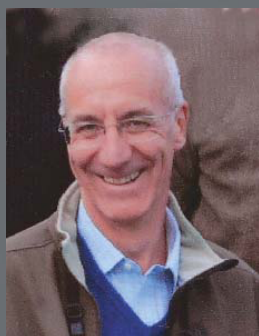


# AS THE CLIMATE CHANGES, WHAT'S THE EFFECT OF THIS UNUSUALLY COLD WINTER WEATHER ON OUR WILDLIFE?



Dr Andy Clements  
Director, British Trust for Ornithology

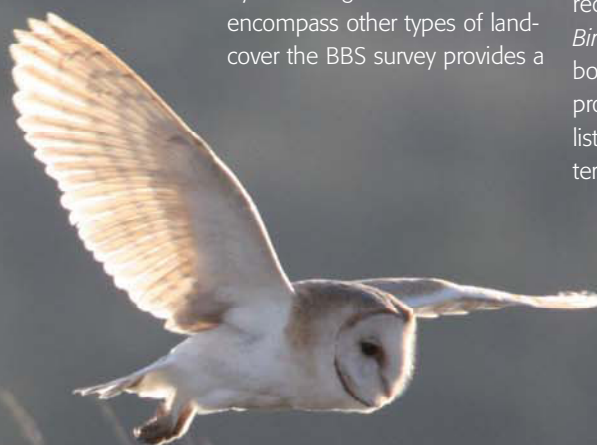
Birds are important barometers of change – they are colourful, vocal and highly visible components of British wildlife which respond, through the timing and success of breeding attempts, their migration patterns and their survival rates, to changes in the conditions they encounter. The British Trust for Ornithology (BTO) draws on people's inherent interest in birds to underpin our scientific research into the populations and ecology of birds. With climate change high on political agendas world-wide, the long term study of bird populations puts Britain firmly at the leading edge of climate research.

This has been an extraordinary winter for birds, with extreme weather-related movements of many species. Already there are indications that some species are faring badly – reports of dead Barn Owls to our Ringing Office are twice what they would be in an average winter, as these birds find it difficult to feed when snow cover hides small mammal prey – whilst anyone interested in birds in even the most urban environment will, with luck, have noticed Waxwings, those rather exotic looking crested berry-eaters, that have arrived from Scandinavia in unusually large numbers this year.

The BTO's work, partnering the observations of 40,000 volunteer bird recorders with rigorous survey design, and intelligent, modern data analysis and interpretation by our professional scientists, means we can contribute solid evidence-based science to Government and society in a remarkably cost-effective manner. It was the *BTO Atlas of Breeding Birds in Britain and Ireland* during the 1980s that demonstrated marked declines in farmland birds, first noticed in earlier BTO surveys during the 1970s. This led to the design of the BTO/RSPB/JNCC Breeding Bird Survey that collects data to inform the Farmland Bird Index. By extending the measure to encompass other types of land-cover the BBS survey provides a

broader measure of environmental health using the Wild Bird Indicator (Fig 1).

BTO scientists not only work with volunteers to monitor bird trends, as reflected in the Farmland Bird Index, we also undertake research to understand the causes of change. Working alongside a range of NGO, academic and government partners, we were at the heart of the planning process to devise wildlife-friendly prescriptions to use in the Entry Level and Higher Level Environmental Stewardship schemes. We are now completing the circle by helping to monitor the effectiveness of the Entry Level Scheme. A recent paper in the BTO journal, *Bird Study*, shows that field boundaries managed under ELS provide benefits for the red-listed Yellowhammer. The long-term, extensive datasets for



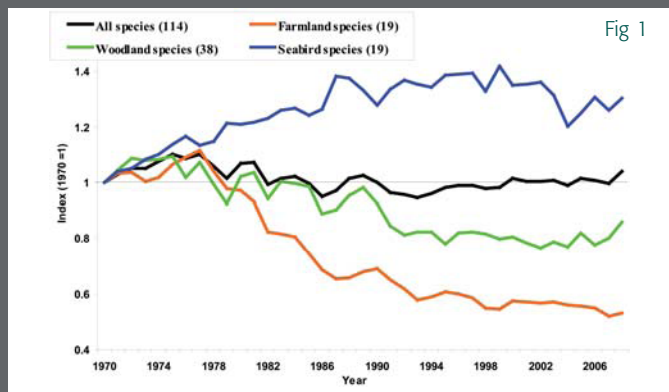


Fig 1

which we are the guardians are invaluable, recording the evidence of change and providing a resource that helps us to address key questions through more intensive research.

We've further capitalised on the enthusiasm of our ever-increasing community of citizen scientists by providing opportunities to record other taxa too. The Breeding Bird Survey collects data on mammals as part of the Tracking Mammals Partnership so, for example, we can present results showing how deer populations are growing and expanding their range (Fig 2). Linked, intensive research demonstrates the effects large numbers of deer are having on woodland structure and how this, in turn, affects Nightingales. We know that this is a species that has declined dramatically and we now know that, where they occur as breeding birds, they selectively prefer habitats where there is thick understorey in which to hold territory and to nest – habitats without deer.

