

& Tomkovich 2010). Adults and juveniles are likely to show different patterns of site selection, on top of which there could also have been a small net movement out of Britain in December, in search of milder areas. So, there is a complex picture to report, but future results for 2009/10 from other national monitoring schemes may help to provide some answers.

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WeBS is a partnership between BTO, RSPB and JNCC in association with WWF.

Beak deformities of garden birds

Last winter, following a number of reports of birds with beak deformities in gardens, the BTO launched ‘Big Garden Beak Watch’ (BGBW) – a nationwide survey of birds with beak abnormalities in gardens. To date, more than 450 birds have been logged through this ongoing survey, and the latest results are presented here.

In populations of free-living birds, the incidence of bill deformities is generally less than 1% (see Handel *et al.* 2010 and references therein). Recent research in Alaska (Handel *et al.* 2010; Van Hemert & Handel 2010) has, however, revealed beak deformity rates far in excess of this figure. The aims of BGBW are to find out which species are

reported most often with beak deformities in British and Irish gardens, the types of deformities encountered and to assess the spatial distribution of records.

Species affected

To date, beak deformities have been reported in 32 species through BGBW. Collectively, Blackbirds *Turdus merula* and Blue Tits *Cyanistes caeruleus* account for more than half of the individuals reported with deformities. Other species that feature prominently include Common Starling *Sturnus vulgaris*, Great Tit *Parus major*, Wood Pigeon *Columba palumbus* and Rook *Corvus frugilegus* (table 1). Given that some species are seen more often in gardens than others, frequency data of this kind could be biased, but we can use the BTO’s Garden BirdWatch survey data to correct this. Dividing the number of records of beak deformities by the



Dave Adamson

283. Overgrown upper mandible, the most frequent deformity of Blue Tits *Cyanistes caeruleus*; Yorkshire, March 2011.

Table 1. Species with more than ten records of beak deformities recorded through Big Garden Beak Watch.

Species	Number of records	Beak deformity rate (BDR)
Blackbird	121	43.7
Blue Tit	117	39.8
Common Starling	36	8.7
Great Tit	31	16.9
Wood Pigeon	29	12.8
Rook	20	67.2
Jackdaw	14	13.2
House Sparrow	12	2.4
Robin	12	9.5



Carol Mitchell-Lisle

284. A fractured bill, the most frequent deformity of Blackbirds *Turdus merula*; Cheshire & Wirral, December 2009.

average weekly Garden BirdWatch count for each species (data from 2010) produces a 'beak deformity rate' (BDR), which helps to counter any bias. Table 1 shows that while both Blackbird and Blue Tit have relatively high BDRs, in species for which more than ten records of beak deformities have been reported, it is the Rook that has the highest rate.

Types of deformities

Although the morphology of the beak deformities reported through the survey is wide-ranging, a few types occur relatively frequently. These include: upper and lower mandible crossed (e.g. resembling a crossbill *Loxia*); upper or lower mandible overgrown;

upper and lower mandibles elongated (typically decurved or straight, like a wader); lateral curvature, where one or both mandibles warp sideways (e.g. like a Wrybill *Anarhynchus frontalis*); gapped, where the upper and lower mandibles do not close fully leaving a visible gap; or fractured, where part of the bill appears to be broken.

When all species are considered together, overgrown upper mandibles (140 sightings) have been

logged most often, followed by crossed upper and lower mandibles (91), elongated upper and lower mandibles (77), overgrown lower mandible (43) and fractured bills (42), with other deformity types being less common. Fascinating between-species differences in the types of bill deformities found have also emerged. For example, in the Blackbird, 26% of individuals with deformities have had a fractured bill (plate 284), compared with zero records for Blue Tit, Starling and Great Tit. Indeed, Blackbirds accounted for almost three-quarters of all birds reported with fractured bills through the entire survey. Overgrown upper mandibles have been recorded frequently in all four of these focal species, but especially in the Blue Tit (44% of

records; plate 283). Of the Starlings reported to us, 61% had both mandibles elongated (plate 285), and this abnormality has also been the most common deformity type of Great Tits (42% of records).

