

Response to a Consultation on the 2020 Challenge for Scotland's Biodiversity

The British Ecological Society

“advancing ecology and making it count”

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About the British Ecological Society

The British Ecological Society (BES) is the oldest learned ecological society in the world: we are due to celebrate our centenary in 2013. Our members, numbering close to 4,000, are drawn from the full spectrum of ecological research, reflected in the Society's specialist groups on a variety of ecological research streams including forest, freshwater, tropical, agricultural, aquatic and conservation ecology.

The Society recently established a Scotland Policy Group. The group forms a network for members of the Society interested in informing policy and can provide a resource to policy-makers in Scotland seeking input from ecological science. This response was prepared with input from members of the group.

For further information about the Society's work, visit our website, at www.britishecologicalsociety.org.

The BES is happy for our response to be made available publicly. If you have any questions about the content of this response or about the work of the BES please contact Ceri Margerison, Policy Manager (policy@britishecologicalsociety.org).

General comments:

- The BES welcomes the overall theme and intention of the document which provides a welcome rationale for action on biodiversity over the next eight years.
- The BES organised a meeting in March 2012, in partnership with the British Society of Soil Science and the Scottish Biodiversity Forum's Biodiversity Science Group, at which participants considered the draft '2020 challenge' strategy. Many of the recommendations made by participants appear to have been picked up by the latest iteration of the document.
- The need for communication between scientists, between scientists and policy-makers and between both communities and the public, was a strong theme to emerge from the BES joint meeting in March. Dialogue between ecological scientists, practitioners, policy-makers and citizens in Scotland will be crucial to the success of the revised biodiversity Strategy.
- To facilitate dialogue between these groups, and the provision of a robust evidence-base to policy-makers, participants at the BES meeting recommended that a Centre of Expertise be established in Scotland for biodiversity. Similar centres already exist for water and for climate change.

- The policy drive for tools such as the ecosystem approach, biodiversity offsetting and natural capital valuation is well ahead of the scientific evidence and available evaluation techniques. It is critical that the Strategy includes a strong agenda for research and monitoring and a commitment to funding and facilitating this.
- The BES has established a Scotland Policy Group to inform the development of relevant policy areas. Members of the group can act as a resource to policy advisers in the Scottish Government and agencies, for example in the development of indicators underpinned by a robust evidence base from ecological science.

Chapter 1: Ecosystem Approach and Ecosystem Health

The Approach

- 1.1 Advocating an ecosystem approach to the management of Scotland's natural environment is a welcome step in the right direction. We would like to see the principles of an ecosystem approach, as outlined by the Convention on Biological Diversity, incorporated more explicitly into the 'three key steps' given in 1.2.2. In particular, the Strategy should acknowledge Principle 5; that the conservation of ecosystem structure and functioning, in order to maintain ecosystem services, should be a priority target of the ecosystem approach. Principle 6, that ecosystems must be managed within the limits of their functioning, should also be incorporated into the key steps.
- 1.2 The emphasis on an adaptive approach to environmental management throughout chapter one is the correct one. It is very important that policy is flexible enough to incorporate new evidence as it emerges, from scientific research and from ongoing monitoring of progress against indicators.
- 1.3 We recommend the Ecosystems Knowledge Network (EKN) as a useful resource to allow information to be shared regarding how to implement an ecosystem approach in practice: <http://ekn.defra.gov.uk/>.

What more is needed?

- 1.4 The relationship between ecosystem service provision and biodiversity remains poorly understood and adopting an ecosystem approach based on current knowledge may not deliver biodiversity conservation as is sometimes assumed in the draft Strategy. It will be vital to monitor properly the outcome of the implementation of an ecosystem approach, to ensure that any failures in the delivery of conservation objectives are addressed at an early opportunity.
- 1.5 The development of suitable indicators first requires a clear and unambiguous definition of the concept of 'ecosystem health'. A healthy ecosystem might be considered one that delivers adequate flows of services, and which has stocks of natural capital and ecosystem functions (supporting services) that are both in good condition and which will be sustained in that state long-term.
- 1.6 New indicators should be developed that make use of existing data and we welcome the proposal to 'utilise existing time-series data that are collected routinely and can be assessed at the catchment scale' (1.6.2). CAMERAS and Scotland's Environment Web should be used to facilitate greater access to existing data sets to enable the

development of indicators.

