

The Birds and Habitats Directives and Climate Change

Introduction

Biodiversity loss and climate change are recognised as inextricably linked global environmental threats. While biodiversity protection can make a key contribution to climate change mitigation and adaptation, mitigation and adaptation are also essential to avert biodiversity loss. Some have argued that our emerging understanding of climate change, which has evolved since the Birds and Habitats Directives (the Nature Directives) were drafted and came into force, means that the Directives may no longer be fit for purpose in this context. However, the evidence suggests that the Birds and Habitats Directives provide a robust framework for responding to this and other changes, and building the ecosystem resilience required to mitigate and aid adaptation to the effects of climate change. On the basis of this evidence, we are therefore of the view that the BHD are key tools for addressing and mitigating the effects of climate change on biodiversity across Europe. However, it is unlikely that the main objectives of the Nature Directives will be met, and their full potential to support climate change adaptation and mitigation will be realised, while implementation of the measures set out in the Directives, designed to achieve these objectives, remains incomplete, inadequately funded, and is undermined by EU sectoral policies.

Climate change

In 2010 the European Environment Agency reported that the consequences of changing climatic conditions include “...increases in global mean ocean temperatures, widespread melting of snow and ice sheets, increased flood risk for urban areas and ecosystems, ocean acidification, and extreme climatic events including heat waves. The impacts of climate change are expected to be felt in all regions of the planet, and Europe is no exception. Unless action is taken, climatic changes are expected to lead to considerable adverse impacts.”¹

The UK’s Natural Capital Committee² has noted that, “*there is little indication that drivers and pressures on natural capital will lessen over the next 50 years. In fact, they are likely to grow. Nor will the rate of conversion to other forms of capital slow without targeted interventions. The challenge society faces, both domestically and globally, is how to manage natural capital so that it can continue to meet the needs of people and the economy, despite the mounting pressures.*” Addressing the impact of climate change needs coordination and consistent approaches at EU level.

The role of the Nature Directives in addressing and mitigating the impacts climate change

Biodiversity will be more resilient to climate change, more able to adapt, if we maintain our ecosystems in a healthy state. This will also be vital to human adaptation to climate change, because our prosperity and wellbeing depend on the services that healthy ecosystems supply.

The available evidence shows the contributions that the Nature Directives are making to mitigating the effect of climate change, and supporting climate change adaptation.

¹ <http://www.eea.europa.eu/soer/synthesis/synthesis/chapter2.xhtml>

² <https://www.naturalcapitalcommittee.org/>

Scientific evidence shows that protected areas are already playing a critical role in nature conservation in the face of climate change, helping to both retain retracting species and encourage colonisation by expanding species by enabling species to shift their range in response to changes in climate.^{3,4,5} The importance of this role is expected to increase as the impacts of changes in climate become more severe. This process has been observed in action, with breeding attempts of new colonisers focussed at SPAs in the UK – for example in recent years great white egret and little bittern on the Somerset Levels, black-winged stilt on the Thames Estuary, spoonbills on the North Norfolk Coast and glossy ibis on the Wash. Researchers have concluded that protected areas seem set to continue to deliver high biodiversity benefits, even if the relative abundances and identities of the species present changes.^{6,7,8,9}

Thomas and Gillingham (2015)¹⁰ found that ‘The 40-year track record of species responding to environmental change in [protected areas] PAs suggests that networks of PAs have been essential to biodiversity conservation and are likely to continue to fulfil this role in the future.’

This evidence highlights the extent to which the Natura 2000 network – which aims to maintain habitats and species in favourable conservation status (FCS) – is in this context a critical climate change adaptation measure. The results of the new analysis are currently in press in the journal *Conservation Letters* and will be provided to the Fitness Check as soon as is possible. They reinforce the previous findings, and significantly they show that whether or not a species is listed on Annex 1 is one of the best predictors, quite probably the single best predictor, of its population trends in the EU. Put simply, Annex I status appears to be a stronger predictor of its trends over the last 12 or 30 years than its sensitivity to climate change, habitat association, life history strategy or migratory status. This therefore suggests that Annex I listing has a strong signature in the population trends of birds even in an age in which populations are being affected by climate change. This dispels doubts about the effectiveness of largely static policy measures in combating the impacts of a changing climate.

