

An invitation to shape the Nature of England

A response from the Society of Biology to the Department for Environment, Food and Rural Affairs

30 October 2010

Summary

- The Society of Biology welcomes this consultation and is pleased to respond to a number of the questions posed by the Department.
- The Society considers it important to recognise that monetary valuation alone cannot appropriately account for the value of nature. However we should build upon efforts such as the National Ecosystem Assessment (NEA) exercise to develop a robust policy framework within which to embed the economic and societal value of nature.¹
- We believe that ecosystem-focused environmental planning could help to deliver sustainable food production, with minimised damage and maximised societal benefits. It should be embedded in regulatory and policy development.
- There should be a clear communications strategy to engender public debate and understanding of the economic, social and health contributions of our natural environment and the urgent need to more clearly value them in policy formation.
- Decision-making should involve consideration at appropriate scales to reflect the local and broader significance of natural resources. We consider that this applies equally to the spatial scales as to the time scales over which we derive benefits from our natural resources. This could be encouraged by development of robust policy and planning frameworks and facilitated by well-integrated spatial inventories of natural assets and social indices (including health).
- Preservation of biodiversity and the maintenance of the expertise base necessary to recognise and record the elements of our natural environment are vital.
- The Society of Biology welcomes the independent contributions to this consultation process of the British Ecological Society (BES) and the British Lichen Society (BLS).² We are pleased that they join in endorsing the recommendations of Sir John Lawton's review *Making Space for Nature*.

¹ International efforts such as The Economics of Ecosystems and Biodiversity (TEEB) and the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) should also be considered.

² The BES and the BLS are Member Organisations of the Society of Biology. The BLS is our partner in the Natural Capital Initiative along with the Centre for Ecology and Hydrology (CEH).

Detailed response

Question 1: What do we need to do to embed the true value of our natural resources in decision making at all levels?

As an initial step the value of the natural services and benefits on which we depend must be highlighted and communicated. While the value of natural resources cannot be expressed fully in monetary terms, the creation of frameworks within which nature can be valued in economic terms is an essential component of progress. The National Ecosystem Assessment (NEA) is a significant step as is Defra's decision to champion an ecosystem approach. Embedding and supporting good practice through the business and voluntary sector is also vital. Increasing public awareness of the implications and trade-offs in decision making will also advance this aim.

Evidence-based policy making and good use of the science expertise base will contribute and evidence should be employed to argue for improved co-ordination between government departments to minimise competing activities.

The Society of Biology is a founding partner in the Natural Capital Initiative (NCI) which is hosting a series of workshops to explore options for biodiversity offsetting as a conservation tool and the potential to offset for further ecosystem services.³ It has also recently explored the relationship between ecosystem services and health and the scope to plan for optimised benefits.⁴ Recognising the link between ecosystem function and human health is a significant step in the process of valuing natural resources.

Question 2: Have we identified the right overarching challenges for the White Paper to consider?

The anticipated pressures of climate and demographic change and the building environmental pressure wrought by multiple incremental impacts represent a good general description of the overarching challenges which the White Paper should consider. Within the context of these challenges a number of points are noteworthy.

How farmland is managed is crucial to the health of the wider countryside and the biodiversity dependant upon it. The ability to manage high productivity farming sustainably and with minimal negative impacts on the wider environment is crucial. Enclosed arable farmland occupies almost 20% of UK land with approximately the same again in improved grassland and another 12% in woodland. Only 10% of land area is taken up with the urban developments in which 90% of the population live. Food security has improved to about 70% of need (as at 2000) however there remains a drive to increase production and productivity with associated threats of off-farm impacts. Chemical pollution from over-zealous or avoidable growth promotion or pest-control remains a threat to ecosystems. Despite the gains made, for example the 8.5 million ha now in agri-environment schemes, degradation of farmed and natural environments is still occurring. Preventing the entry of pollutants into river systems and ecosystems is preferable to their later removal, when that is possible.

There has been considerable concentration on biodiversity in the research, policy and increasingly in the business community of late. Agreement on the importance of maintaining genetic diversity

³ http://www.naturalcapitalinitiative.org.uk/46-towards_no_net_loss_and_beyond/

⁴ http://www.naturalcapitalinitiative.org.uk/45-ecosystem_services_and_the_delivery_of_health_benefits/

has not been met with success in achieving the 2010 target to halt biodiversity loss sadly. Biodiversity preservation is implicit in most discussions about environmental stewardship and this is welcome, however given the current failure to meet explicit targets, this issue deserves more noted prominence in iterations of guiding frameworks.

Stewardship of marine resources is vital also and the development of clear relationships between Defra, the Marine Management Organisation, Environment Agency, Natural England, Inshore Fisheries and Conservation Authorities will assist this.

