



Response to the Natural Environment Research Council's Draft Strategy: 2007–2012

British Ecological Society

April 2007

Introduction

1. The British Ecological Society is the UK's learned society for ecology. It has 4,000 members, which include many scientists in the NERC community.

Context, Direction and Goals

2. The BES believes that there is greater demand for environmental science from policymakers, business and society. This is supported by HM Treasury's assessment that increasing pressures on natural resources and global climate is one of the top challenges that the world faces in the coming decades. NERC should continue to develop the UK's scientific capacity to help society respond to these pressing challenges.
3. However, the BES has some concern about how NERC has positioned itself in the strategy with regards to its strategic goal and scientific goal for three reasons:
 - The overarching goals need to better reflect NERC's fundamental objective of generating new knowledge about the environment
 - Government departments and business are responsible for funding their core evidence needs
 - The NERC strategy needs to make a distinction between the overall NERC goals and the Living with Environmental Change initiative.
4. The NERC draft strategic goal needs to give more recognition to its role generating new knowledge through high quality environmental science relevant to societal needs. NERC's draft science goal is very narrow and it is not clear how the various science themes will deliver its objective.
5. Government departments have research budgets to fund research relevant to their policy needs and statutory obligations. Business also fund research relevant to their business needs, which increasingly include environmental considerations. NERC's role in generating new knowledge and technologies should result in benefits to government, business and to society as a whole. However, by framing NERC strategic goal as providing the evidence for these specific parties they could rely too heavily on NERC to deliver their specific evidence needs, which they should be funding directly.
6. The relationship between the NERC strategy and the RCUK Living with Environmental Change (LWEC) initiative needs to be clarified. In the draft strategy, both NERC's strategic and science goals seem to be identical to that of the LWEC initiative. NERC's science strategy should contribute to meeting LWEC's objectives. However, the reason

that LWEC is a collaborative initiative between Research Councils, Government Departments and Business is that NERC cannot deliver the LWEC initiative's objectives on its own. In the final strategy, there should be greater clarity between what NERC will deliver independently and what LWEC will deliver collaboratively.

7. For these reasons the BES suggests that NERC re-draft its strategic and science goals with these considerations in mind.

Integration and Collaboration

8. The BES is pleased that NERC has published the Theme Reports on its website. The documents usefully point out the links between different themes and points of collaboration with organizations outside of NERC. As NERC's draft implementation goal is to create "vibrant *integrated* research community," it is important the final strategy supports the integration of research in different themes, where appropriate. It is also important that the final NERC strategy acknowledges that NERC cannot deliver all of its scientific aims independently. There are a range of external partners, both in the UK and abroad, that will play a key role delivering the strategy's scientific objectives.

Science Priorities

9. Ecology is fundamental to delivering all of NERC's draft science priorities.

Climate Change

10. The BES supports integrating ecological processes, such as biogeochemical cycling, into future climate change models. There are strong links that need to be forged between the climate change theme and the biodiversity and earth system science themes.

Biodiversity

11. The BES supports NERC's emphasis on biodiversity in its draft strategy. It is crucial that the biodiversity theme is clear that the challenge is to understand how ecosystems work, how they respond to environmental change and how that affects the provision of ecosystem services.
12. The BES supports developments for characterising biodiversity and measuring its abundance and distribution. The BES supports taking an approach that measures variability from the gene to ecosystem levels. Producing and maintaining long-term data sets (3.13) is crucial to many of the objectives in this theme.
13. The BES supports NERC developing an ecosystem service approach to its research. However, NERC must work with the ESRC on quantifying the benefits of biodiversity and understanding how changes to ecosystem services affect human well-being.
14. The BES recently held a workshop with Defra on "Assessing Ecosystem Services in the UK", which looked at linking ecological research to ecosystem services, monitoring and fostering interdisciplinary research. The workshop output can be found at: <http://www.britishecologicalsociety.org/publicaffairs/topics/services/>.

Sustainable Use of Natural Resources

15. Understanding the ecological impacts of renewable technology is an important issue. However, 4.10 should be expanded to include non-marine renewable energy sources too.

Biofuels should be evaluated as both a renewable energy source and an alternative vehicle fuel.

