Response from the Royal Society of Biology to the Defra consultation on Environmental Principles and Governance after EU Exit

August 2018

The Royal Society of Biology (RSB) is a single unified voice, representing a diverse membership of individuals, learned societies and other organisations. Our world-leading biosciences sector contributes strongly to the economy, and to society. We are committed to ensuring that we provide Government and other policymakers, including funders of biological education and research, with a distinct point of access to authoritative, independent, and evidence-based opinion, representative of the widest range of bioscience disciplines.

The RSB welcomes Defra's consultation on Environmental Principles and Governance after EU Exit, and is pleased to provide summary comments (pp. 1-3) informed by our membership of individuals and organisations with expert interests across the biosciences (p.19). We provide further detail, in relation to Defra's questions, in the numbered sections from page 3 onwards.

Summary

Environmental principles & quantifiable standards (sec.1, 2 & 3; pp. 3-13)

1. The proposed development of a set of Environmental Principles (sec.1, pp.3-7) to which the Government would be held accountable is particularly welcomed. It is paramount that any reference terms are scrupulously defined, and not subject to interpretation that could allow for environmental impacts to be placed secondary to short-term economically favourable policies. While principles themselves should be firmly established (para.2.2, pp.7-8), there must be available scope within any policy statement that allows for appropriate up-to-date amendments to be made, using widely-informed evidence synthesised from the best contemporary data.

2. To carry sufficient weight, the environmental principles laid out in the proposed bill will require the backing of quantifiable environmental standards (para.3.8 - 3.10, pp.11-12), which if breached, provide sufficient evidence to hold responsible parties including the Government to account.

3. The Government's 25 Year Environment Plan aims to leave the environment *in a better state than we found it.* This is a welcome proposition, however, there must be a clear time parameter from which improvement measures can be quantified - i.e. time zero must be defined (para.3.8; p.11).

4. The importance of ecosystem services should not be underweighted. There must be comparable metrics for valuing natural capital (para.1.3, 1.5, 1.6, 3.7 & 4.7; pp.4-5, 10-11 &16), with robust mechanisms in place to allow monitoring and implementation through informed decision making. Without this, there is a risk that one aspect of the natural environment could be prioritised in terms of financial capital benefit, while neglecting other areas with less direct economic impact, but equal importance. **The RSB does not use the term "value" in relation to natural capital to mean solely financial or tradeable economic assets. It incorporates other worth including cultural and intrinsic values, and believes that there is a continuing requirement to further our understanding of such values.**

Post EU-exit mechanisms (sec.3, 4 & 5; pp.8-18)

5. The UK currently takes a leading and influential role in setting EU regulation based on the best available scientific knowledge, and should strive to lead by example as an effective world-leader in its environmental approach. Post-Brexit, this influence should be preserved, and the UK should aim to remain committed to agreed shared international targets and goals, while taking the opportunity to scrutinise and update some of its own domestic environmental guidance (para.3.3 & 3.4; pp.9-10).

6. To meet ambitions and maintain environmental standards, it is imperative that continued collaboration and communication remains between UK and EU research institutions, regulatory agencies, and reference networks (para.3.11; p.12). The UK must remain competitive in research and development (R&D) and aim to have the fullest possible participation in EU funding schemes; providing benefits to both the UK and EU life science sector, bioeconomy, and society as a whole (para.3.11 & 5.1; pp.12 &16-17).

7. Globally there is an increased need for interdisciplinary research, with applications such as in investigating relationships between the natural environment, and human health and wellbeing (para.1.1, 4.3, 4.7, 5.1 & 5.4; pp.3, 14-16 & 16-18). To allow for consistent and effective decision-making on a long-term basis, key evidence gaps and research priorities need to be identified and addressed via cross-sector knowledge channels, including but not limited to bodies and individuals representing academia, industry and Government (para.5.3 & 5.4; pp.17-18).

8. It is essential that wherever possible, Government should provide immediate clarity to the science, technology, engineering and mathematics (STEM) community on decisions pertaining to relevant immigration rules and regulations (para.3.13; p.13). Appropriate mechanisms need to be put in place to ensure that such restrictions have limited impact on essential research, and the associated workforce, to uphold environmental principles (para.4.3 & 4.8; pp.14-16).