- 1.7 Indicators of ecosystem health should not be chosen just for being 'simple' (section 1.5.1); they should be chosen on the basis of their effectiveness. The aim for 'around six to 12 broad indicators' seems rather arbitrary. Broad, high-level indicators will need to be broken down into more precisely measurable or observable phenomena.
- 1.8 Missing from this chapter, and from the document as a whole, is an indication of the timescale over which the development of new indicators and mapping exercises will take place. The document refers to 'in the coming years' (1.4.4.) and later states that detailed work will be underway to understand ecosystem health at the catchment scale after the 'early years' of the Strategy (1.8.3). We would like more precise details of when this work might take place.
- 1.9 The UK National Ecosystem Assessment is not a full account of the UK's ecosystem services as stated in section 1.1.2. The Assessment acknowledges that, as yet, many services cannot be valued fully either monetarily or using a non-monetary approach.

Chapter 2: Natural Capital and resource use efficiency

The Approach

- 2.1 The acknowledgment of the importance of incorporating natural capital into economic measurement and decisions is welcome.
- 2.2 Biodiversity offsetting has the potential to contribute to environmental protection but only if implemented as the final stage in the mitigation hierarchy; avoiding impacts on the environment and reducing unavoidable impacts should be prioritised before offsetting for the remaining impacts. This hierarchy must be followed when developing biodiversity offsetting, to avoid this tool becoming a 'license to trash'. Biodiversity offsetting must also be underpinned by robust evidence. Success will depend on developing a classification for offsets which are applicable across schemes, allowing gains and losses in biodiversity to be assessed. This is an area for further research.
- 2.3 The Natural Capital Initiative, in which the BES is a partner, organised a series of workshops in 2010, bringing together representatives from different sectors to consider the development of biodiversity offsetting in England.¹ The key points to emerge from dialogue are relevant to the development of offsets in Scotland:
 - 2.3.1 Although current methodologies, tools and evidence are sufficient to begin increased use of biodiversity offsetting, it is still necessary to evaluate current scientific knowledge needs to increase the use of offsets.
 - 2.3.2 Good quality biodiversity data are needed to underpin the development and operation of biodiversity offsetting in the UK. Whilst the data resource available in the UK is world leading, there are still limitations which need to be resolved.
 - 2.3.3 The location of biodiversity offsets should be planned strategically in order to improve ecological networks and enhance the connectivity of landscapes.

¹ Natural Capital Initiative, 2010. *Towards no net loss, and beyond* [online] Available at: <http://www.naturalcapitalinitiative.org.uk/towards-no-net-loss-and-beyond> [Accessed 14 August 2012].

- 2.3.4 The data which exist in the UK are not sufficient to allow offsetting for ecosystem services. Data collection must be augmented to encompass ecosystem services, and existing data brought together.
 - 2.3.5 The capacity of stakeholders, including local authorities, to deliver ecosystem service offsetting must be improved, by developing guidance.
- 2.4 The document recognises rightly that to ensure that Scotland's environment is managed sustainably, 'a series of principles...should be reflected in public policy and decision-making' (2.3.1). It would be useful to see a list of time-bound actions included in the Strategy, assigned to particular Departments within Government. Assigning responsibilities more broadly, beyond the environment Directorate, would help to 'mainstream' the Strategy across ministerial portfolios.

What more is needed?

