

WILDLIFE AND COUNTRYSIDE LINK BIODIVERSITY TASK FORCE

**BIODIVERSITY CONSERVATION
IN A CHANGING CLIMATE**

A DISCUSSION PAPER FOR THE ENGLAND BIODIVERSITY GROUP



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1. Introduction

1.1 The Wildlife and Countryside Link Biodiversity Task Force held a workshop in August 2004 on biodiversity conservation in a changing climate as a way of developing one of the themes present in '*Sustaining Biodiversity, revitalising the Biodiversity Action Plan process*.'¹ Following presentations, the workshop debated possible key, top line messages for adoption by Link. We hope that the lively debate which this paper has engendered within Link, on a selection of issues, will stimulate similar debate within the England Biodiversity Group and lead to improved delivery of biodiversity conservation in a changing climate. This paper is supported by the Bat Conservation Trust, Buglife – the Invertebrate Conservation Trust, Butterfly Conservation, Campaign to Protect Rural England, The Herpetological Conservation Trust, Marine Conservation Society, National Federation of Badger Groups, National Federation of Biological Recorders, National Trust, Plantlife International, Ponds Conservation Trust, Royal Society for the Protection of Birds, Whale and Dolphin Conservation Society, The Wildlife Trusts, Woodland Trust and WWF-UK.

1.2 This brief paper highlights the key messages that emerged from our workshop:

- We need to build greater resilience into our wildlife and countryside
- We need to deliver action at a landscape scale
- We need to improve our understanding of changing terrestrial and marine environments
- The England Biodiversity Group needs to examine the framework within which delivery of action on climate change takes place.

1.3 Although the Link workshop and this paper focus on adaptation issues, Link fully supports efforts to mitigate the effects of climate change, especially through meeting and exceeding the CO₂ reductions agreed at Kyoto and the UK Government's own targets, and starting new international negotiations on post-Kyoto reductions from 2012. It is also worth noting that some aspects of biodiversity conservation, such as restoring damaged peat bogs, make a contribution to CO₂ reduction.

2. Background

2.1 The vision for the conservation of wildlife in England has been set out in the England Biodiversity Strategy. We also have a number of international obligations including halting the loss of biodiversity in the EU by 2010. Achieving these objectives will be made more difficult by the impact of climate change.

2.2 The UK Biodiversity Partnership Standing Committee has highlighted climate change as a factor that needs to be taken into account in the current revision of the

¹ 2004. Wildlife and Countryside Link, Scottish Environment Link, Northern Ireland Environment Link and Wales Environment Link. Available at www.wcl.org.uk

UKBAP. This has a specific impact on the reviews of targets, and of priority habitats and species, which are currently being undertaken by sub-groups of BRIG. These reviews are not considered further in this paper. The country strategies seek to influence land use and cross cutting policies and help to deliver the objectives of the BAP contained within the country strategies. The UK BAP review process and the England Biodiversity Strategy are therefore key tools in developing a co-ordinated and effective response to the challenges that climate change will present to biodiversity in England.

3. Messages

3.1 Building in resilience

3.1.1 Climate change is already having a significant impact upon species phenology (nature's calendar) and will alter the geographical location of the climate envelope for many UK species with knock-on impacts for the habitats they comprise. Research programmes such as MONARCH and MARCLIM are helping to predict likely changes to distribution and abundance of some species and confirm that the composition of plant and animal communities in the UK will almost certainly change within our lifetimes.

3.1.2 Many species should be able to cope with such changes if there are sufficient and suitable receptive habitats into which they can move or randomly disperse. However, the fragmentation, and declining quality, of semi-natural habitats over the past fifty years has created an insufficiently permeable countryside which will severely compromise the ability of species to disperse successfully. Moreover, food chains in the marine environment are currently being disrupted at a most fundamental level over a wide spatial scale, leading to significant changes in species abundance and distribution over wide areas of UK territorial seas. Maintaining the health of existing species populations and providing sufficient suitable habitats into which those species can relocate should form the basis of any strategy intended to allow biodiversity to adapt to a changing environment.

3.1.3 Increasing the resilience of the countryside to accommodate future rapid change should be addressed in three ways;

- **Protecting and managing what we have.** We must retain the existing suite of protected and safeguarded areas rich in biodiversity as our insurance policy for the future. Without them there will be no 'seed corn' to allow dispersal and migration of species into existing and newly created habitats. Targeted management for priority species and habitats may help us buy time for species and habitats to adapt. Yet there is still incremental and insidious loss of valuable semi-natural habitat to built development, inappropriate agricultural practices, and pollution which exacerbate fragmentation of semi-natural habitats. These losses must cease if we are to have any chance of a viable future landscape rich in wildlife and capable of adapting to climate change and need to be addressed through the planning and legislative frameworks that influence land use decisions. But even if these losses cease, this is only the first step in developing an adaptive strategy to climate change.
- **Restoring and creating new habitat.** The UK BAP is explicit about the importance of restoration of relict habitat and the creation of significant areas of new habitat. The threat of climate change underlines the need to make real and rapid progress towards BAP targets. This will involve factoring climate change into identifying the spatial priorities for such actions. Habitat creation

should be strategically focused where the benefits are likely to be greatest i.e. to ensure that existing semi-natural habitats are buffered from external impacts and to aid dispersal through increasing total core area of semi-natural habitat.