Creation of a new environmental body (sec.3, 4 & 5; pp.8-18)

9. For a world-leading environmental body to effectively meet the goal of holding the Government, and other societal actors, to account, it must be appropriately resourced (staff and budget), and clear what statutory mechanisms will be in place to allow it to enforce or prosecute where targets and policies are not adhered to (para4.1; p.14). Specific functions of the new body must be defined appropriately, as should its specific remit. The ability to scrutinise and advise on environmental issues across a wider interlinked policy context should be a key function of any independent watchdog to work against local environmental damage, and benefit the nation as a whole (para.4.1 & 4.6; pp.13-15).

10. The jurisdiction of any independent oversight body must be completely clear (para.3.1 & 5.2; pp.8&17). Natural ecosystems do not fall within political boundaries and transboundary issues will arise for the devolved states to address. In addition, the UK overseas territories house a large proportion of the UK's (and the world's) biodiversity. It must be clear where, and how, environmental principles will be applied and provide assurances that offsetting of environmental damage does not occur - to the detriment of other nations.

11. Collaboration and data sharing with third party organisations should be appropriately utilised to ensure efficiency of resources, and the best environmental outcomes possible (para.4.2; p.14). Mechanisms should be in place to collate and manage resources, and act swiftly to investigate community level complaints, with governmental oversight (para.4.4; p.15). Any decisions made by the responsible body should be informed by evidence of relevant biological parameters (e.g. macroinvertebrates as water quality bioindicators) and should involve wide-ranging community and expert consultation (para.3.10 & 5.1; pp.11-12 & 16).

The following sections, numbered 1 to 5, provide further detail and relate directly to the questions proposed by the Defra consultation.

Main response

1. Environmental principles to underpin future policy making (Question 1)

1.1. *Clarity and consistency*

Considering the variety of needs across society, the environment and the biosciences, specialist and up-to-date data is vital. Expert assessment and sound evidence will be needed to support any principles in action. Different terminologies exist for overlapping principles across sectors often running in tandem. Environmental principles should be clearly laid out, defined, and explained so that understanding is facilitated across communities.

1.2. *Assessment for comprehensive benefit*

Principles of *environmental net gain*[1], as per the recently published *25 Year Environment Plan*, or of *sustainable development* should ensure that comprehensive environmental impacts of development projects are assessed in favour of benefit to the environment. Such projects should meet current needs, without detrimentally impacting the ability of future generations to meet theirs, and should make provision for restoration of degraded land into optimal habitats for wildlife. Adhering to principles based on sustainability can underpin other principles by promoting the efficient use of limited resources, for example. Bioscience knowledge is integral to the UN Sustainable Development Goals (SDGs), encompassing research vital for the food-water-energy NEXUS[2] and health related challenges[3]. The success of sustainable

[1] 25 Year Environment Plan. (2018). pp. 32-34.
[2] United Nations. Water, Food and Energy. URL: http://www.unwater.org/water-facts/water-food-and-energy/
[3] El-Chichakli, B., von Braun, J., Lang, C., Barben, D., & Philp, J. (2016). Policy: Five cornerstones of a global bioeconomy. Nature. 535(7611), pp. 221-223.

development as an environmental reference term is subject to environmental impacts not being placed secondary to economic growth.

1.3. *Holistic valuation*

As advised in the RSB's response to Defra's consultation on *Health and Harmony*[4]*,* to accomplish the difficult task of valuing many elements of the natural environment, there must be comparable metrics for valuing natural capital, with robust mechanisms in place for monitoring and implementation in order to make the most informed decisions. Without this, there is a risk that one aspect of the natural environment could be prioritised in terms of financial benefit, while neglecting other areas with less direct economic impact but equal importance for the protection of biological diversity and societal wellbeing (for example). The importance of ecosystem services should not be underweighted, and therefore the **RSB's use of the term natural capital "value" should not solely be perceived as a financial or economic term.**

1.4. *Accounting for non-market values*

Many non-market values are relevant to policy analysis, particularly surrounding conflicting uses of the environment which may give rise to trade-offs between both market and non-market outcomes. Understanding the intrinsic value of environmental resources and the potential outcomes surrounding trade-offs can be useful to inform decision-making. For example, strategies such as biodiversity offsetting cannot be used in instances where restoration is not possible (e.g. ancient woodland, rare ecosystems), and should only be used as a last resort under a stringently defined set of particular circumstances.

