Working with nature: the sustainable solution to tackling climate change

With the launch today of the new climate change projections (UKCP09) we have further strong evidence that climate change is going to hit us hard. The latest projections are the results of innovative and high quality science, making the UK models among the best in the world. There is now no doubt whatsoever that we urgently need to reduce our greenhouse gas emissions to avoid the very worst impacts towards the end of the century (mitigation). But it is also clear that we are locked into a period of very significant climate change for the next 30 or more years (and over a century for sea-level rise) with summer temperatures projected to increase by at least 2C by the 2040s. Therefore, we also need to adapt to cope with the changes. The summary projections include mean temperature rises of around 4C, reductions of rainfall in the south-east of 22% in summer, and increases in winter in the north-west of 16% by the 2080s. The 2003 heatwave we all remember, which killed thousands, will become 'normal' by the 2040s, and will be considered 'cool' by the 2060s. Winter floods, both river and sea, will become commonplace.

As a society we need to act now so that we are prepared for the future, but we also need to be aware that we can respond to climate change in both right ways and wrong ways. Whilst the direct impacts of climate change are the greatest long-term threat facing our natural environment, in the short-term human adaptive responses to climate change could do a lot of damage, not only to wildlife but also – by reducing the capacity of ecosystems to adapt – to ourselves.

To give just two examples of 'unsustainable' and 'sustainable' adaptation - when we experience more summer heat-waves we could install and use more air-conditioning, but this will increase emissions and overload the electricity networks – it's a natural response but it's unsustainable; alternatively, we could plan for and plant more parks and trees in our cities – just a 10% increase in green-space makes urban areas 4C cooler plus, of course, we get better drainage from flooding, more spaces for wildlife, and more spaces for people to walk and enjoy – this is a sustainable response to higher urban temperatures.

As we worry about increased coastal erosion and flooding it may seen sensible to build bigger concrete defences – but these are expensive, they damage habitats and they can make the problem worse by stopping natural processes which both dissipate tidal energy and allow coastal recharge down the line. Although we recognise that some places must be defended by concrete walls, it is not a sustainable national response for everywhere; alternatively we could (re)create more salt-marsh and restore coastal floodplain habitats, which provides cost-effective protection against flooding, improves water quality and provides wetland habitats for everything from birds to commercially valuable fish nurseries and, of course, high quality landscapes for people to enjoy – this is a sustainable adaptive response centred around a healthy natural environment.

In short, healthy ecosystems are fundamental to society's ability to deal with the causes (mitigation) and consequences (adaptation) of climate change. Both land and oceans play an enormous role in climate regulation – absorbing today approximately 50% of human emissions. In England, we estimate that peat soils alone store around 475 million tonnes of carbon. And yet the damage we are doing to peat and other ecosystems is reducing their capacity to store carbon, and in many cases actually causing them to become a carbon source. Damaged and degraded lowland peat in England is estimated to emit more carbon than domestic aviation. Restoring the peat can be done relatively cheaply and doesn't rely on unproven or expensive technology and at the same time it helps

maintain high quality water supplies, attenuates downstream flooding, and provides internationally important habitat.

Conserving and restoring ecosystems can have multiple economic, social and environmental benefits and must, we believe, be the basis for cost-effective action to tackle climate change. We cannot tackle biodiversity loss without addressing climate change, nor can we tackle climate change without tackling biodiversity loss. We must take urgent action to improve our degraded wildlife and ecosystems - not only so that we can retain the inherent character and quality of our landscape, but because we cannot afford not to if we are to ensure that our children can retain a high quality of life as our climate changes.

Natural England is doing much to influence this agenda in five main areas:

- We are working closely with Defra on the developing legislative and policy framework (set by the Climate Change Act) to ensure 'sustainable adaptation' is at the heart of our national response. We have also worked closely with the European Commission to ensure the recent White Paper reflects the need for sustainable approaches and sets up a European adaptation framework.

- Through HLS agreements over the last three years £90million has been spent on options which are beneficial for mitigation, adaptation or both. Environmental Stewardship has effectively reduced agricultural emissions by 11% and is helping farmers both to adapt their business, protect vital ecosystem services and provide support for wildlife as it responds to climate change.

- Our Character Area projects look at how different landscapes are likely to change and have started to identify the most appropriate forms of management that will enable wildlife and habitats to adapt and to continue to provide the vital life support services on which humans depend.

- We are leading efforts to better understand the effects of climate change on the natural environment and how we can use ecosystem-based methods to tackle it. In-house we are developing a vulnerability assessment methodology and a set of resilience indicators for the natural environment which will form a part of the Government's adaptation indicator set.

- Finally, we have set up a programme to integrate planning for climate change in all that we do and to ensure our own objectives are resilient in the face of change.

We are making great progress, but we cannot act alone and need to work with all our partners and stakeholders to ensure that the message of sustainable adaptation is at the heart of everything they do.