- **Greening the wider countryside.** Protecting, managing and expanding semi-natural habitats is vital but we need to go further than this to make the countryside and marine environment as a whole more wildlife-friendly and more permeable to species movement. Having a natural environment which can sustain the wildlife that is common and familiar to most of us, will also help increase its resilience. It means, for example, managing farmland, rivers, lakes and inshore coasts and seas in a way that is not detrimental to wildlife.

3.2 The need for landscape scale action to become reality

Reducing intensity of land/sea use and making the matrix of land in between pockets of semi-natural habitat more benign and receptive to wildlife is a major task and one which can be described as landscape scale action. It means creating a diverse and resilient rural, urban and marine environment within which biodiversity can respond to rapid environmental change. It will also contribute to an environment which delivers other benefits such as water quality enhancement, flood control and soil protection.

Landscape scale action goes beyond the ability of any single policy instrument to deliver and involves addressing land/sea use policy and practice including agriculture, fisheries, aggregate extraction, forestry, water, soils, pollution and planning, in an integrated way which achieves coherent and complimentary objectives. This is a key area where the Strategy Implementation Groups of the EBS need to make substantial progress.

3.3 Improving our understanding of biodiversity in a changing environment

The nature and significance of climate change makes particular demands on our information and research capabilities. We need to continue existing research into climate change. For example, the work of MARCLIM and the Continuous Plankton Recorder (CPR) helps gauge the extent and change to the key biological processes and indicators as caused by environmental variables (such as temperature and salinity). We must continue to research oceanographic conditions in the North Atlantic to estimate the decline in power of the North Atlantic Oscillation. These are the studies which will inform the likely knock-on effects to terrestrial temperature change in the next 20+ years.

If we are to monitor the impacts of climate change and adjust our efforts to conserve biodiversity appropriately, we need to improve the monitoring and surveillance of species and habitats. We need up to date information on the extent and condition of biodiversity habitats, the health of species populations and the stability of food webs. We need to know more about how species and habitats will react to climate change, including how species can disperse or colonise new areas and how 'receptive' habitats can be. In addition, we need to continue research into the effects of climate change in a highly fragmented landscape to improve the accuracy and reliability of impact predictions. The effectiveness of management and adaptive strategies needs to be assessed and the results of this work disseminated. We also need to improve communication and dialogue between researchers and those engaged in policy and delivery of biodiversity conservation.

3.4 .The framework for delivery and the role of the EBG

3.4.1 The actions identified to enhance resilience of the countryside clearly require buy-in from a wide range of sectors and departments. Biodiversity conservation must

therefore become more than a notionally shared aim and commitment. Given that this is a key theme in the England Biodiversity Strategy, we believe that further steps need to be taken to give adaptation to climate change a higher profile within the cross cutting actions of the strategy and to secure some kind of explicit reporting arrangement.

3.4.2 How can the existing BAP structures be used to deliver conservation in the face of climate change?

There is potential overlap and confusion between the roles of the Habitat Steering Groups and the land use SIGs of the EBS. We believe that ensuring that we have detailed information on the extent and condition of habitats should be one of the key roles of the habitat steering groups. In addition, these groups should lead on delivering specific habitat restoration and/or creation projects on the ground. They should identify the policy changes that are required to deliver the targets of these plans but these should be communicated to the relevant SIG for implementation. The SIGs need to deliver the policy framework that enables the HAP targets to be attained and should be able to address cross-cutting issues. The SIGs will therefore need to work closely with the relevant habitat steering groups.

4. Link recommendations to the England Biodiversity Group

Resilience - Protecting what we have:

- There is now welcome momentum to bringing the SSSI network into favourable condition but there is still much to do. The EBG should consider what it might contribute to efforts to identify and address the main constraints to achieving this objective.
- The EBG should also review whether the current protected area network (international, national and local) provides adequate protection to the range of wildlife in England and how it could be extended in the future to do so in the context of climate change, particularly as the community composition which underpinned the designation of such sites will change.
- Non SSSI local wildlife sites are becoming more important as part of our strategy to adapt to climate change. EBG should push for increased recognition, protection and resources for Local Sites (through the adoption of national common standards for their selection, management and monitoring), stronger links with planning and other related policies and greater commitment and involvement of key stakeholders.

Resilience - restoration and creation:

- The Towns, cities and development SIG should bring forward measures to encourage spatial planning of habitat creation.
- The Funding and business SIG should identify costs of restoration and creation targets for UK priority habitats and assess adequacy of current funding streams.

Landscape scale action:

- The EBG should encourage the habitat action plan steering groups to promote or champion a number of projects demonstrating the delivery of biodiversity objectives at a landscape scale.
- The EBG should review existing land/sea management mechanisms to establish their role, function and value in delivering landscape scale action for biodiversity. This is especially important during the establishment of the new integrated agency and the period of confederation of existing agencies.

Monitoring, reporting and research:

- The EBG should urgently bring forward measures to improve the monitoring and surveillance of biodiversity.
- The EBG should adopt a measure of habitat resilience as an indicator for reporting. The DEFRA Indicators Review Group recognise that a resilience indicator is required to accord with the EU requirements.
- The EBG should support and encourage further research into the potential impacts of climate change at species, habitat and site levels. This should include work on: the likely future distribution of species; the likely species complement of current habitat/community assemblages in the future; the availability of food and other ecological requirements of priority species; the impacts of changes to the North Atlantic Oscillation; the impacts of climate change on site management (e.g. water availability, grazing requirement, etc) and the development and effectiveness of management/adaptive measures.

Framework for delivery and the EBG:

- The EBS Strategy Implementation Groups should clearly define their role through terms of reference, including how they will work with relevant HAP steering groups.