1.5. *Fundamental importance of biodiversity*

Further to principles formally proposed within the EU withdrawal Bill[5] and subsequent amendments, an overarching principle of *biodiversity net gain* (e.g. when development leaves biodiversity in a better state than before) is required to run in tandem with the *environmental net gain* approach. *Net environmental gain* should allow development to deliver environmental improvements and also include a commitment to reverse, or where practical, restore any loss of biodiversity. This should prevent biodiversity becoming neglected in favour of other aspects of natural capital[6] that could be more directly valued financially. *No net loss* policies[7] (biodiversity, carbon stocks, etc.) need to be utilised in conjunction with those of *net gain*, *net positive impact*[8] or *zero net deforestation*[9]. Without a counterbalance of both market and non-

[4] Response from the Royal Society of Biology to Defra's consultation on "Health and Harmony: the future for food, farming and the environment in a Green Brexit, May 2018; URL: https://www.rsb.org.uk/images/RSB_response_to_Defra_consultation_on_Health_and_Harmony_submitted.pdf
[5] The National Archives. European Union (Withdrawal) Act 2018. URL: http://www.legislation.gov.uk/ukpga/2018/16/contents/enacted/data.htm
[6] The Royal Society of Biology. Natural Capital. URL: https://www.rsb.org.uk/education/teaching-resources/secondary-schools/practical-biology/141-home/policy/185-natural-capital-initiative
[7] Maron, M., Brownlie, S., Bull, J.W., Evans, M.C., von Hase, A., Quétier, F., Watson, J.E.M., & Gordon, A. (2018). The many meanings of no net loss in environmental policy. Nature Sustainability. 1, pp. 19-27.
[8] Net positive impact: financial success is driven whilst putting back more into society, the environment and the economy than is taken out.
[9] Zero net deforestation: e.g. forest clearance is allowed provided an equivalent area is replanted elsewhere.

market equivalent gains, economic development could see natural capital resources put in danger of continued decline.

1.6. *Public money for public goods*

The *public money for public goods* principle would allow opportunities for the UK to deliver more direct financial benefits from improvements to the environment and conservation of natural capital, including living (e.g. fisheries) and non-living stocks (e.g. minerals). As a foundation for economic and societal prosperity, which arguably underlies all other types of capital, secondary benefits of ecosystem services may aid societal health and wellbeing (e.g. recreational benefits on mental health). It should be appreciated that the importance of such principles may be highly variable, dependent on locality or catchment area. Aspects of the landscape, including complex ecosystems (e.g. ancient woodland), should be included under a more broad definition of public goods, thereby affording them maximum protection under appropriate policies[10]. Healthy physical environments (clean air, water, etc.) can be upheld by naturally stable ecosystems which in turn protect against natural or human induced disasters[11] (e.g. flood protection). Human health and wellbeing are framed as core public goods under the WHO Health 2020 common framework policy[12]. This aims to "significantly improve the health and wellbeing of populations, reduce health inequalities, strengthen public health and ensure people-centred health systems that are universal, equitable, sustainable and of high quality".

1.7. *Polluter responsibilities*

As per *the RSB's response to the 25 Year Environment Plan* inquiry (para.14; p.5), the *polluter pays* principle could contribute to an effective and fair underpinning for future policymaking. **Very sound evidence of attribution and expert assessment will be needed to underpin this**. Considering the wide variety of needs across society, currently accurate data will be needed to ensure this principle is fairly implemented. For example, a well-structured framework may ensure that any costs are proportional to the environmental impact of the process, and that size of a business be taken into account (e.g. sub-zero investments from SMEs in comparison to larger companies). This may better deter the performing of harmful activities which fall below set environmental standards, and would better ensure that economic costs are not ultimately borne by consumers, creating a more level field for those operating within the law.

1.8. *Well-founded risk management*

A need for risk management[13] exists in areas sensitive to chemicals and waste management

[10] Response from the Royal Society of Biology to Defra's consultation on "Health and Harmony: the future for food, farming and the environment in a Green Brexit, May 2018; URL: https://www.rsb.org.uk/images/RSB_response_to_Defra_consultation_on_Health_and_Harmony_submitted.pdf
[11] JNCC. Ecosystem Services. URL: http://jncc.defra.gov.uk/default.aspx?page=6382
[12] World Health Organization – Europe (2015). Report: Health 2020: Agriculture and health through food safety and nutrition. URL: http://www.euro.who.int/__data/assets/pdf_file/0016/324610/Health-2020-Agriculture-and-health-through-food-safety-and-nutrition-en.pdf?ua=1
[13] *Whereby hazards are identified, and their severity and probabilities assessed. Use of risk matrices should be approached with caution to prevent either arbitrary results or a misleading sense of rigour.* See: Philip, T. (2014). The risk of using risk matrices, in SPE Economics & Management. 6(2), pp. 56-66. URL: https://www.onepetro.org/journal-paper/SPE-166269-PA

practices. *Preventive* environmental impact assessments are advisable to avoid environmental damage in the first instance. The principle of *rectification at source* is closely linked to the *prevention principle*, aiming to intervene and correct any activities directly, indirectly, or cumulatively causing damage (e.g. dam or weir removal[14]). In conjunction with both the *polluter pays* and *prevention principles*, the *rectification at source principle* addresses negative impacts through an essential method that provides additional levels of protection to the natural environment and those communities relying on them. Implications for biodiversity offsetting should, however, be considered: is important to ensure that any damage is not simply relocated to geographically differing locations or solely provisioned through distant 'environmental currencies' (e.g. replanting trees).