In the UK, the CHAINSPAN research project funded by Defra looked at the fate of the SPA network under a range of climate change scenarios. The results confirm that although some species are likely to suffer as a result of climate change and others are likely to benefit, the current UK Special Protection Area (SPA) network is likely to be relatively resilient to future climate change.^{11,12}

A more recent study focussing on 11 bird species and 7 species of butterflies in Great Britain found ‘a positive effect of [protected area] PA designation on species’ persistence at trailing-edge warm range margins, although with a decreased magnitude at higher latitudes and altitudes. In addition, colonizations by range expanding species were more likely to occur on PAs even after altitude and latitude were taken into account’. The authors therefore concluded that ‘PAs will therefore remain an

³ Thomas *et al.* 2012. Protected areas facilitate species’ range expansions. *PNAS* 109: 14063-14068.

⁴ Gillingham *et al.* 2015. The effectiveness of protected areas in the conservation of species with changing geographical ranges. *Biological Journal of the Linnean Society*.
<http://www.researchgate.net/publication/273070259> The effectiveness of protected areas in the conservation of species with changing geographical ranges

⁵ Hiley *et al.* 2013. Protected Areas act as establishment centres for species colonising the United Kingdom. *Proceedings of the Royal Society of London Series B-Biological Sciences* 280 (1760):20122310. DOI: 10.1098/rspb.2012.2310

⁶ <http://www.utrechtlawreview.org/index.php/ulr/article/view/119>

⁷ “Protected areas facilitate species’ range expansions,” Chris D. Thomas *et al*
<http://www.pnas.org/content/109/35/14063.abstract>

⁸ <http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=2&ProjectID=16731>

⁹ Johnston *et al.* 2013. Observed and predicted effects of climate change on species abundance in protected areas. *Nature Climate Change*. DOI: 10.1038/NCLIMATE2035

¹⁰ <http://onlinelibrary.wiley.com/doi/10.1111/bij.12510/abstract>

¹¹ <http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=2&ProjectID=16731>

¹² Johnston *et al.* 2013. Observed and predicted effects of climate change on species abundance in protected areas. *Nature Climate Change*. DOI: 10.1038/NCLIMATE2035

important strategy for conservation and that *'the potential for PA management to mitigate the effects of climatic change for retracting species deserves further investigation'*.¹³

The protected area network is also important for climate change mitigation. Habitats in favourable condition, such as soils, peatlands and woodlands, often act as better carbon sinks. For example, improvements on around 140,000ha of upland peatland could deliver benefits (in net present value terms) of approximately £560m over 40 years in sequestered carbon.¹⁴ Restoration of peatland can help sequester carbon, an important contribution to UK and EU climate change mitigation objectives. The restoration of peatland and other habitats also brings adaptation and climate resilience benefits, such as reduction of flood risk and resilience to drought. In this way, implementation of BHD is important for the achievement of the EU's climate package, alongside the conservation benefits.

If the existing provisions of the BHDs were fully implemented, Member States would have a robust armoury of tools to address both the causes and effects of climate change. Such provisions include: monitoring the effects of climate change (both within Natura 2000 sites and the wider land/sea scape); the employment of administrative and policy measures to address the causes of site deterioration and improve ecological coherence/connectivity between sites; the encouragement of large scale habitat restoration and recovery to mitigate the impacts of climate change in the longer term; and a forum for international collaboration and cooperation.

Fit for purpose? The role of the BHD as a framework for ongoing biodiversity conservation in the context of climate change

In 2005, the Royal Society for the Protection of Birds (RSPB) sought legal advice from Dr David Wolfe (a barrister with Matrix Chambers in the UK) on whether the impacts of climate change on wild birds and their habitats could be considered through the instrument of the Birds Directive, and if so, whether the provisions of the Birds Directive were capable of meeting the conservation need to protect and conserve wild birds and their habitats in the context of climate change.