- 2.5 Overall, the Strategy places too great an emphasis on biodiversity as a resource for exploitation. Statements such as 'We need to make efficient use of natural resources, and add to the quality of these to gain better outcomes for our economy and society' demonstrate this (section 2.1.2). 'An unduly onerous or complicated scheme could increase costs to business' (section 2.5.2) implies a bias towards economic concerns. Chapter 1 also alludes to greater credence being given to development than the environment in stating (1.4.4) that 'more focused regulation and less demanding appraisal in advance of development' will be implemented. This statement could be read as contradictory. First and foremost, the purpose and focus of the Scottish Biodiversity Strategy must be to conserve biodiversity.
- 2.6 In section 2.2.3 it would be more accurate for the Strategy to state that 'the services that have been valued', rather than 'can be valued'. As the evidence base improves, methods will be developed to value those services for which this has not yet been possible. The success of biodiversity offsetting will require significant research into how this can be implemented, including the development of effective systems of valuation applicable across different biodiversity assets. The ecological science community should be consulted regarding what constitutes an irreplaceable resource, which cannot be offset. Judgement could be based on elements including (a) the epistemological value to science of a particular resource or ecosystem, for example, as a reference exemplar, or as a system that is particularly suitable or illuminating to study; and (b) the technical feasibility of habitat and ecosystem creation and restoration given current knowledge. The current lack of knowledge should be highlighted and further research made a clear priority in the Strategy.
- 2.7 Scotland has led the way with the development of the 'Natural Capital Asset Check', a piece of work that England is seeking to emulate with the development of England's own asset check via the Natural Capital Committee. The BES hopes that these efforts in Scotland and England will be coordinated. The Natural Capital Initiative (NCI) could play a role here. The NCI was established to provide an independent forum for discussion regarding the implementation of an ecosystem approach. The NCI could therefore facilitate dialogue between different stakeholders regarding the development of natural capital accounting across the countries of the UK.
- 2.8 If large businesses move towards environmental accounting by 2020, as a result of applying the principles in the chapter (section 2.9), that will be a very welcome

development. However, the policy levers that will push large businesses to adopt this approach are not made clear in the document.

- 2.9 Section 2.3.1 states that ‘nature conservation legislation identifies key sites and species which need to be protected in order to sustain Scotland’s natural assets’ when in fact it identifies a subset of species of high nature conservation concern which may not be the most important species for the delivery of ecosystem services. The apparent step-change in philosophy from protection of species and habitats specifically for biodiversity conservation, to the conservation of natural assets primarily for ecosystem service delivery, needs to be set out explicitly in the Strategy and the potential consequences of this for conservation explored as implications are likely to be far-reaching.

Chapter 3 Biodiversity, health and quality of life

What more is needed?

- 3.1 Section 3.6.2 states that ‘Businesses across Scotland should also consider [developing the use of nature]...on their land, on the basis that a healthy work force is a productive work force’. This could be a very useful initiative but we would like to see details of how the benefits of developing such approaches will be communicated to business, and how businesses will be incentivised to put these in place.
- 3.2 We would like to see greater emphasis placed on the value of ‘biodiverse’ green space. ‘Good quality’ and ‘high quality’ green space are used as terms throughout this chapter. To benefit both people and the environment it is important that landscape planning incorporates more than simply ‘green’ space and that high quality habitats for important species are also created.
- 3.3 It is the case (section 3.9) that ‘All organisations with responsibility for biodiversity must work towards bringing this agenda into the mainstream of policy and practice’. However a responsibility must fall on the health sector, including health professionals, and the role of the Scottish Government’s Health and Social Care Directorate should also be acknowledged here.

Chapter 4 - Wildlife, habitats and protected places - connecting nature

The Approach

- 4.1 The recognition that there are ‘compelling reasons for maintaining and restoring the diversity of wildlife in its own right’ in section 4.4.1 is very welcome. This recognition of the intrinsic value of nature should be a central and clearly stated concept in the Strategy but currently is not made explicit until Chapter 4. If the conservation of biodiversity is not prioritised in the Strategy, it is unlikely to appear in policy documents for other sectors where the drive for commodification will be even stronger.
- 4.2 The move towards more integrated landscape-scale habitat management with the emphasis on catchment-scale management and ecological connectivity is welcome. However it is worth acknowledging that although connectivity may be desirable in general this can also facilitate the spread of invasive species and diseases.

What more is needed?