16. Sustaining and improving water and soil quality is an important objective. It is important that they are looked at holistically where relevant, but for some issues this approach is not as necessary (e.g. soils role in the carbon cycle).
17. The BES is pleased that NERC recognizes that it must engage with economic and social sciences to quantify changes in ecosystem services (4.12). This is an important and challenging interdisciplinary task. It is crucial that NERC's work in this area engages with full range of partners represented in LWEC.

Earth System Science

18. The BES supports advancing research in Earth system science. There are positive synergies with other science themes which need to be fully exploited. For example, improving understanding of the ecological consequences of ocean acidification and global biogeochemical cycling are fundamental to the climate change theme. There are also strong ecological linkages with the biodiversity theme.

Forecasting and Mitigation of Natural Hazards

19. The BES would like to see greater integration of ecological processes into considerations of natural hazards within the NERC strategy. Many natural hazards like floods, droughts, coastal erosion, tsunamis and landslides have an ecological component to them. In some cases ecological processes play a role in controlling the event itself (e.g. floods) and others they play a role in mitigating the impact (e.g. storms).

Environment, Pollution and Human Health

20. It is important that NERC's research in this area is well defined and utilizes the expertise within the NERC community and beyond. Linking better monitoring data with improved ecological models should improve prediction about the dynamics of pollution and pathogens as they move through the environment. The draft strategy rightly identifies a number of significant ways in which this improved knowledge could improve human health.

Responsive Grant Funding

21. Responsive-mode grants are fundamental to advancing science. The BES encourages NERC to maintain a significant investment in this area in its next strategy. It is crucial to attracting and maintaining a vibrant environmental science community and advancing environmental science.
22. The BES supports transferring knowledge gained through research to relevant audiences. However, there is concern that requiring all responsive mode grants to develop an acceptable knowledge transfer plan might mean ineffective knowledge transfer activities. Not all responsive mode funding will have immediate relevance to stakeholders outside of the scientific community. When it does, the BES supports NERC's proposal for additional financial support to facilitate promising knowledge transfer activities.

Implementation Goals

Knowledge

23. The BES supports NERC's initiative to improve knowledge transfer within the environmental science community. The BES has developed as a learned society from fostering communication between ecologists through our journals and meetings to one which also fosters communication between ecologists and policymakers and the public. The BES would be interested in investigating opportunities to collaborate with NERC in this area.
24. The BES supports NERC's aspiration to improve its approach to knowledge transfer. However, further thought needs to be given to how NERC will achieve this. Instilling knowledge transfer as a core value will be of little use without giving people the training, finances, time and incentives to engage in these activities.

People

25. The BES fully supports NERC's ambition of attracting, retaining and developing the people needed to deliver the best environmental research.
26. Changes to the Centre for Ecology and Hydrology have meant that NERC has lost a significant number of outstanding ecologists some of which it did not wish to lose. The BES strongly encourages NERC to give greater consideration to ensuring that ongoing and future organizational and strategic changes do not result in a loss of scientific leadership and expertise within NERC.
27. The BES is pleased with NERC's ambition to create a strategic programme in partnership with others to enthuse young people with science. The BES has an active and expanding education programme working in schools to support the teaching of ecology both in and out of the classroom. The BES would be interested in hearing from NERC about how it could work together in this area.

Science Infrastructure

28. The BES fully supports NERC having a strategic role in ensuring that there is the scientific infrastructure needed to carry out environmental research. The BES does not have a specific problem with aligning NERC's science infrastructure with its priorities. However, some scientific infrastructure, such as long-term monitoring, needs a long-term perspective which could be adversely affected by short-term changes in scientific priorities. NERC needs to ensure that it has strategies in place to maintain strategically important long-term ecological monitoring and data curation, which are fundamental to key NERC science objectives, such as understanding changes in biodiversity and the effects of climate change.

Conclusion

29. The BES welcomes that NERC has consulted parties about major developments. Ecology is core scientific discipline for NERC and fundamental to meeting NERC's science objectives. The BES welcomes dialogue with NERC over strategic issues in the future. This consultation response identified two areas where NERC and the BES could discuss ways of collaborating in the future, supporting knowledge transfer and education.
30. To discuss any issues raised in this consultation response, please contact
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