

WATERWAYS MONITORING UPDATE

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The Waterways Breeding Bird Survey (WBBS), still under development but now expanded in scope, is currently running alongside the long-established Waterways Bird Survey (WBS). *John Marchant and Peter Beaven* report on latest results and future prospects.

INFORME DEL MONITOREO DE CURSOS ACUÁTICOS

El Conteo de Cría en Cursos Acuáticos (Waterways Breeding Bird Survey - WBBS), todavía en periodo de desarrollo pero ampliado en alcance, está siendo ejecutado junto al veterano Conteo en Cursos Acuáticos (Waterways Bird Survey - WBS). John Marchant y Peter Beaven informan sobre los últimos resultados y planes a futuro.

The importance of a specific scheme to monitor the breeding birds along waterways has been recognised by the BTO since the early 1970s. Data from the WBS mapping survey then supplemented those from the Common Birds Census (CBC) for 27 years, extending coverage to a wider range of species. For specialist waterbirds, including Canada and Greylag Geese, Goosander, Common Sandpiper, Kingfisher, Dipper and Grey Wagtail, WBS has long been the most reliable provider of trends in breeding numbers (see www.bto.org/birdtrends).

CBC has now handed on its role of monitoring in the wider countryside to the BTO/JNCC/RSPB Breeding Bird Survey (BBS). There is still a need for specific surveys of waterways, however, because there are about nine waterside bird species for which BBS samples are too small to match the precision of monitoring that WBS mapping currently provides.

The origins of WBBS lay partly in the realisation that BBS would not be able to match the existing level of coverage for waterside birds,

and partly in a strategy to transfer BBS's advantages of random plot selection and quick-and-easy fieldwork to this closely related sector of the monitoring programme. Furthermore, WBBS is designed specifically to meet the needs of the Environment Agency and similar UK bodies that have statutory responsibilities for nature conservation along waterways.

WBBS has been operating alongside WBS mapping since 1998. The field methods of the new scheme are based heavily on the BBS's transects, with early and late counting visits. We chose a name for it that reflects its links to BBS, despite the potentially confusing similarity that results between the names of the BTO's two surveys of waterway breeding birds! Newcomers to WBBS who had BBS experience would notice little difference between the schemes, except that the transect sections run alongside the selected waterway rather than approximating to a standard straight-line pattern, and are not 200 m but 500 m long, matching the Environment Agency's River Habitat Survey. In work reported elsewhere, we

have analysed links between the RHS data and patterns of bird abundance.

BTO volunteers have provided coverage for two sets of WBBS stretches. First, BTO Regional Representatives have sought coverage of 263 randomly selected sites. These can be taken as a representative sample of UK waterways. Second, observers who contribute to the WBS mapping survey have been asked to carry out a WBBS as well, to provide a direct comparison of the two methods, with observer, year and site unchanged. This WBS-matched sample is non-random, because WBS observers are free to select their own study sites.

