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GARDEN BIRDWATCH — MONITORING AN IMPORTANT HABITAT

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Garden BirdWatch started in 1995 and rapidly became hugely popular. Here, *Mike Toms* looks at the value of the data coming from this increasingly important habitat.

OBSERVACIÓN DE AVES EN JARDINES – SEGUIMIENTO DE UN HÁBITAT IMPORTANTE

Observación de Aves en Jardines (Garden BirdWatch) comenzó en 1995 y ganó popularidad con rapidez. Aquí, Mike Toms evalua el valor de los datos provenientes de este hábitat de creciente importancia.

With 15,000 participants, the BTO/CJ Garden BirdWatch (GBW) is the BTO's largest monitoring programme. In fact, Garden BirdWatch is the largest year-round monitoring programme of garden birds anywhere in Europe. Every week, in gardens right across Britain & Ireland, people are busy recording the occurrence of familiar garden bird species (they also record information on more unusual garden visitors but that — as they say — is another story). This information is then sent to the BTO (on a quarterly basis by those people using paper forms, and weekly by those submitting their results over the Internet) where the results provide important information on the seasonal use of gardens and how this use is changing over time.

MASS PARTICIPATION

The strength of Garden BirdWatch lies in its army of volunteers who support the project both financially (through an annual contribution towards the running costs and the production of the quarterly colour magazine) and through the time they spend recording their observations. Within the popular press — and more recently in the scientific literature — this type of monitoring work has been termed 'Citizen Science'. It is all about getting people involved in gathering information of a type that has value to scientific research and which can also be used, as in this particular case, to underpin conservation work. In short, Garden BirdWatch results tell us about how birds use gardens and how the degree to which they do so is changing over time, something that may reflect changes in populations in the wider countryside.

Despite having over 15,000 participants, many would not regard Garden BirdWatch as being 'mass participation' and, while the project may only involve a tiny fraction of the number of people taking part in other 'mass participation' projects looking at birds, it has one clear advantage — the quality of the information being gathered and the nature of the scientific methods being employed to do the recording. Garden BirdWatch tells us things about garden bird populations that other surveys cannot and do not. As such, it dovetails in with the other research and monitoring work carried out by the BTO.

