subset of BBS sites. WBBS Regional Organisers can assign WBBS stretches to you – using their nominal 1-km squares – so that they appear alongside your BBS squares on your BBS home page.

Entering and editing data is almost all the same as for BBS, differing in features such as the length of sections, the additional ‘waterway habitat’ and the lack of a mid-survey break. As development time allows, we will add past years’ data so that all your surveys are available to view.

If using WBBS-Online, you would need to make your field visits as normal, using the Field Recording Sheets and Habitat Recording Form but, instead of compiling Count Summary Sheets and a Mammal Summary Sheet, you can enter the data directly to our web site. Then, once you are satisfied all the data have been entered and accepted by the database, you can recycle all the paperwork and return nothing else to BTO.

Bird and mammal sightings can be entered individually and in any order: indeed, entering sightings one by one is essential if you are recording detection type (see below). If you are not recording detection type it may be quicker to summarise your sightings to some degree, by species, section and distance band, before entering them online. You can use the Count Summary Sheet, or a table of similar format, to help you do this. However you enter your data, **please strike through your registrations on the Field Sheet as you input them, then double-check for any that have been missed**: this will help ensure that every one of your sightings is input, and input only once!

Remember we are keen to help and advise anyone meeting difficulty with BTO online surveys. Please address questions specific to this survey to wbbs@bto.org.

RECORDING DETECTION TYPE (OPTIONAL)

While the standard WBBS counts are the main aim of the survey, as an optional extra you can record how birds were detected (only if submitting data online). The categories are Song, Call and Visual. This can help analysts to work out actual numbers of birds present, as there are differences in detectability between singing males, birds detected by call and birds seen.

- Record the way you first detected the bird (or group). If a bird is detected by sight, but later starts to sing, record this as a visual detection. You are NOT aiming to record evidence of breeding.
- While optional, if you choose to record detection type it should be recorded for ALL birds on a visit.
- Take care not to spend more than a few seconds recording detection type. There is no need to ascertain and record whether birds are male or female, since this could add significantly more time to the survey.
- Record your data on your field sheets by circling a singing bird (Ⓡ), underlining a calling bird (Ⓡ) or leaving a record unmarked if you detected a bird visually. You can also use the codes S for song, C for call or V for visual.

Defining songs and calls. For the purpose of recording detection type, a **song** is a sound normally made only by males, while a **call** is made by males and females. In general, sounds made by passerines (songbirds) are easily distinguished as songs or calls, while sounds made by non-passerines (including wildfowl, birds of prey and seabirds) are calls. However, there are many exceptions, and some of the most relevant to the WBBS are mentioned below:

- Non-passerine 'songs' that you may hear include the 'crow' of a Pheasant, cooing or purring of pigeons or doves, the 'cuckoo' of a male Cuckoo, displaying grouse, and display flights by breeding waders including Curlew, Lapwing, Dunlin and Redshank.
- Most sounds made by corvids (crow family) are calls. Swift screams and Green Woodpecker 'yaffles' are calls. While the males of some ducks make different sounds to the females, these should be recorded as calls.
- **Non-vocal noises.** Wood pigeons wing clattering and woodpeckers drumming should be recorded as calls, as with most other non-vocal noises. The exception is drumming Snipe, which should be recorded as detected by song.
- Some songbirds have songs that are simple or rarely heard, e.g. Long-tailed Tit, Bullfinch, House Sparrow and Nuthatch.
- If in doubt, consult a reference (e.g. Collins Bird Guide) to see if the sound you heard is defined as call or song. The library of songs and calls at www.xeno-canto.org may also be useful. If still in doubt, record as call.

Name and address details of WBBS observers will be kept on a computerised database for the purpose of survey administration, and for furthering the BTO's objectives. The Data Controller is the Director of Services, BTO, The Nunnery, Thetford, Norfolk, IP24 2PU