- 4.3 The emphasis on 'river catchment level' as an effective scale for management should be used cautiously; the size of Scotland's river catchments is highly variable and does not provide a constant management unit. Establishing an appropriate, workable 'catchment scale' for ecosystem management will be extremely important when implementing the Strategy.
- 4.4 In addition, we are unclear from the Strategy about the mechanisms that will be put in place to encourage land-owners to work together across catchments. This integration will be crucial for the success of an ecosystem approach.
- 4.5 As we have already communicated in our response, first and foremost the rationale for the Scottish Biodiversity Strategy must be to conserve biodiversity. However the reasons given for selecting habitats for inclusion on the key list of priorities for action in section 4.3.8 are economic ones: carbon capture, climate change adaptation and benefits from low-impact recreation. These are important benefits, but the selection of priority habitats must be evidence-based, using indicators to identify catchments in most need of action, emphasising the biodiversity value of these habitats (as suggested in sections 1.4.4 and 1.4.5).
- 4.6 We are unclear what is meant by 'strengthen the role of geodiversity in our care for nature' (4.3.9). A glossary defining this term would be helpful, as would details of how this will be implemented.
- 4.7 The development of a Code for Species Reintroductions by SNH (section 4.4.6) is welcome but this must avoid duplicating work already taking place elsewhere. The IUCN has prepared 'Guidelines for Reintroductions and Other Conservation Translocations' for example. This was launched at the World Conservation Congress in South Korea in September 2012. The IUCN guidelines cover assisted colonisation, assisted migration and managed relocation.
- 4.8 Given the scale of the problem presented by invasive alien species to the economy and environment of Scotland, it is surprising that only one page of the Strategy deals with these organisms. We would like greater clarity regarding how the actions proposed by the Strategy link to the work of the UK Non-Native Species Secretariat; invasive species require a UK-wide approach to prevent colonisation and spread.
- 4.9 Shortening the Scottish Biodiversity List (4.4.7) seems sensible if this is done on the basis of sound conservation and scientific principles, rather than to save funds.
- 4.10 Section 4.6.2 states that 'universities and research institutes [should devote] more resources to [soil research] and [should make] greater efforts to bolster 'small biodiversity research' – below ground and in freshwaters'. A 2010 review by the Environment Research Funders Forum (ERFF) found that soil science is an area of significant skills shortage in the UK, linked to a decline in soil science training and provision.² If universities are to invest more in soil science research, it is important that this encompasses training and skills development for the next generation of soil

² ERFF, 2010. Most Wanted: Postgraduate Skills Needs in the Environment Sector [online]. Available at: <http://www.nerc.ac.uk/funding/available/postgrad/skillsreview/summary.pdf> [Accessed 14 August 2012].

scientists. Funding from the Scottish Government and Scottish Natural Heritage for soil science research programmes could incentivise universities to invest in this area.

4.11 The Strategy should acknowledge more broadly the need for adequate education, training and career prospects for environmental scientists and practitioners. If Scotland's biodiversity is to be conserved to 2020 and beyond it is important that there is an adequate supply of well-trained ecologists and environmental scientists entering the profession, with necessary skills and competencies. The Institute of Ecology and Environmental Management has completed an in-depth review of the skills and competencies required by ecologists, with recommendations for how the development of these can be supported.³

4.12 Conservation of biodiversity inevitably involves conflicts, with discussion over which species to prioritise for attention, which to protect, which to exclude in particular areas, informed by both biological and cultural elements. This is a reflection of a fact that a plant or animal species may trigger different values amongst different groups within society. It may therefore be useful for policy-makers to engage with committees representing both ethical and scientific aspects of policy advice.

Chapter 5 - Land and freshwater use and management

What more is needed?

5.1. 'Alternative ways to achieve biodiversity benefits' are mentioned (section 5.4) but the chapter lacks ambition regarding what these alternative ways could be. Alongside Payments for Ecosystem Services (PES) schemes, innovative mechanisms could be mentioned here, such as the development of a carbon code to underpin investment in peatlands or woodlands, creating a market in credits, or the use of reverse auctions to increase the efficiency of conservation funding. A project to develop a voluntary carbon code for UK peatlands is currently running through the Valuing Nature Network. Investment in peatlands was recently selected as the top area for business investment in the environment by the UK Ecosystem Markets Taskforce.⁴

Chapter 6 – Marine and coastal

The BES has nothing to add here. Much of the content of this chapter is already included in the Marine Nature Conservation Strategy (2010), as the document acknowledges.