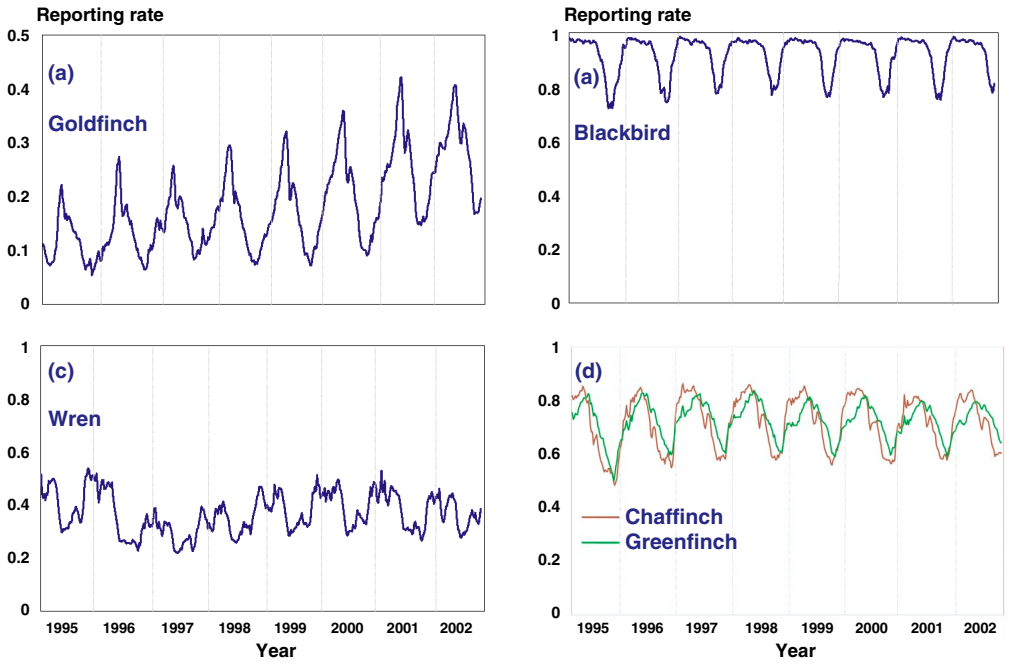
ANNUAL PATTERNS

One of the most amazing things to come out of the Garden BirdWatch results is the consistency seen in the annual cycles of various species using gardens (Figure 1). For example, a casual glance at the reporting rate graphs shows that the peak use of gardens made by Goldfinches occurs over the same three-week period during late spring every year (Figure 1a), while the graph for Blackbird shows a consistent drop in the garden reporting rate every September (Figure 1b). Such seasonal patterns are familiar to many casual observers but seeing them in results generated by many thousands of Garden BirdWatchers reinforces our understanding. Looking closer reveals even more interesting patterns — differences between regions and subtle differences between years that result from weather patterns and from variations in food availability. Reporting rates for species like Wren, Goldcrest and Long-tailed Tit highlight their susceptibility to poor winter weather — the effects of the cold spring in 1996 on the Wren population can be clearly seen (Figure 1c).

Equally intriguing are differences between species. Both Chaffinch and Greenfinch, for example, seem to begin their late-autumn arrival in gardens over the same few weeks each year, with the Chaffinch reporting rate continuing to increase to an end of year peak, with that for Greenfinch not peaking until early spring (Figure 1d). The late summer drop in reporting rate for these two species shows a different pattern, with Greenfinches consistently remaining in gardens for several weeks later than the Chaffinches. Do such differences relate to the breeding cycles of the two species, to the availability of their preferred foods or to some other factor? Such questions can be explored by using the Garden BirdWatch results.

LONG-TERM TRENDS

Because the Garden BirdWatch observations are gathered in a consistent manner, from week-to-week and from year-to-year, they can be used to look at long-term patterns in the use made of gardens by bird populations. Although, some



Garden BirdWatch reporting rate graphs for (a) Goldfinch, (b) Blackbird, (c) Wren and (d) Chaffinch & Greenfinch. (Reporting a measure of the proportion of gardens in which a species was observed during a particular week.)

FIGURE 1. Garden BirdWatch reporting rates.

birds will remain within gardens throughout the year, many will spend most of their time in other habitats and only visit gardens at certain times of year. Some of these will be birds moving into gardens from farmland hedgerows and woodlands elsewhere in Britain & Ireland when food supplies run low, while others will arrive from overseas, supplementing our resident populations of thrushes and finches or adding a touch of the exotic as in the case of Waxwings and Fieldfares.