As noted, it is twenty years since the last White Paper and this new policy contribution will also anticipate prolonged influence. The changed and changing social context within which this new instrument will operate is worthy of mention. Despite the current desire to reduce regulation and encourage self-generating societal responses, many of the long-term and large-scale challenges facing environmental management will require national-level operating frameworks best designed by government.

Question 3: What are the existing policies and practices aimed at protecting England's natural assets (including but not limited to those set out above on our biodiversity, seas, water bodies, air and soil) that currently work most effectively?

Further development and implementation of agri-environment schemes and the Water Framework Directive could enhance benefit. Although progress has been made to date under both schemes, there is room for improvement.

Encouragement of trans-disciplinary working and inter-departmental focus, for example between environment and health, is very welcome.

As well as developing policies and systems, the development of farming skills and practices would be beneficial. On-farm advice and mechanisms for sharing good practice could contribute to this and help to deliver optimum benefit from agri-environment schemes and others. The development of an ecosystem service-based advisory system to be made available to farmers and other land managers was proposed at a recent NCI meeting. It would need to be flexible and adaptive, and to include advice on optimising ecosystem services.⁵ There is concern that there is insufficient understanding of the ecological processes to completely underpin such advice at present and that this must be developed.⁶ A well designed programme could assist in this. Current straitened financial circumstances may argue against the development or deployment of such a service, however the potential benefits in terms of natural capital protection and social capital enhancement within the farming community should be considered. Additional thoughts on the need for advice have been put forward within the Lawton review.⁷

⁵ http://www.naturalcapitalinitiative.org.uk/files/nci_summary_lo.pdf

⁶ 'There is currently a lack knowledge of how best to optimise agricultural land management for multiple outcomes, how to address the scale dependencies of such optimisations, assess the impact of land management on some services, or the impact of some services on agricultural production.' <http://uknea.unep-wcmc.org/LinkClick.aspx?fileticket=UIQr0mgTWWU%3d&tabid=82>

⁷ <http://www.defra.gov.uk/environment/biodiversity/documents/201009space-for-nature.pdf> 'Recommendation 18. Government needs to establish a consistent, integrated and long-term expectation of land managers to deliver parts of the ecological network. In doing so, consideration should be given to: providing more readily available, high quality advice;'

Question 4: What mechanisms should we focus on to ensure we manage our natural systems more effectively in future?

A successful outcome would be a healthy and food- and environment-secure population, supported by a sustainable agricultural and business sector, within biodiverse ecosystems with regulating, supporting and cultural services which are optimal and stable. The complexity of these aims and the degree of evolution required to advance towards them is daunting. Nonetheless, the considerable challenge of promoting these aims and developing a broadly acceptable system to chart progress towards them is worthy. The NEA may provide the basic framework from which a system of national assessment could develop. At a recent workshop assessing the NEA, there was a call to extend the support for the project beyond the final report and to scope further and ongoing use of the assessment.⁸

Question 5: How best can we reduce our footprint on the natural environment abroad, through the goods, services and products we use?

When designing policies to reduce our national environmental or carbon footprint, government should consider whether this is at the expense of an expanded international footprint or to the detriment of the footprint of another nation.⁹ Consumers (private, business and public bodies) could be made aware of the international environmental footprint of products and services in order to inform choice. Public procurement programmes in particular are well placed to gather and assess this type of information. Environmental impact beyond carbon footprint should be considered and the 'embedded' or 'virtual' water content of traded goods and services deserves greater recognition, as do biodiversity impacts.

However, we stress that the opportunities for economic advancement, improved wellbeing, peace and environmental protection offered by equitable and well-managed trade agreements should not be overlooked. A simple decision in favour of domestic over imported goods and services may not deliver the best overall result.

Question 6: What best practice and innovative approaches to protecting and enhancing our natural environment do you think should be considered as we develop the White Paper?

The sustainability of our farming systems needs to be addressed; high energy dependence along with reliance on fertilisers or agrochemicals with the potential to cause off-farm damage and practices which deplete long-term soil quality should be countered. Improved sustainability may well support improvements in ecosystem functioning and biodiversity. There is a need for research to improve the sustainability of farming systems.

Question 7: How best can we harness and build on public enthusiasm for the natural environment so people can help improve it through local action, as informed consumers or by shaping policy?