As a 'birds-first' organisation, the whole life cycle approach to understanding what is happening to our bird populations is important. Escaping cold winters, like the one we are currently experiencing, is the strategy adopted by our long-distance migrant birds, of which Nightingale is a classic example. So, if we want answers about their migration and wintering areas, then we have to follow them – and new technology allows us to do this. Working with colleagues in Switzerland, we showed that a single data-logged Nightingale travelled as far as Guinea-Bissau during the autumn and winter of 2009/10, before returning to its breeding woodlands in the fenland of Cambridgeshire (Fig 3). Our

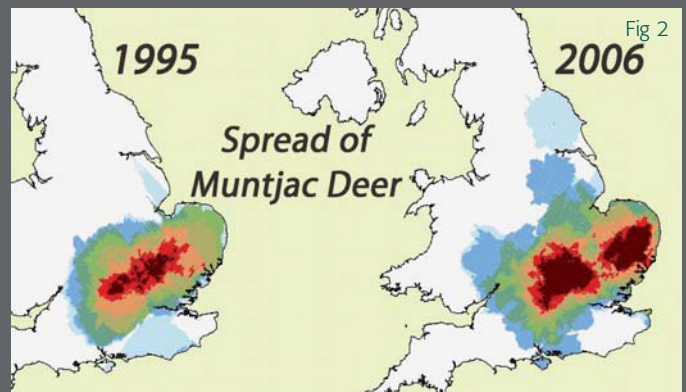


Fig 2

*Out of Africa* project is run in collaboration with RSPB and local partners in West Africa to build on information like this, and undertakes extensive survey and ringing work to find where migrant species spend the winter and what pressures (for example by quality of life development for the rural poor) are placed on the habitats and food resources they require.

But let's return to this cold winter. We will only gain a sound view of the fate of our resident birds after many thousands of volunteers have undertaken their summer counts, returning to the same sites they surveyed in 2010, or through ringing studies looking at adult survival. Our experience tells us

to expect declines in the populations of small birds, herons and Kingfishers that require open unfrozen waters, and birds of prey. It may be that some of the dramatic spreads and colonisations of southern species seen in recent years, and no doubt assisted by climate change, may stall. The BTO long running Heronries census data from 1929 shows well the effects of hard winters (Fig 4).

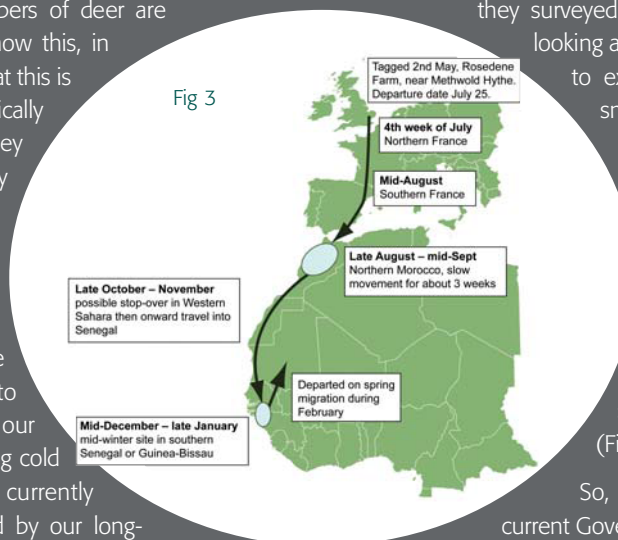


Fig 3

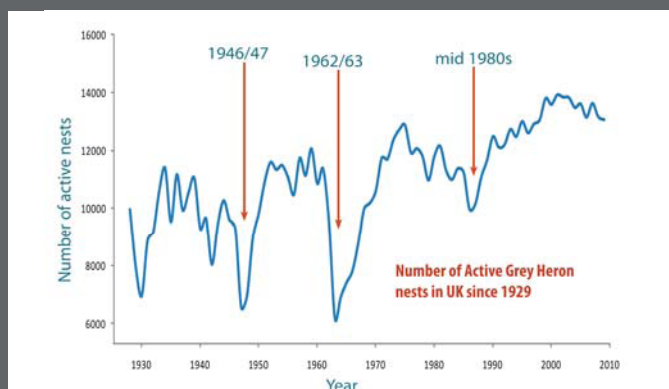


Fig 4

So, how does our contribution sit within current Government priorities? An impartial, policy-relevant evidence base is undoubtedly an asset. BTO has a strong partnership with the Joint Nature Conservation Committee (JNCC), the Government agency which is itself an impartial evidence provider on biodiversity, supporting BTO core surveys that contribute to the Government's environmental surveillance requirement. BTO raises some £5m annually from contracts, donations and membership to fund our research and survey work. But that is not the whole story. With a volunteer workforce of 40,000, contributing the equivalent of £36m of survey work annually, and frameworks that reliably scale-up local effort to the national scale (our 'super-volunteer' Regional Representatives that encourage and support the troops), the BTO model looks like the Big Society in action. Our volunteers think that too, and one of the commonest reasons they give for making an effort, is to see their own individual records become part of a significant body of scientific work. As their records come in this year, you will be able to track the growing knowledge about how our birds have fared this winter – check out our science at [www.bto.org](http://www.bto.org).