In summary, Dr Wolfe's advice is that the Birds Directive protections are not limited by reference to cause, that the tools available to secure those protections are not constrained and thus that the Birds Directive regime includes the necessary flexibility to ensure the conservation of birds and their habitats in relation to climate change. In conclusion he stated that:

'Overall, therefore, the BD [Birds Directive] provides various protections which arise independently of the cause of any threat to birds or their habitats including thus the consequences of climate change. And it provides very considerable flexibility to the Member State in relation to the way in which it secures those protections..... I consider there is nothing inherent in the BD which means it is not capable of meeting the challenges thrown up by climate change; nor, conversely, anything in those challenges which would require change to the provisions of the BD'.

Like the Birds Directive, the Habitats Directive is also driven by the ecological requirements of the species and habitats concerned and both build in flexibility to deal with changing environmental circumstances such as climate change:

- the Habitats Directive explicitly defines FCS by reference to the long-term needs of the habitat or species concerned (see Article 1(e) and 1(i) respectively);

¹³ Gillingham et al (2015). <http://onlinelibrary.wiley.com/doi/10.1111/bij.12506/abstract>

¹⁴ Third State of Natural Capital Report; <https://www.naturalcapitalcommittee.org/state-of-natural-capital-reports.html>

- the Birds Directive requires the maintenance of populations at levels that correspond in particular to ecological, scientific and cultural requirements. Population levels must be defined by reference to these requirements. Clearly, if any of the requirements change, e.g. as a result of climate change, the population objectives (such as numbers, range, distribution) will need to be adjusted accordingly.¹⁵

At an EU Nature Directors meeting held under the UK Presidency of the EU in October 2005, a workshop on 'Planning for [climate] change – How can Community mechanisms be used?' concluded that the 'FCS chapeau allows and encourages flexibility in the Habitats and Birds Directives, but the current application does not make use of this flexibility'¹⁶.

A 2005 paper¹⁷ also sought to address the question of whether the legal framework provided by the Birds and Habitats Directives was sufficiently robust to accommodate climate change.

It concluded that:

'The regimes do have the potential to accommodate the responses of biodiversity to climate change, and they can continue to serve as effective mechanisms to achieve conservation objectives for which they were intended for the foreseeable future of expected climate change well into the 21st century. There is therefore unlikely to be any justifiable reason for Member States to argue that the Directives provide an inflexible regime which needs to be amended in the light of climate change.'

It also noted that:

'...it is testament to their drafting that [the Birds and Habitats Directives] are well able not only to provide a workable framework to address climate change, but also act as one driver requiring EU Member States to deliver climate change adaptive measures to sustain biodiversity.'

The Nature Directives and renewable energy

EU countries have agreed on a renewable energy target of producing at least 27% of final energy consumption in the EU as a whole by 2030. This will require the development of a range of new infrastructure and land use changes.

Climate change remains the greatest long-term threat to biodiversity and there is no inherent conflict between an increased proportion of renewables in the energy mix and the objectives of the Nature Directives. In fact, many renewable technologies like solar can go hand-in-hand with improved biodiversity.

Problems have arisen, however, where the Nature Directives have not been properly implemented. For example, a lack of survey and designation of protected sites offshore has led to unnecessary and avoidable uncertainty for offshore wind development in the UK. This could be remedied by proper implementation of Nature Directives.

Conclusions

In scientific terms, there is robust evidence that the protected areas approach adopted by the Birds and Habitats Directives works. Scientific studies have demonstrated that protected areas already are and are expected to remain, a critical conservation tool, particularly in the face of climate

¹⁵ <http://www.utrechtlawreview.org/index.php/ulr/article/view/119>

¹⁶ Reported at Annex III of http://nora.nerc.ac.uk/3301/1/WC02018_3361_FRP.pdf

¹⁷ Sutherland, R., Watts, O. & Williams, G. 2005. *Climate Change and the Birds and Habitats Directives: can they work together?*. *Ecos* 26 (3/4) 2005.

change, and are especially important in enabling species to shift their range in response to changes in climate.^{18,19,20}

Scientific evidence has shown that the Directives have been delivering improvements in the status of protected species in the face of growing pressures including climate change, despite inadequate resourcing and incomplete implementation.²¹

Evidence shows that the Directives establish an effective, efficient, and flexible legal framework that has proven capable of addressing a wide range of problems and concerns facing species and habitats listed in the Directives²², when properly implemented, and that business has been able to work with²³.