There is a great deal of public enthusiasm for the natural environment and a high degree of support (including material support) for conservation initiatives. This support is not universal but is very significant. Altered consumption habits can influence impact as can altered production

⁸ '[t]he group considered it would be helpful if the NEA Secretariat was kept in place for longer than is currently planned.' From: Developing the National Ecosystem Assessment. Report of a joint workshop between the British Ecological Society and the UK Biodiversity Research Advisory Group (2009)

http://www.britishecologicalsociety.org/documents/policy_documents/policy_meetings/BES_BRAG_Session_Report_final.pdf

⁹ 'Consideration should be given to the global consequences of national policies.' Valuing our life support systems. (2009) http://www.naturalcapitalinitiative.org.uk/files/nci_summary_lo.pdf

practices. By continuing to make visible the links between production, consumption and environmental impact, the opportunities for improving interventions and routes to optimal outcomes within this continuum will emerge. From the perspective of the public and consumers, changes in diet, the required appearance of food and availability of produce through the year could have significant impact on national and international footprint. Recently, well communicated concerns about honey bee populations and supportive signals from government have together raised public awareness and pointed to practical steps which could be taken to support pollinator biodiversity. Initial results on increasing colony numbers are encouraging and the part played by public participation in this is noteworthy.¹⁰ Internationally, despite worrying increases in the number of endangered species on the current IUCN list, there are indications that the situation would be worse were it not for good conservation efforts¹¹, this provides further encouragement as do similar observations in the Sir John Lawton's review *Making Space for Nature*.¹²

Defra is well aware of and participating in the emerging awareness of linkages between ecosystem function, interaction with the natural environment and human health and wellbeing. We welcome this focus. Broader awareness of the importance of contact with a well-functioning environment for public benefit and indeed individual health could be evidenced and promoted across government departments. The NCI held a recent interdisciplinary workshop to explore evidence and practice in this area and a report will be published soon.¹³ Green gym¹⁴ and Blue gym¹⁵ activities are developing and, among others, have potential to promote benefits for environment and health. There is considerable promise in the emergence of evidence on the transformative effect of natural environments on social behaviour.

Many spaces held in public ownership contribute to public access to and enthusiasm for nature as well as providing important ecosystem services. We support the Lawton review recommendation that such lands should be used to maximise overall benefit and should not be released to private ownership unless their benefits and services can be secured for the future.¹⁶

Question 8: What should be our vision for the role of Civil Society in managing and enhancing the natural environment and for engaging individuals, businesses and communities in setting the agenda for that work?

In addition to those mentioned, the academic and learned societies can also contribute. However, while we fully support activities to involve civil society in these processes there may be inherent difficulties in any reliance on these groups to set an agenda. The assessment by public agencies of innovations and ideas which arise from this arena will still be required. In this sense civil society

¹⁰ http://www.britishbee.org.uk/news/current_news/beekeepers-fight-back-to-ensure-honey-bees-surviva.shtml

¹¹ http://cms.iucn.org/about/work/programmes/species/red_list/?6333/Natures-backbone-at-risk

¹² Lawton, J.H., Brotherton, P.N.M., Brown, V.K., Elphick, C., Fitter, A.H., Forshaw, J., Haddow, R.W., Hilborne, S., Leafe, R.N., Mace, G.M., Southgate, M.P., Sutherland, W.J., Tew, T.E., Varley, J., & Wynne, G.R. (2010) *Making Space for Nature: a review of England's wildlife sites and ecological network*. Report to Defra. Available at <http://www.defra.gov.uk/environment/biodiversity/documents/201009space-for-nature.pdf>

¹³ http://www.naturalcapitalinitiative.org.uk/45-ecosystem_services_and_the_delivery_of_health_benefits/

¹⁴ <http://www2.btcv.org.uk/display/greengym>

¹⁵ <http://www.bluegym.org.uk/>

¹⁶ <http://www.defra.gov.uk/environment/biodiversity/documents/201009space-for-nature.pdf> Recommendation 8: Public bodies owning land which includes components of England's current or future ecological network should do more to realise its potential, in line with their biodiversity duty. Further, before disposal of any public land, the impact on the ecological network should be fully evaluated. Where such land is identified as having high wildlife value (existing or potential) it should not be disposed of unless its wildlife value is secured for the future.

may help to identify relevant agenda items and contribute to their development but government must continue to exercise judgement and stewardship. This important co-operative relationship between public and private is also recognised by Lawton et al who comment on the need for 'strong leadership' from government.¹⁷

Question 9: How best can Government incentivise innovative and effective action on the natural environment, across England, at the local level?

The development of robust Policy and Planning Statements (PPS) which provide a strong framework requiring consideration of the natural environment and health needs could guide local development. For example, the Society of Biology replied to the recent DCLG consultation on a new PPS: *Planning for a natural and healthy environment* that knowledge of the regional and sub-regional health sector priorities for the improvement of health and well-being should be incorporated.¹⁸ Recognition of these linkages is clearly evident within government publications. Development of PPS strategies should also contribute to facilitating and requiring co-operation at appropriate landscape, catchment, and other trans-boundary scales as addressed in **Question 13**. Good spatial mapping of natural capital would also facilitate decision-making.¹⁹

Question 14: What should be the priorities for the UK's role in EU and international action, to protect and enhance the natural environment at home and abroad?