1.9. *Precautionary considerations*

The *precautionary principle* may aid in reducing risks and harm to the environment, indirectly avoiding later costs associated with remediation where damage has been incurred. For example, the Habitats Directive (Council Directive 92/43/EEC)[15] should be interpreted with reference to the precautionary principle and has played a fundamental role in protecting some irreplaceable environments. Where serious human health or environmental threats exist, and while policy should be evidence led, the *precautionary principle* should not however be used to postpone necessary cost-effective mitigation strategies that could hold potential benefits to agriculture, human health or environmental function[16]. Application of the precautionary principle may be biased against new technologies, where it may fail to offer a framework for the application of risk management, or standards for demonstrating that a technology does not create harmful outcomes[17]. For example, it has selectively been used to justify bans on genetically modified (GM) crops while, arguably, taking a less proportionate account of the negative effects for such a ban on R&D and subsequent implementation - including, for example, a reduced capacity to develop crops with greater resilience to climate change, or growing more efficient varieties. Where the *precautionary principle* is utilised, it should be with full consideration given to the associated risks of not intervening, and the projected impact of available alternatives[18], as well as with capacity for revision in the light of new evidence.

1.10. *The integration principle*

The *integration principle* is at the core of sustainable development, whereby environmental objectives and protection requirements are integral to the development process[19] and therefore relevant to policy formulation, decision-making, and implementation across economic and social sectors[20]. While many research topics at the root of environmental issues are broad, they are highly interconnected and therefore all are of relevance and importance.

[14] AMBER. Adaptive Management of Barriers in European Rivers, 2017. URL: https://amber.international/
[15] European Commission. 1992. The Habitats Directive. URL: http://ec.europa.eu/environment/nature/legislation/habitatsdirective/index_en.htm
[16] The Rio Declaration on Environment and Development. (1992). Principle 15, p. 3. URL: http://www.unesco.org/education/pdf/RIO_E.PDF
[17] Council for Agricultural Science and Technology (CAST). 2013. Impact of the Precautionary Principle on Feeding Current and Future Generations. Issue Paper 52. CAST, Ames, Iowa.
[18] Derived from The Royal Society of Biology, then Society of Biology, contribution to the House of Commons Science and Technology Select Committee on GM foods and applications of the precautionary principle in Europe, April 2014; URL: https://www.rsb.org.uk/images/SB/GM_foods_and_application_of_the_precautionary_principle_in_Europe-_Final.pdf
[19] The Rio Declaration on Environment and Development. (1992). Principle 4, p. 2. URL: http://www.unesco.org/education/pdf/RIO_E.PDF
[20] United Nations (1987). The Brundtland report: 'Our common future'. URL: http://www.un-documents.net/wced-ocf.htm

Improvements in one area may directly or indirectly lead to improvements in another, including via non-market impacts of investment in R&D[21]. For example, advances in waste management (such as waste-to-energy) have enabled the collection of data, the analysis of which has in turn reduced energy requirements and improved energy recovery[22]. Such processes mitigate climate change over time by reducing CO_2 emissions. Similarly, the development of agri-tech, while primarily commercially motivated to assist in efficient and profitable farming, also has the potential for wider environmental benefits. Reduced and more efficiently targeted fertiliser or chemical use profits soil health, and reduces water pollution and energy consumption[23].

1.11. *Optimising resource allocation*

In any instance, the central aim of decision-making should be to attain best performance and productivity via the use of limited resources. This should enable maintenance and improvement of animal, plant, and environmental health – and that of human society - using sustainable management practices[24].

2. Legal basis and intended effect (Questions 2 & 3)

2.1. The question of policy development and structure itself is at the heart of the 1987 *Brundtland Report* [25], which proposes international environmental policy and regulation, and sustainable development:

> "Sustainable development objectives should be incorporated in the terms of reference of those cabinet and legislative committees dealing with national economic policy and planning as well as those dealing with key sectoral and international policies. […] The major central economic and sectoral agencies of governments should now be made directly responsible and fully accountable for ensuring that their policies, programmes, and budgets support development that is ecologically as well as economically sustainable".