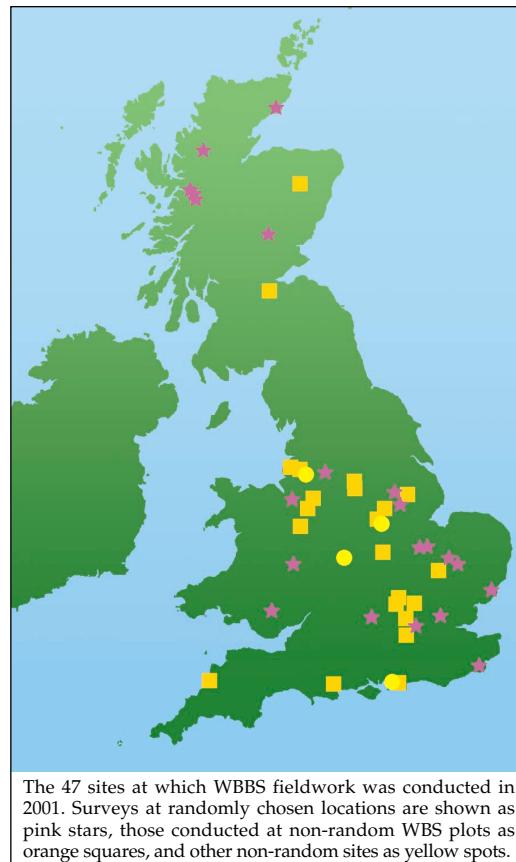
SURVEY COVERAGE IN 2001

We are very grateful to the 47 observers who managed to complete their WBBS in 2001, in some cases despite access restrictions for the early part of the season due to Foot and Mouth Disease (FMD). There were 21 randomly selected stretches covered, and 26 non-random stretches, of which 22 were linked to WBS mapping surveys. Their distribution shows quite clearly a general problem that will affect BTO survey results for 2001 — the concentration of fieldwork into areas where access restrictions were least widespread (Figure 1). No WBBS surveys were conducted in Northern Ireland, Devon or Northumberland, areas where the survey was effectively cancelled for the year. Surveys were no problem in those few areas where rural footpaths remained open and alongside urban waterways, where access was generally little affected. We are grateful to landowners who were able to give special permission for surveys to proceed.

In all, 23 WBS mapping surveys were completed in 2001 — a drop from 97 in 2000. Three WBS plots, on the Leeds-Liverpool, Bude and Shropshire Union Canals, were welcome additions to the scheme in 2001. Coverage of three other plots was renewed in 2001 after a few years' interval.

WBS RESULTS FOR 2001

There were 15 WBS surveys in 2001 that could be paired with surveys in 2000 at the same sites, and so contribute to the calculation of population change. With such a reduced



The 47 sites at which WBBS fieldwork was conducted in 2001. Surveys at randomly chosen locations are shown as pink stars, those conducted at non-random WBS plots as orange squares, and other non-random sites as yellow spots.

FIGURE 1. WBBS sites for 2001.

sample, the number of species for which a population change can be estimated from WBS is only nine, much less than the usual 22 or so, and we were unable to report on some of our target riparian specialists (Table 1).

A notable feature of the WBS results is that two-thirds of the changes tabulated, including those for the five most numerous species, are negative. The extent to which this observation may relate to changes in the pattern of census coverage is presently unclear, but may become more apparent once more years are added to the data and it becomes possible to view the 2001 season in a broader context.

WBBS POPULATION CHANGES, 2000–01

Because stretches surveyed vary in length, counts from each WBBS plot are converted to an

TABLE 1. WBS estimates of population change for 2000–01.

Species	Territory total 2000	Territory total 2001	% change	No. of contributing plots
Mute Swan	25	24	-4%	8
Mallard	345	305	-12%	14
Moorhen	187	175	-6%	13
Coot	169	133	-21%	9
Grey Wagtail	17	17	0%	8
Pied Wagtail	9	17	+89%	8
Sedge Warbler	143	112	-22%	12
Whitethroat	75	69	-8%	12
Reed Bunting	45	50	+11%	10

The estimates of population change for 2000–01 were drawn from 15 plots in total for which comparable data were received for both years. No estimates are given where the number of contributing plots was less than 8.

TABLE 2. WBBS population changes between 2000 and 2001.

Species	Random sites			WBS-linked sites		
	2000	2001	Mean count/10 km	2000	2001	Mean count/10 km
Grey Heron	3.8	4.6	+20%	9.2	8.8	-4%
Mute Swan	7.8	3.0	-62%	18.9	7.5	-60%
Mallard	50.0	51.0	+2%	84.9	69.0	-19%
Moorhen	16.2	15.3	-5%	19.0	16.2	-15%
Wood Pigeon	80.3	76.4	-5%	92.1	82.1	-11%
Swallow	15.8	11.4	-28%	13.1	18.6	+42%
Wren	29.3	26.5	-10%	53.8	41.6	-23%
Dunnock	5.9	7.2	+22%	13.2	8.9	-33%
Robin	11.3	11.5	+3%	21.8	19.3	-12%
Blackbird	29.5	27.7	-6%	40.5	40.1	-1%
Song Thrush	4.4	4.5	+1%	8.8	19.2	+120%
Sedge Warbler	18.5	16.1	-13%	13.4	9.1	-32%
Blue Tit	16.9	12.3	-27%	27.2	23.9	-12%
Great Tit	8.7	4.7	-46%	19.8	16.7	-16%
Magpie	10.0	11.1	+11%	14.0	19.9	+42%
Jackdaw	15.5	18.4	+18%	30.4	26.5	-13%
Carrion Crow	19.8	16.9	-14%	27.9	33.6	+20%
Starling	52.7	69.7	+32%	64.4	54.5	-15%
House Sparrow	26.1	23.6	-10%	24.9	17.0	-32%
Chaffinch	25.6	19.4	-24%	40.6	35.6	-12%
Goldfinch	10.1	10.3	+2%	11.2	7.1	-37%

Percentage changes in population between 2000 and 2001 as estimated from WBBS data. Sample sizes of plots were between 13 and 17.

estimated number per 10 km. Mean figures for 2000 and 2001 across paired sites (covered in both years) are presented in Table 2, together with the percentage change between the two. Results for the two main divisions of the WBBS sample, random and WBS-linked, are shown separately.