The UK has the advantage of many unrivalled long-term data sets charting environmental change and function from which evidence-based policy and planning priorities can be derived. The health and operation of these data sets depends in many cases upon the availability of taxonomic expertise. We have highlighted in the past²⁰ our concern that appropriate support is given to this vital area of science. The UK should continue to support long-term data collection and champion the role of evidence-based policy development.

In addition, many of the overseas territories of the UK are renowned for their wildlife and are areas of high biodiversity; we support Defra's recognition of this.²¹ As well as this however support is needed for these valuable species which remain vulnerable in the face of loose regulations and the effects of climate change.²²

Question 15: If you could choose just one priority action for the Natural Environment White Paper to drive forward locally, nationally or internationally, what would it be?

We believe that an ecosystem-focused environmental planning could help to deliver sustainable food production, with minimised damage and maximised societal benefits. Consideration of these principles across government departments is essential and must be embedded in the regulatory and policy assessment process.

¹⁷ <http://www.defra.gov.uk/environment/biodiversity/documents/201009space-for-nature.pdf> 'This will require strong leadership from government, but is not a job for government alone.'

¹⁸ <http://www.societyofbiology.org/policy/consultations>

¹⁹ 'Spatial maps and models should be generated to inform management of our natural capital at a national level and the national planning framework. This should provide a comprehensive, high resolution, spatially explicit environmental asset inventory at sufficient resolution (no coarser than 1:25,000) to provide a good basis for models and decision-making tools.' Messages to researchers (2009) http://www.naturalcapitalinitiative.org.uk/files/nci_summary_lo.pdf

²⁰ Systematics and Taxonomy (2008) A response to the House of Lords Science and Technology Committee <http://www.societyofbiology.org/documents/view/46> *inter alia*

²¹ <http://nds.coi.gov.uk/content/detail.aspx?NewsAreaId=2&ReleaseID=415836&SubjectId=2>

²² Hindmarch, C. (2007): Biodiversity on the far-flung outposts of Europe. *Biologist*, Vol 54 Number 2, May 2007

The **Society of Biology** is a single unified voice for biology: advising Government and influencing policy; advancing education and professional development; supporting our members, and engaging and encouraging public interest in the life sciences. The Society of Biology is a charity, created by the unification of the Biosciences Federation and the Institute of Biology, and is building on the heritage and reputation of these two organisations to champion the study and development of biology, and provide expert guidance and opinion. The Society represents a diverse membership of over 80,000 - including practising scientists, students and interested non-professionals - as individuals, or through the learned societies and other organisations listed below.

We gratefully acknowledge in particular the contributions of the Association of Applied Biologists, the Marine Biological Association, the British Ecological Society and the British Lichen Society among others, to the development of this response.

The Society of Biology is pleased for this response to be publicly available and will shortly place a version on www.societyofbiology.org . For any queries, please contact Dr Laura Bellingan, Society of Biology, 9 Red Lion Court, London, EC4A 3EF. Email: policy@societyofbiology.org

Appendix 1 Society of Biology Member Organisations

Anatomical Society
Association for the Study of Animal Behaviour
Association of Applied Biologists
Biochemical Society
Breakspear Hospital
British Andrology Society
British Association for Lung Research
British Association for Psychopharmacology
British Bariatric Medical Society
British Biophysical Society
British Crop Production Council
British Ecological Society
British Lichen Society
British Microcirculation Society
British Mycological Society
British Neuroscience Association
British Pharmacological Society
British Phycological Society
British Society for Ecological Medicine
British Society for Immunology
British Society for Matrix Biology
British Society for Medical Mycology
British Society for Neuroendocrinology
British Society for Plant Pathology
British Society for Proteome Research
British Society for Research on Ageing
British Society for Soil Science
British Society of Animal Science
British Toxicology Society
Experimental Psychology Society
Fisheries Society of the British Isles
Genetics Society
Heads of University Biological Sciences
Heads of University Centres of Biomedical Science
Institute of Animal Technology
International Biometric Society
Laboratory Animal Science Association

Linnean Society
Marine Biological Association
Nutrition Society
Physiological Society
RNID
Royal Entomological Society
Royal Microscopical Society
Royal Society of Chemistry
Science and Plants for Schools
Scottish Association for Marine Science
Society for Applied Microbiology
Society for Endocrinology
Society for Experimental Biology
Society for General Microbiology
Society for Reproduction and Fertility
Society for the Study of Human Biology
SCI Horticulture Group
Society of Pharmaceutical Medicine
UK Environmental Mutagen Society
University Bioscience Managers' Association
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