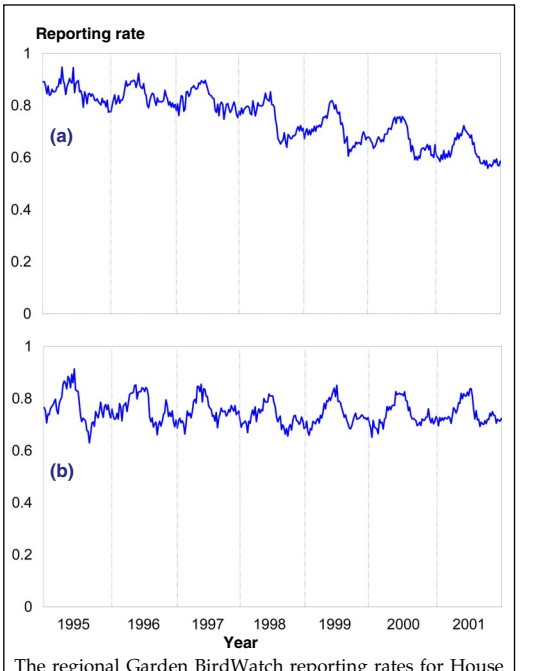
So, changes in garden reporting rates over time may reflect changes in the population size of birds in other habitats or, indeed, in other countries. However, mixed in with this will be the influence of other factors like the availability of food in the wider countryside, weather conditions or changes in migratory behaviour. Teasing out these factors would be difficult if Garden BirdWatch existed in isolation. Fortunately it doesn't — Garden BirdWatch results can be examined in relation to those from other BTO schemes that monitor birds in other habitats (Constant Effort Sites scheme, Breeding Bird Survey, etc.) or which record information on other aspects of avian ecology (e.g. Nest Record Scheme, Retrapping Adults for Survival). Collectively, the information from these various schemes provides us with the information we need to unravel the effects of those different factors influencing the changing fortunes of bird populations. Garden BirdWatch information is already making a valuable contribution to other BTO work and projects like The London Project, the Winter Feeding Project and a University of Sheffield BTO CASE studentship all use Garden BirdWatch data, as does the recently completed work for DEFRA on House Sparrows.

A species such as House Sparrow is largely sedentary in nature, as the new BTO Migration Atlas shows. Changes in the Garden BirdWatch reporting rate are likely to reflect changes in population size, although there may be some seasonal movement into rural gardens from surrounding farmland during the winter months. Overall, the number of House Sparrows occurring in Garden BirdWatch gardens has decreased significantly by about 40% over the period that Garden BirdWatch has been running.

In fact, the decline in the House Sparrow population predates Garden BirdWatch, since it can be seen in the BTO Garden Bird Feeding Survey (GBFS) results as far back as the mid-1980s. What is interesting about the decline, and this is where a survey like Garden BirdWatch with large numbers of participants spread right across the country comes into its own, is that the level of decline varies regionally. Populations in the southeast of England have been undergoing a more dramatic decline than those elsewhere, while those in Scotland appear to be more stable (Figure 2a & b). The winter peak in the numbers of House Sparrows using Garden BirdWatch gardens has been getting slightly earlier over time, something that fits in well with a similar pattern seen in the GBFS results, where the winter peak in numbers has shifted from mid-January back to mid-October.

BUILDING FOR THE FUTURE

Because the Garden BirdWatch project depends upon the financial support of its participants, it was not clear when the project was first set up whether it would get off the ground. In the event, we need not have worried. The generosity of BTO members and Garden BirdWatch



The regional Garden BirdWatch reporting rates for House Sparrows in (a) London and (b) Scotland, show the different regional trends evident in the data.

FIGURE 2. Regional House Sparrow reporting rates.

participants is truly humbling and the project has grown to over 15,000 participants. This growth in the number of participants means that we are increasingly able to look at trends at regional and county levels. Understanding such regional variation helps us find out why species are increasing or decreasing at the national level and why. Having said this, there are still many counties where we need more Garden BirdWatchers. So if you live in the north or west of Britain or anywhere in Ireland, and are willing to support the project, then why not get involved? Additionally, you might have friends with an interest in gardens birds that might get a great deal of enjoyment from participating in a project of this kind.

During the last few months we have launched Garden BirdWatch Online, allowing participants to enter their results over the Internet. This means that we get information on a weekly basis (in addition to that arriving quarterly on paper forms) and can respond more quickly to the arrival of winter visitors and provide greater feedback of information through the quarterly magazine. Participants can view their own data over the Internet going back to when they first joined Garden BirdWatch and we also display regional and national results that anybody can view. Why not visit www.bto.org and follow the link to Garden BirdWatch.

Garden BirdWatch is funded through the annual contributions made by its participants and supported by CJ WildBird Foods Ltd. We are extremely grateful to all those who have made this project such a success.