2.2. Government statement of intent to carry the whole body of EU environmental law into UK law means that statutory positioning of these principles is vital. If the decision is made not to explicitly set out environmental principles within the draft Bill, then the RSB suggests that, at the very least, and in order to support clarity and authority for scrutiny and oversight, the detail within the statutory statement should reflect the draft Bill's terms. While principles should be firmly established, there must be scope within the legislation to allow for appropriate changes in light of new scientific research and evidence. Furthermore, the RSB wishes to re-emphasise

[21] Department for Business, Energy & Industrial Strategy. Non-market impacts of investment in research and development, May 2018; URL: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/706067/research-and-development-non-market-impacts.pdf
[22] Brunner, P.H., and Rechberger, H. (2015). Waste to energy-key element for sustainable waste management. Waste management, 37, pp. 3-12.
[23] Brookes, G., and Barfoot P. (2008). Global impact of biotech crops: socio-economic and environmental effects, 1996-2006.
[24] Response from the Royal Society of Biology to Defra's consultation on "Health and Harmony: the future for food, farming and the environment in a Green Brexit, May 2018; URL: https://www.rsb.org.uk/images/RSB_response_to_Defra_consultation_on_Health_and_Harmony_submitted.pdf
[25] United Nations (1987). The Brundtland report: 'Our common future'. URL: http://www.un-documents.net/wced-ocf.htm

that the success of sustainable development as an environmental reference term is subject to environmental impacts not being placed secondary to economic growth (para.1.2; pp.3-4). The maintenance of healthy systems, in both environmental and economic terms, is of intrinsic societal benefit.

3. Accountability for the environment: mechanisms for environmental governance (Question 4)

Jurisdiction and international relations

3.1. The consultation document suggests that environmental principles should apply to "*England and environmental areas that are the responsibility of the UK Government*", with potential opportunities to co-design overriding principles or framework proposals more widely across the devolved UK governments. When producing the draft Bill, jurisdiction must be completely transparent. This should be particularly clear regarding political transboundary issues surrounding the devolved states that may not welcome a central government body enforcing policy; natural ecosystems are shared resources, which do not adhere to political boundaries. This will be fundamental to how environmental principles can be applied (e.g. the *polluter pays* principle: para.1.7; p.5). Catchment-based financing systems, whilst strategically demanding, could provide incentivising compensation to farmers and land managers, for example, for providing clean water and enhanced flood resilience upstream of businesses and public sector organisations and homes within a catchment. Perhaps under such circumstances, the wider international environmental principle of *no-harm*[26] or *principle of no-net-harm*[27] should be stated, ensuring no activities within a jurisdiction cause significant cross-boundary damage. Further to this, many parties under British affiliation in the Commonwealth currently adhere to EU principles and house a large proportion of the world's biodiversity. It should be clear where these overseas territories will sit in relation to the proposed Bill, and assurances need to be in place to ensure that environmental offsetting (e.g. offshore rubbish disposal)[28], does not occur to the detriment of other nations. Furthermore, mechanisms should be established whereby beneficial aid outcomes of international development currently implemented under EuropeAid and the European Development Fund (EDF) could be continued effectively. As mentioned in *the RSB's response to the Brexit Science and Innovation Summit inquiry* (App.2.1 & 2.2; p.7)[29], such schemes have beneficial impacts on rural development and food security-related projects, and enable protection of ecosystem resources across a wider global scale. Capabilities must therefore be in place to hold the Government to account across relevant levels of local, national, and even wider remits of responsibility.

[26] The 1941 Trail Smelter case, a federal government dispute sought to hold the state of polluter origin to account for encroaching and causing detrimental environmental impacts to another. This case set a precedence for the cornerstone of international environmental law, the "no-harm principle".
[27] No-net-harm: accounting for harmful environmental processes which are offset by others.
[28] The Guardian. UK's plastic waste may be dumped overseas instead of recycled. 23 Jul 2018. URL: https://www.theguardian.com/environment/2018/jul/23/uks-plastic-waste-may-be-dumped-overseas-instead-of-recycled
[29] Response from the Royal Society of Biology to the Science and Technology Committee of the Commons Brexit science and innovation Summit inquiry, February 2018; URL: https://www.rsb.org.uk/images/article/policy/RSB_response_to_HoC_STC_Brexit_science_and_innovation_Summit_inquiry_for_submission.pdf

3.2. Historical collaborations with pre-established Commonwealth partners should be further implemented to effect change and influence principles to cater for the wider environment, including the oceans. Incentives such as the Commonwealth Blue Charter[30] have acted as a stepping stone towards maintaining a sustainable marine environment[31] that fares well historically, societally, and economically, keeping in line with the United Nations SDG14[32]. This is key to the Natural Capital approach and will allow for better protections of the oceans and seas and the continued viability of the wider marine ecosystems pivotal to maintaining our fish stocks.