Geographical spread

The geographical range across which incidents of beak deformities have been reported through the survey encompasses much of Britain and Ireland (fig. 3), although there is a considerable clustering of



Michele Burrows

285. Elongation of both mandibles, the most frequent deformity of Common Starlings *Sturnus vulgaris*; Hertfordshire, December 2009.

reports around Greater London and in Cheshire & Wirral. While this might be a biological effect, these areas are densely populated and so higher reporting rates from householders are likely. As more reports come in we will be able to control for human population density and present regional maps showing relative occurrence, much as we have done for our work on disease in Greenfinches (Toms 2010).

Discussion

Preliminary results from BGBW have revealed pronounced differences in the frequency with which different species appear to be affected by beak deformities (table 1) and in the types of beak deformities encountered. Two-thirds of BGBW records describe a deformed bird seen in 2010 or 2011, but it is too early to assess whether the incidence of birds with beak deformities in gardens is increasing.

There are interesting parallels between the latest findings of BGBW and results emerging in Alaska, where similar types of beak deformities have been found. In parts of Alaska, 6.5% of adult Black-capped Chickadees *Poecile atricapillus* were affected between 1999 and 2008 (Handel *et al.* 2010) and 16.9% of adult Northwestern Crows *Corvus caurinus* during 2007/08 (Van Hemert & Handel 2010). Overgrown beaks in Alaska have been associated with abnormal keratin production, including abnormally rapid growth of the rhamphotheca, the outer keratinous sheath of the beak (Handel *et al.* 2010). Interestingly, these beak abnormalities have also tended to develop in adulthood, suggesting a latent developmental or an acquired condition (Handel *et al.* 2010). Reasons for beak deformities in Britain and Ireland are currently unknown and require further attention. It is

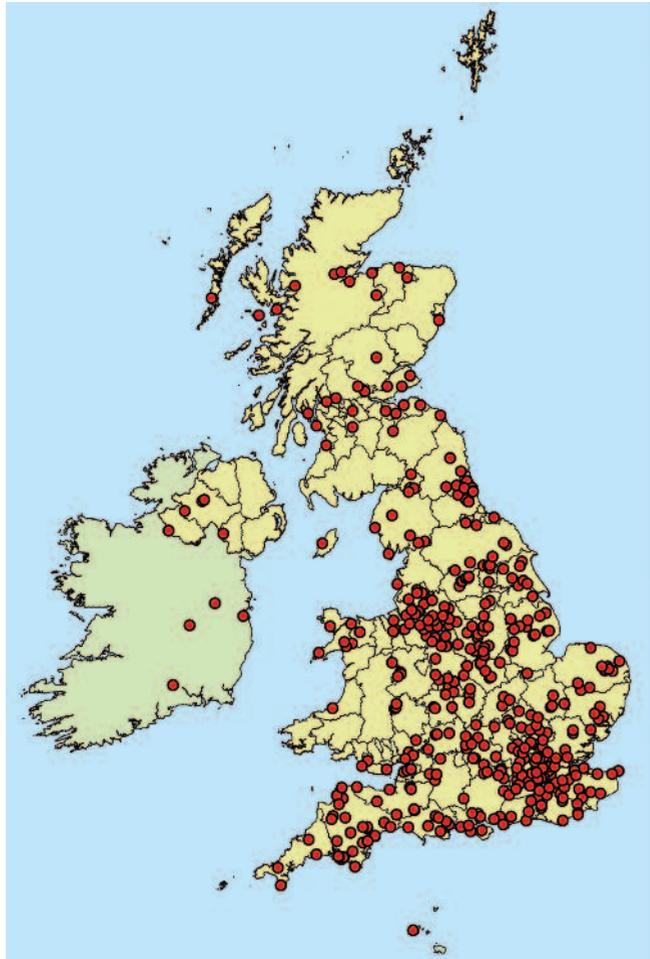


Fig. 3. Beak deformities of all species recorded through Big Garden Beak Watch.

hoped that BGBW will contribute towards this work.

The BTO's BGBW is ongoing. If you have ever seen a bird with a beak deformity in your garden, please let us know online at www.bto.org/gbw or telephone 01842 750050 for a paper survey form.

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