

## LINKING THE BREEDING BIRD SURVEY TO THE COMMON BIRDS CENSUS: A PROGRESS REPORT

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The BTO's *David Noble* and *Steve Freeman* look at how CBC and BBS data can be linked to provide continuity of monitoring.

### COMBINACION DEL MUESTREO DE AVES REPRODUCTORAS CON EL CENSO DE AVES COMUNES: INFORME DE PROGRESO

*David Noble y Steve Freeman* del BTO examinan cómo los datos del CBC y el BBS pueden ser combinados para asegurar la continuidad del monitoreo.

### RELIER LE BREEDING BIRD SURVEY AU COMMON BIRD CENSUS: UN RAPPORT D'ETAPE

*David Noble et Steve Freeman* du BTO's intéressent à la façon dont les données du CBC et du BBS peuvent être reliées pour assurer un monitoring continu.

### ZUSAMMENHANG ZWISCHEN DEN BRUTBESTANDSMONITORING PROGRAMMEN BBS UND CBC: NEUE ERGEBNISSE

*David Noble und Steve Freeman* vom BTO untersuchen die Frage, wie die Ergebnisse der CBC- und BBS-Programme verknüpft werden können, um eine bessere Kontinuität beim Brutbestandsmonitoring zu gewährleisten.

## PHASING OUT THE CBC

The Common Birds Census (CBC) is the longest running survey of terrestrial breeding birds in the world, and the results underpin a number of important conservation initiatives in the UK. However, although the CBC has provided valuable long-term data on population trends, because of its bias in coverage towards the south and east of England, and because its plots are selected by the observers rather than at random, it has certain limitations for monitoring national bird populations. It also requires considerable effort on the part of volunteers and BTO staff, and hence the number of plots has tended to remain about 200. For these reasons, the

Breeding Bird Survey (BBS), based on randomly selected sites across the entire UK, was introduced in 1994 and has been growing ever since. The official CBC scheme finished in March 2001, and the period of overlap is the seven years between 1994 and 2000. Work to develop a method of linking the two schemes started in 2000 and is continuing.

### PRELIMINARY RESULTS:

BBS AND CBC SHOW SIMILAR PATTERNS IN  
MAIN CBC AREA

The first stage of this work is now complete.

The annual indices derived from the BBS were compared with those from the CBC over the period 1994 to 1999. The geographical bias of the CBC was addressed by restricting this comparison to CBC plots and BBS squares within the main area covered by the CBC in lowland southeast Britain. Within each scheme, sites obviously differ in bird abundance, and hence trends were determined from a model that controls for the differences between sites as well as looking for differences between years. For CBC, counts refer to the estimate of the number of territories within the plot. For BBS squares, the maximum total count of all birds of each species, over all distance categories, was used to estimate annual indices.

The most important result is that both surveys showed very similar annual patterns for the vast majority of species such as Whitethroat (Figure 1). This was also true for species such as Tufted Duck, for which neither survey is ideally suited. In fact, formal testing revealed a significant difference in trends for only five of the 75 common species tested. These were Wren, Blackbird, Robin, Chiffchaff & Pheasant. In the case of the first three species, the extremely large amounts of data mean that even slight differences show up as statistically significant. As the closely parallel peaks and troughs in the figure for Wren (Figure 2) show, these small differences between the surveys are unlikely to be biologically important. Variation between the BBS and CBC trends for Pheasant and Chiffchaff, however, may reflect real differences in trends in different habitats or in how the birds are counted.

Although these results support the idea that CBC and BBS surveys track changes in bird populations in the same way, the lack of a significant difference for some species, particularly the scarcer ones, must be interpreted with caution. An example is Yellow Wagtail (Figure 3). Both trends increased between 1994 and 1996, but whereas the CBC trend remained stable from 1996 to 1999, the BBS trend crashed by almost 50% over the same period. This species is increasingly rare and the wide confidence intervals surrounding the trends makes it difficult to detect a significant effect. This problem was also evident in the