National mechanisms

3.3. The UK Government should continually take the opportunity to effect change as a world leader in its environmental approach. For example, post-Brexit, the UK should strive to lead by example by remaining committed to agreed shared international targets and goals, such as those set out within the *EU One Health Action Plan against AMR*[33]. Adhering to these goals should allow for the betterment of closer monitoring and reduction of environmentally harmful pollutants and practices (e.g. pharmaceutical and medicinal waste), which may also have an impact on both public and ecosystem health.

3.4. The UK presently takes a leading and influential role in setting EU regulation, and this influence should be preserved as much as possible. Pending detailed community consultation, UK legislation and regulation (e.g. regarding environmental protection, the availability and safety of medicines, chemicals, food standards and other science based assessments, in addition to visa systems which allow efficient flow of expertise into the UK) should remain congruent with that of the EU, or aligned to similar standards[34]. However, positive improvements to regulation are possible in some areas. When assessing UK regulation, while many broad concepts are supported in principle, some specific areas of concern have arisen for our members. For instance, as per the *RSB's response to the Life Sciences and the Industrial Strategy inquiry*[35], Brexit presents an opportunity to discuss the regulatory framework for the latest plant breeding methods - including the use of genetic modification (GM) - with the potential to enable scientists and farmers more routes to produce food, feed and energy crops that have safe and beneficial characteristics in terms of nutrition, yield, and/or environmental impact. The UK already benefits from exceptionally safe food supplies – however - changes to regulation in this area could reinvigorate both the science (e.g. biotechnology, crop protection research) and potential benefits to growers (e.g. food production industry, rural economy), with the potential for better food supplies which are

[30] Commonwealth Blue Charter. (2018). URL: http://thecommonwealth.org/sites/default/files/inline/CommonwealthBlueCharter_1.pdf
[31] House of Commons Library. UKs role in the degradation of the marine environment, Debate pack number DP 2017-225, November 2017. URL: https://researchbriefings.parliament.uk/ResearchBriefing/Summary/CDP-2017-0225#fullreport
[32] The United Nations. Report of the Secretary-General, "Progress towards the Sustainable Development Goals", E/2017/66. URL: http://www.un.org/ga/search/view_doc.asp?symbol=E/2017/66&Lang=E
[33] European Commission. A European One Health Action Plan against Antimicrobial Resistance (AMR), 2017. URL: https://ec.europa.eu/health/amr/sites/amr/files/amr_action_plan_2017_en.pdf
[34] Response from the Royal Society of Biology to the Science and Technology Committee of the Commons Brexit science and innovation Summit inquiry, February 2018; URL: https://www.rsb.org.uk/images/article/policy/RSB_response_to_HoC_STC_Brexit_science_and_innovation_Summit_inquiry_for_submission.pdf
[35] Response from the Royal Society of Biology to the House of Lords Science and Technology Committee inquiry into Life Sciences and the Industrial Strategy, September 2017; URL: https://www.rsb.org.uk/images/RSB_response_Life_Sciences_Industrial_Strategy_inquiry_submitted.pdf

sustainable long-term, post-Brexit. Importantly though, care should also be taken to continue to facilitate and enable ease of international trade through current routes, with capacity for future growth where beneficial in terms of the principles outlined elsewhere in this response. Unnecessary, costly and inefficient bureaucracy in relation to policy implementation could harm international trade, thus any process considering a move away from harmonised policies should first be assessed, in a timely manner, by the full range of communities involved and affected.

3.5. Further to the above, any changes to regulations following the EU Withdrawal Bill should be made only with full and appropriate community consultation and with Parliamentary scrutiny. The needs and expertise of communities responsible for the greatest levels of environmental interaction must be taken into consideration to ensure maximum uptake of effective environmental measures. Application of environmental policy could consider the proportional breakdown of the current UK landscape, of which 70 percent is owned and managed by farmers[36]. Working in conjunction with farmers has previously been pivotal in the success of projects focusing on natural disaster management and prevention (e.g. flood action plans)[37]. It is vital that, while environmental policy encompass societal interest and all relevant stakeholders' needs, it should not be shaped by one sector in particular - to the detriment of natural capital, and the ecosystem services underpinned by biodiversity. Proposed changes should uphold standards for the people and the natural environment of the UK, rather than weakening them. The EU has achieved many successes in environmental welfare, and there is no indication that the referendum vote aimed to weaken these protections.

