

## **Response to Defra's Science Forward Look Report - Evidence and innovation: Defra's needs from the sciences over the next 10 years**

### **British Ecological Society**

October 2004

#### **Introduction**

1. The British Ecological Society, founded in 1913, is an independent learned society, registered as a charitable body, and with an international membership of over 4,000. Its principal objectives are to advance and support research in ecology, promote ecological education and provide science policy advice.
2. The British Ecological Society welcomes the opportunity to provide comment on Defra's Science Forward Look report *Evidence and Innovation*. The process of developing a Science Forward Look is a helpful tool in engaging the scientific community. However, Defra should do more to engage and use the expertise of the various Science, Engineering and Technology (SET) professional and learned societies in developing its strategies and proposals. The Society would, therefore, welcome any further opportunities to provide input into the development of the Science Strategy.

#### **General Comments**

##### **Science Skills Base**

3. Good science advice and the evidence base that underpins it is inextricably linked to science objectives, science funding and scientists in the field and the lab. An important general trend that Defra needs to consider is the changing pattern of expertise within ecological science. For example, concern has been widely and frequently expressed in recent years over the decline of systematic biology (taxonomy), a key enabling science that is an essential partner for the emerging discipline of molecular ecology. Inability to maintain and harness an appropriate skills base would in turn have a significant and deleterious impact on the ability of Defra to understand and manage changes to biodiversity and other natural resources in the future.

##### **Defra's Science Base**

4. The British Ecological Society strongly supports the statement that Defra needs to develop its in-house scientific capacity across disciplines for climate change (point 6.23), but importantly also for other policy areas.
5. The long-term financial sustainability of the Central Science Laboratory and the other Defra science laboratories is strongly supported, as they are an important source for

government science advice. The new Integrated Agency for rural delivery needs to have its science section appropriately resourced so that it can provide advice and delivery activities based on best scientific knowledge.

6. The overall health of a wide spectrum of sciences and technologies is of fundamental importance to Defra. The scientific community, especially ecology and other related sciences, provide a strong body of knowledge to support improvements to the environment and to peoples' quality of life. Defra needs to support the appropriate training of scientists to meet its current and future policy-driven needs. The Society strongly suggests that Defra brings together representatives in the scientific and funding community to ensure that the scientific skills base it will increasingly rely upon is properly supported.
7. Overall, Defra has serious science needs and therefore needs to increase its funding for the science base that it calls upon to provide policy advice in its day-to-day activities and in emergencies.

#### **Evidence-Based Policy Making**

8. Getting ecology into practice and policy is a strategic priority of the British Ecological Society. In order to develop evidence-based conservation the Society has been supporting work by the Centre for Evidence Based Conservation at the University of Birmingham to conduct systematic reviews on priority policy areas. The Society also supports the development of ConservationEvidence.Com, an on-line database for assessing the effectiveness of conservation practices. The Society would welcome any discussions with Defra on how this work can be developed further and how it can best feed into Defra's science and policy work.
9. Through this work the UK is ahead of other countries in developing the evidence-base for the natural resources protection priority area. The Society strongly supports that future policies are evidence-based to improve decision-making in conservation and other policy areas.

#### **Comments on Defra's science policy**

##### **Science and Government**

10. The British Ecological Society welcomes Government initiatives to improve the use of evidence in policy making (cf. point 8,9). We believe that there is greater scope for ecological evidence-based policy and delivery advice especially in natural resource protection, but also in other Defra priority areas. The Society believes that evidence-based policy making would be strengthened with Defra through establishing an information review and dissemination capacity to operate in concert with the policy and delivery elements of Defra and its agencies to ensure that evidence is systematically and efficiently delivered to the point of need.
11. The report rightly identifies that EU and international commitments are increasingly driving UK legislation and regulations. The implication of this is that the UK needs to develop stronger links with EU (and other overseas) researchers and to support knowledge transfer from the UK. Defra should push for the EU's 7<sup>th</sup> Framework for Research and Development to support strategic priorities such as natural resource protection. Internationally, Defra needs to determine how it can work across government to identify environmental problems and foster the development of an international and interdisciplinary science base. A key issue is the poor availability of

trans-national funding mechanisms (outside the EU), which represents a substantial hurdle to international collaboration in science.

