Crick, H.Q.P. & Bradbury, R.B. 2010. *BOU Proceedings – Climate Change and Birds.*
http://www.bou.org.uk/bouproc-net/ccb/crick&bradbury.pdf

This paper forms part of the proceedings from the BOU conference ***Climate Change and Birds****.*
Other papers from these proceedings can be viewed at www.BOUPROC.net.

ABSTRACT

Challenges in climate change adaptation for UK birds

HUMPHREY Q.P. CRICK[1]* & RICHARD B. BRADBURY[2]

[1]Natural England, Eastbrook, Shaftesbury Road, Cambridge, CB2 8DR, UK
[2]RSPB, The Lodge, Sandy, Beds. SG19 2DL, UK

*Corresponding author:
*Email: Humphrey.crick@naturalengland.org.uk

Much conservation thinking on adaptation is currently based on the premise that we are likely to face a moderately warmer world, but some now think that although we should aim for world which is 2° warmer, we should prepare for a world which is 4° warmer. The latter is likely to pose substantial problems to conservationists. Such problems will not just occur because the climate becomes warmer but because there are likely to be an increase in climatic extremes – what some have described as "global weirding". While there is now a wealth of guidance available on adaptation to moderate climate change, many approaches may become superseded by the need to find more radical solutions to the problems posed by greater warming. Here we consider a number of key approaches as they may be applied to bird conservation in the UK and how they may need to be modified in the light of substantial climate change.

Current approaches to adaptation are based on five main concepts:

- Conserve and support the existing suite of protected sites, as these provide the best quality habitats, with lowest levels of environmental stress, with the assumption that these provide a high degree of resistance or resilience to climate change.
- Conserve variation within populations, to provide the greatest scope for species to adapt to new conditions.
- Reduce environmental pressures and stresses exerted by non-climatic factors.
- Conserve areas with a high degree of topographic and habitat variation, as these provide greater opportunities for species to adapt within a location.
- Establish ecological networks, using a range of tools to promote functional connectivity, to facilitate the redistribution of species as climatic conditions change.

Key to these approaches are the concepts of resistance (to change) and resilience, both of which assume the maintenance of the status quo, although the latter suggests that a system has the capacity to return to its original state even though it might show a transient change due to some perturbation.

As we move to a world in which climates and ecological communities develop that have no current analogy within the UK, or even Europe, a more ecosystem-based approach to conservation may become necessary, in which the concept of accommodation becomes the key ecological tool for adaptation. The communities of species found on protected sites may change substantially, as is already being seen on SPAs for wintering shorebirds. Assisted dispersal may become necessary for species with poor dispersal abilities, though this may be less an issue for birds than other taxa. Non-climatic pressures are likely to increase in the wider countryside matrix through social and economic factors, due to human population pressure and food, water and renewable energy security issues. Thus, connectivity across, and permeability within, parts of the wider countryside may be reduced. If so, an increasingly important property of protected areas will be the need to support large enough source populations, with sufficient propagule pressure, to overcome the barriers to dispersal. There is an urgent

need for research to understand these issues in order to make informed decisions, and for discussion with the wider public about the future of conservation practice and the landscapes we live in.

CITATION: Crick, H.Q.P & Bradbury, R.B. 2010. Challenges in climate change adaptation for UK birds. *BOU Proceedings – Climate Change and Birds*. http://www.bou.org.uk/bouproc-net/ccb/crick&bradbury-etal.pdf