3.6. As per the *RSB's response to the Defra Health and Harmony* consultation (para.7; p.4)[38], many opportunities exist for the UK to deliver environmental benefits through its own mechanisms. For example, the principle of *public money for public goods* (para.1.6; p.5) could be beneficial in food chain governance. Additionally, judicious application of the *polluter pays* principle (para.1.7; p.5), with an emphasis on an *extended producer responsibility* strategy[39], could provide an effective and fair underpinning for future policymaking. Combined with a greater emphasis on consumer responsibility, this could deliver environmental benefits. Ensuring beneficial outcomes of dwelling and business developments for local people and biota could bring real efficiency in ordinary times and mitigate damage in extraordinary circumstances such as unusual weather when temperature and water management are key health concerns.

Quantifiable standards

3.7. The *RSB's response to the Defra Health and Harmony* consultation (para.31; p.14) advises that the adoption of an evidence-led approach that uses natural capital as a tool to quantify

[36] Eurostat. (2012). Agricultural census in the United Kingdom. URL: http://ec.europa.eu/eurostat/statistics-explained/index.php/Agricultural_census_in_the_United_Kingdom
[37] Somerset Rivers Authority. Somerset's 20 Year Flood Action Plan: Progress 2014-2016. URL: http://www.somersetriversauthority.org.uk/flood-risk-work/flood-action-plan/
[38] Response from the Royal Society of Biology to Defra's consultation on "Health and Harmony: the future for food, farming and the environment in a Green Brexit, May 2018; URL: https://www.rsb.org.uk/images/RSB_response_to_Defra_consultation_on_Health_and_Harmony_submitted.pdf
[39] Producer responsibility strategy: financial or physical responsibility of a producer to ensure appropriate treatment/ disposal of post-consumer products

the benefits of nature for society is to be welcomed; it enables an accessible route to accomplish the difficult task of valuing many elements of the natural environment. For this principle to be adopted successfully there must be comparable science-based metrics for valuing natural capital, with processes in place for monitoring and implementation – with utmost consideration for potential metric or data based limitations when running calculations - in order to make the most informed decisions. For example, for the protection of biological diversity or societal wellbeing including health benefits in the form of clean air, healthy soil, food products and freshwater systems, and access to biodiverse park spaces - all potentially improving societal wellbeing and thereby reducing strain on healthcare systems. Consequently, as aforementioned (para.1.2 & 1.3; pp.3-4), recognition that the value of natural capital is not purely financial is important and a robust mechanism is needed to take this into consideration in management.

3.8. The Government's 25 Year Environment Plan aims to leave the environment *in a better state than we found it*. In line with the Government's recent announcement confirming plans to introduce a wide-ranging Environment Bill, it is paramount that there be a clearly set out time parameter from which improvement measures can be quantified - i.e. time zero must be defined.

3.9. Underlying environmental principles will be fundamental to the proposed statutory obligations, however principles alone do not provide quantifiable numerical standards or targets[40] that can be adhered to and used to provide accountability if legal regulations are breached. Standards are crucial to environmental regulation[41] and include but are not limited to:

- technical prescriptions (rules stating specific technology use)
- emissions standards
- quality standards (concentration of a particular substance in the relevant medium)
- product standards
- sampling/ compliance standards (data quality)

3.10. A number of standards are given recognition in EU law under varying Directives - either explicitly within legislation, or prescribed for the development of local standards by member states. For example the EU *Water Framework Directive*[42] - regarded favourably from both planning and environmental protection standpoints - sets a framework to protect and enhance the status of water bodies. An inclusion of detailed environmental quality standards has allowed for technical aspects of monitoring and status assessment to be upheld, and has seen a Common Implementation Strategy across EU Member States. Ranging from *priority substance* chemical status of surface and groundwater bodies, to protection of flagship

[40] House of Commons Environmental Audit Committee. The Government's 25 Year Plan for the Environment. Eighth Report of the Session 2017-2019. 18 July 2018. URL: https://publications.parliament.uk/pa/cm201719/cmselect/cmenvaud/803/803.pdf
[41] UKELA. Brexit and Environmental Law: Environmental Standard Setting after Brexit, February 2018,p. 5. URL: https://www.ukela.org/content/doclib/329.pdf
[42] Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy. URL: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32000L0060

species (e.g. *EU Eel Regulation*[43]); environmental objectives for each water body are scrutinised and updated every six years. Brexit provides the opportunity to scrutinise and update some of our domestic environmental guidance, however, any changes to UK domestic environmental standards should ensure a continued compliance within international obligations (para.3.4; pp.9-10), and should be developed and continually amended in conjunction with affected communities, and with devolved legislatures and partnership agencies of the UK Technical Advisory Group (UKTAG), currently responsible for the development of classification schemes.