Because of FMD, both samples have substantial geographical and habitat bias. The values of the

mean counts, as well as the percentage changes, can nevertheless be compared between the two samples. Interestingly, the mean counts in the WBS-linked sample are generally higher than among the random sites, substantially so in the cases of species as diverse as Mallard and Wren. A likely explanation for this is that WBS observers select sites that hold more birds than

average. Percentage changes often differ widely between the two samples: of the 21 species tabulated, there are nine cases where the signs of the estimates disagree. For some of the commonest species (Woodpigeon, Wren, Blackbird, Chaffinch), however, and for the species that apparently changed the most overall (Mute Swan), both estimates suggest a decline. Sedge Warbler decreased substantially according to all three measures presented here; it also recorded a decrease on BBS and CES plots in 2001.

Our feeling is that the discrepancies between the WBBS samples stem from the variability of the data. They emphasise the need for monitoring to be based on sample sizes an order of magnitude larger than was achievable in the difficult circumstances of the 2001 spring.

HOW CAN 2001 DATA CONTRIBUTE TO LONG-TERM MONITORING?

The data from WBS and WBBS give some indication of population changes between 2000 and 2001, although the small samples and the bias in plot distribution towards disease-free regions and habitat types must be borne in mind. For now, however, they add little to developing ideas about longer-term population change along the UK's waterways, because of the difference in plot distribution compared with earlier years. As more years' data are added to the sample, it may become practical to make full use of the 2001 data that exist.

WBBS DEVELOPMENT IN 2002–03

Spring 2002 saw the start of Phase 3 of WBBS development, which includes a major expansion of the random sample. An additional set of waterways has been selected randomly, bringing to 511 the number of random plots for which annual cover is now being requested. Details of these stretches are with RRs, who have already been successful in finding observers. Already, returns for 2002 include 27 random sites not covered in earlier years. We are very grateful to all WBBS participants, whether 'old hands' or new to the scheme in 2002. Naturally, we are hoping that existing

WBBS participants will continue their support for the scheme over the coming seasons.

To achieve our aim of a doubling in the number of random surveys, however, we need many more new observers for 2003. Figure 2 shows the locations of waterways selected but for which no data have yet been returned to HQ. If you can help with a new site, please contact your RR or John Marchant at The Nunnery for details of the site and a recording pack.

We are very pleased to report that no fewer than nine new mapping WBS sites were due to start in spring 2002. The long-running WBS also needs continuing support, to ensure that we collect sufficient data to calibrate WBBS trends against those from WBS over a long-enough overlap period.

This project is funded by the Environment Agency.

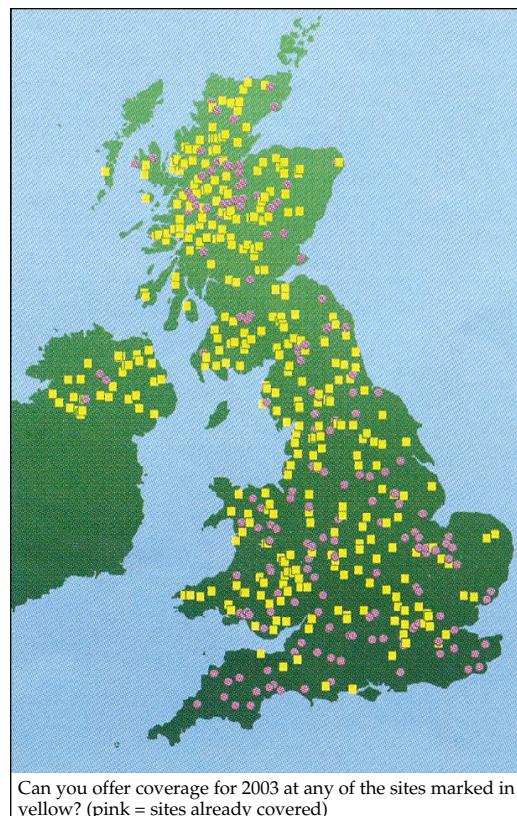


FIGURE 2. WBBS's 511 random sites.