12. The separation of policy and delivery functions increases the need for an organised system for review and dissemination of evidence to make policy transparent, to ensure consistency of delivery across regions, and to develop a regional focus for policy.

### **Science and Society**

13. The report rightly identifies handling uncertainty as an important issue for the interaction of science with wider society. Science advice needs to explicitly recognise uncertainty and research funding should be identified to clarify uncertainty in key policy areas where possible. Engagement between scientists and policy-makers early in the research (and policy) cycle should be strongly encouraged, whilst systematic reviews of the evidence-base will help in identifying areas needing further research.
14. The Society supports programmes for amateur naturalists to create the evidence-base for the status of natural resources. Amateur naturalist should have identification training and support should be given to organisations and learned societies that help to deliver biodiversity monitoring. Expertise and knowledge in taxonomy and systematic biology needs to be addressed both in professional and scientific communities and in society at large.

## **Comments on science and Defra's strategic priorities**

### **Climate Change**

15. Defra needs a strong science base to understand changes to terrestrial, freshwater and marine environments due to climate change. Some major ecological issues related to climate change are related to extreme events and their impact on how ecosystems function and biogeochemical cycles (N, C). The ecological component of interdisciplinary climate change research should not be overlooked.

### **Sustainable Consumption and Production**

16. The British Ecological Society supports the need for research into the 'environmental limits' – natural resource use, pollution loading, etc. – of ecological systems and the impact of different economic and social activities. Full life-cycle analysis of products, including the overseas impacts, is needed to develop appropriate regulatory schemes. There should be robust systems of monitoring the effectiveness of interventions to ensure that they are achieving their environmental objectives.
17. The European Union is the most appropriate body to develop regulation to support sustainable production. Therefore, pan-European research into environmental limits and product impacts is needed.

### **Natural Resource Protection**

18. Whilst the Society recognises that the UK has very good baseline data on natural resources, we have no systematic evidence-base on the effectiveness of programmes to conserve them. We agree that the diverse nature of bodies that undertake research and monitoring of natural resources leads to an uncoordinated dispersal of information resulting information with consequent poor knowledge transfer.

19. The Society commends the emphasis placed on the interface between the structure and function of natural systems with human society. Encouraging a closer understanding between ecological and social scientists should be a high priority, and the allocation of resources to facilitate this interaction needs to be enhanced.
20. Natural resource protection should focus on the linkages between different ecological systems. For example, there are often strong linkages between upland land use and lowland flooding and biodiversity conservation and ecosystem function.

#### **Sustainable Rural Communities**

21. No comment.

#### **Sustainable Food and Farming**

22. Defra's food and farming science needs will increasingly be related to the ecological sciences. Regulatory drivers and changes to the Common Agricultural Policy means that agricultural practices (i.e. pesticides, land management, etc) and their ecological impacts on water, soils, air, and biodiversity will need to be better researched so that positive interventions can be identified.
23. Environmental based payments for farmers need to be for practices that are proven to have their desired environmental outcome. In order to achieve this, Defra should support the scientific monitoring of schemes and systematic reviews of the evidence-base to ensure that agri-environmental schemes are effective interventions.

#### **Emergency preparedness**

24. The Society supports strengthening surveillance and monitoring technologies and programmes to detect and identify risks. Taxonomy is rightly identified as a discipline to underpin risk management (cf. point 3)
25. Horizon scanning for biological and environmental threats is important for Defra. The Society would be pleased to support this work by promoting workshops and discussion groups to discuss scenarios and ecological trends, for example at its annual meeting which attracts anything up to 1000 ecologists. Government needs to have more effective procedures for engaging the external scientific community in responding to emergencies.

#### **Openness**

26. The British Ecological Society is pleased for this response to be made publicly available and will be publishing it on our website: [www.britishecologicalsociety.org](http://www.britishecologicalsociety.org). Should Defra have any questions regarding this submission, please contact Nick Dusic, Science Policy Manager, British Ecological Society, 26 Blades Court Deodar Road, London SW15 2NU; E-mail: [Nick@BritishEcologicalSociety.org](mailto:Nick@BritishEcologicalSociety.org); Telephone: 020 8871 9797.