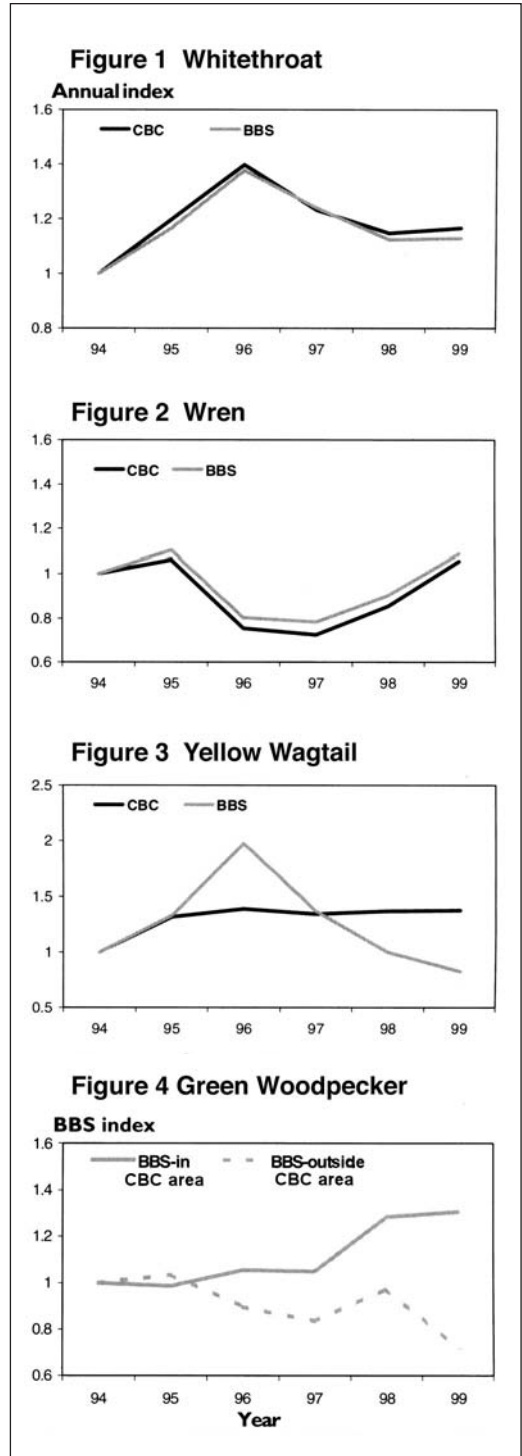


FIGURE 1-4. Comparisons of CBC and BBS results for selected species.

plots of a few other species that are poorly monitored by either survey due to factors, such as the nocturnal Tawny Owl or colonial House Martin.

The other important conclusion from this work is that it confirms that population trends based on the geographically-biased CBC may not reflect the situation across the entire UK. Of the 75 species, 30 (40%) species showed a significantly different pattern of BBS indices within the CBC area, compared to those outside this area (i.e. the Southwest, Wales, Northern Ireland, Scotland and the northernmost parts of England). Figure 4 shows the trends for Green Woodpecker, one species which appears to be increasing in the main CBC area but declining in the peripheral parts of its range. Although differences in regional BBS trends have been previously reported in the BBS annual reports, this is the first formal test of the effect of the geographic coverage of the CBC on estimated population trends. Although we cannot assume that historical population trends would have shown the same geographical patterns as the ones tested here (between 1994 and 1999), it does suggest that regional effects are important for a large number of species.

## NEXT STEPS

Given that we have historical CBC data for most species, which in many cases probably differ from populations covered by the BBS, and we have more comprehensive BBS data for the period since 1994, how do we link these trends? This work demonstrates that the two schemes tend to yield the same patterns for widespread terrestrial species within the same area. It is therefore possible to calculate long-term trends using a regional subset rather than all of the data, based on CBC data until 1994 and joint CBC and BBS data from then onward. However, for species such as the Lesser Redpoll, we know that CBC trends are not indicative of the bulk of the UK population in the north, and hence the national BBS data, where available, are more appropriate. All of these combinations tell us something slightly different about the status of the species and the best way of presenting long-term trends in populations will depend on context. The challenge is to report population change figures in a simple but meaningful way. To that end, the BTO plans to discuss these results and recommendations with other conservation organisations early this autumn. Thanks to all BBS and CBC observers who have helped to generate this impressive run of data.