¹⁸ Thomas *et al.* 2012. Protected areas facilitate species' range expansions. *PNAS* 109: 14063-14068.

¹⁹ Gillingham *et al.* 2015. The effectiveness of protected areas in the conservation of species with changing geographical ranges. *Biological Journal of the Linnean Society*.
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²⁰ Hiley *et al.* 2013. Protected Areas act as establishment centres for species colonising the United Kingdom. *Proceedings of the Royal Society of London Series B-Biological Sciences* 280 (1760):20122310. DOI: 10.1098/rspb.2012.2310

²¹ <http://www.sciencemag.org/content/317/5839/810.abstract>

²² <http://wwf.panda.org/?uNewsID=146283>

²³ http://www.birdlife.org/sites/default/files/attachments/2014_10_8%20JOINTAPPEAL-BL-CEM%20%28signed%29.pdf

Annex I

Case Study 1.

Case Study R1 (ii) in Joint LINKs submission to Fitness Check: Steart Marshes (See also Bristol Deep Sea Container Terminal (Habs Regs Case Study 9) under Y7)

WWT Steart Marshes is a constructed saltmarsh reserve that works with nature, rather than against it, to manage rising sea levels in the Severn Estuary. It's a compensatory project that will replace some of the 1,500-3,500ha of saltmarsh being lost within the Severn Estuary Special SPA/SAC as sea levels rise and the estuary expands up against existing flood barriers. By replacing the submerged habitat, it means wildlife including 70,000 birds will continue to have a source of food and shelter. It also means the estuary's flood barriers can stay where they are, which is a much cheaper and easier option than moving them inland. There are currently 100,000 properties along the estuary, worth £5bn, at risk of flooding along the estuary.

Because the Birds Directive has provided an opportunity to build a new saltmarsh from scratch, we can design it to do much more than simply provide habitat for wildlife. It will directly protect properties on the Steart peninsula from flooding, by absorbing the energy of storm surges crashing against new, improved flood barriers - so the barriers will last longer. The saltmarsh will provide productive seasonal grazing land and the creeks will become nurseries, supplying the fishing industry in the Severn. It will also absorb and store more carbon than any other habitat could. A freshwater wetland above the marsh will purify run-off from surrounding farmland into the sea. The marsh is a local community asset with hides, walking and riding facilities, good disabled access and much of the work has involved local volunteers, students and businesses.

The value of goods and services that will be provided by the new saltmarsh is estimated at between half to £1 million per year, which is significantly more than the grazing land it replaces. It will pay for its £20m cost within 40 years. The project is funded by the Environment Agency and supported by local communities.

Case Study 2.

Expanded version of Case Study S.1.1(i) in Joint LINKs submission to Fitness Check: Bittern Bitterns, *Botaurus stellaris*, which are listed on Annex I of the Birds Directive were once common in wetlands, but became extinct as breeding birds in the UK in the late 19th century, as a result of wetland drainage and hunting. Although bitterns had returned by the 1950s, numbers dropped again as their reedbed habitats became drier through lack of management. By 1997 only 11 booming bitterns were recorded in the UK and there was a similar pattern of decline in bitterns across western Europe. Special Protection Area (SPA) designation has protected key sites for this species, helping to bring the bittern back from the brink of extinction. However, many existing Bittern sites are adjacent to the coast and vulnerable to saline inundation as a result of the impacts of climate change (including increased storminess and sea-level rise). However, EU LIFE funding has supported two projects focussed on reedbed habitat restoration, facilitating the creation of suitable habitat in secure locations away from the coastal fringe, providing additional habitat for this species as its population expands, and securing its future in the face of climate change. By 2004, the UK bittern population had risen to a minimum of 55 booming male birds, thus achieving the UK's 2010 Biodiversity Action Plan target.²⁴ The bittern's recovery has continued over the last decade²⁵.

²⁴ <http://www.rspb.org.uk/ourwork/conservation/species/casestudies/bittern.aspx>

²⁵ https://www.rspb.org.uk/Images/gilbert_wotton_white_and_sears_2014_tcm9-387294.pdf