Chapter 7: Measuring progress

The Approach

7.1 We welcome an emphasis on developing indicators to track progress. However we were concerned that the section of the Strategy regarding monitoring is rather short relative to other chapters. Monitoring is vital and is intricately related to objective setting. Policy

³ IEEM (2011). Ecological Skills: Shaping the Profession for the 21st Century [online]. Available at: http://www.ieem.net/data/files/Resource_Library/Education/Education-Ecological_Skills_Project_Final_Report.pdf [Accessed 21 September 2012].

⁴ Valuing Nature Network, 2012. Valuing Peatlands: Assessing and valuing peatland ecosystem services for sustainable management [online]. Available at: <http://www.valuing-nature.net/book/export/html/46> [Accessed 14.08.12].

cycles should incorporate feedback loops between the outcomes of monitoring and re-framing objectives. This should be acknowledged in the Strategy

7.2 It is important that indicators are sensitive enough to detect meaningful change and that statistical analysis of the results is rigorous. It is important too that monitoring is established with a view to this continuing beyond 2020, to track long-term trends.

What more is needed?

7.3 As we have already noted in our response, very little information is given on the timescale over which indicators will be developed. There is also no mention of a programme of investment in research to underpin the development of indicators. Additionally, there is no mention of who will be responsible for monitoring.

7.4 There should be a clear agenda for research, which should be synthesised in a set of 'research priorities' as in previous Biodiversity Strategies. Priorities should include, critically, the development of effective methods for monitoring ecosystem health (following its clear definition), ecosystem function, natural capital and ecosystem service delivery.

7.5 The Scottish Biodiversity Information Forum could be useful but must not duplicate existing networks. The Strategy states that this body will be formed of (7.2.2) 'predominantly volunteers but also government and private sector'. Researchers must be represented on this body.

8. General questions (Q10: Are there any other points that you wish to make about any aspects of the draft strategy paper?)

8.1 Clear definitions and consistent terminology are essential to ensure that the Strategy is accessible to a broad range of stakeholders. Many other sectors will need to take responsibility for enacting the guidelines in the Strategy. Consistency is particularly important when discussing 'an ecosystem approach' and 'natural capital'. For example, it is unclear what the phrase 'natural asset' in section 2.1.2 encompasses, similarly the phrase 'natural capital assets' in 2.3.1 is inconsistent with earlier references to 'natural capital' or 'natural assets'.

8.2 As mentioned elsewhere in our response, 'ecosystem health' (1.6) needs to be defined better: it is not clear whether this means the maintenance of natural capital or continued service delivery (which may or may not be associated with conservation of capital).

8.3 Similarly it is ambiguous whether 'environmental health' in 3.2.1 refers to the health of the environment (and ecosystems) or the benefits to human health of making use of a biodiverse environment.

8.4 A basic glossary should be incorporated to ensure the broad accessibility of the Strategy and to ensure terminology is interpreted consistently by all readers, especially across the variety of sectors in which tools such as the ecosystem approach, biodiversity offsetting and natural capital valuation will need to be applied.

- 8.5 It is essential that the delivery of the Scottish Biodiversity Strategy is resourced adequately. Several members of the British Ecological Society have expressed concern about the implementation of the Strategy given fiscal tightening across the public sector and consequent constraints in both financial and human resources.
- 8.6 Investment will be required for monitoring the implementation of the Strategy and enforcement of any infringements. Both can be costly but are necessary. Section 4.3.8 states that ‘with a core of green infrastructure already in place, relatively little investment is needed to restore many natural systems back to full capacity’. We are not aware of the evidence referred to by the Scottish Government in making this assertion but we suggest that rather than downplaying the cost of biodiversity protection, new mechanisms need to be found to fund nature conservation at a time of fiscal tightening. Research into developing Payments for Ecosystem Service schemes could be very useful in this respect.
- 8.7 Investment will clearly be needed in research to underpin the delivery of the Strategy. Members of the British Ecological Society would be pleased to work with the Scottish Government and Scottish Natural Heritage to develop a science strategy that will deliver relevant research within the timeframes required by the Scottish Biodiversity Strategy.