Current EU mechanisms & funding opportunities

3.11. The EU has effective institutions for environmental legislation enforcement. Ultimately these are through the European Commission and the European Court of Justice (ECJ). While for the most part limited to *observational* and *participation via invite* roles, some provisions remain open to third party countries within EU agencies[44]. In order to meet ambitions and maintain environmental standards, it is imperative that continued collaboration and communication remain between UK regulatory agencies, European regulatory bodies and agencies, and the EU Reference Networks (e.g. the network of EU Reference Laboratories[45]). For the UK to further its image and secure productive and efficient connections on an international platform, it must maintain prior associations with the EU - remaining at the forefront of research and innovation. Such collaborations and data-sharing networks enable countries to address and answer international questions efficiently and on an appropriate scale, with direct, positive impact on public and animal health and welfare, and on the economy. For example, an EU exit will likely result in the relocation of EU Reference Laboratories currently hosted in the UK (e.g. BSE & avian influenza)[46,47]. Loss of these Reference Laboratories alongside access to those held in other EU member states, will likely lead to a loss of expertise and specialist knowledge for the UK. Further examples and information on the importance of maintaining links with the network of European Union Reference Laboratories and European Union Agencies is provided in the *RSB's response to the Commons Science and Technology Committee Inquiry for the Brexit science and innovation summit*[48] (App. 3.2; pp.9-11).

3.12. Long-term monitoring of funding mechanisms - including economic audits of environmental initiatives - should be independently reviewed and stringently ratified, particularly during a time of uncertainty surrounding UK science and innovation funding sources. While the UK Government is taking a step forward through the proposed Industrial Strategy - pledging to increase investment in R&D to equal 2.4 % of GDP by 2027 - a clearer breakdown as to the forecasted allocation of the proposed budget is required. Britain currently spends

[43] Council Regulation (EC) No 1100/2007 of 18 September 2007 establishing measures for the recovery of the stock of European eel. URL: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32007R1100
[44] House of Commons Science and Technology Committee. "Brexit, science and innovation: Second Report of Session 2017-19", 19 March 2018, Annex B: Main EU agencies related to science and technology, pp. 23-26; URL: https://publications.parliament.uk/pa/cm201719/cmselect/cmsctech/705/705.pdf
[45] European Commission. European Union Reference Laboratories, June 2016. URL: https://ec.europa.eu/jrc/en/eurls
[46] TSE-LAB-NET: TSE European Union Reference Laboratory. URL: https://science.vla.gov.uk/tse-lab-net
[47] FLU-LAB-NET: An EU funded Avian Influenza programme. URL: https://science.vla.gov.uk/flu-lab-net
[48] Response from the Royal Society of Biology to the Science and Technology Committee of the Commons Brexit science and innovation Summit inquiry, February 2018; URL: https://www.rsb.org.uk/images/article/policy/RSB_response_to_HoC_STC_Brexit_science_and_innovation_Summit_inquiry_for_suvbmission.pdf

approximately 1.7 % of GDP on R&D, compared with 2.8 % in the US and 2.9 % in Germany[49]. The Government should keep the pledge made in the Conservative Party manifesto 2017, with an aim to meet its longer-term goal of 3 %[50]. EU funding streams and mechanisms have been highly beneficial for the UK biosciences, with the UK serving as one of the main beneficiaries of funding across prior Framework Programmes (FPs). Universities have gained a total of 71 % of overall funding allocated to the UK during FP7[51]. Post-Brexit, existing mechanisms are in place to allow continued access to Horizon 2020[52], with approximately 62 % of these funds aimed at support to research, development and innovation activities[53]. Such schemes allow researchers to work across multi-disciplinary fields, enabling exchange and networking between associated countries. The Government should aim for the fullest possible participation in EU successor framework programmes to Horizon 2020, and the Marie Sklodowska-Curie actions[54] - initiatives which contribute to the UK life science sector and the bioeconomy. We welcome Government's positive and pragmatic stance with regards to taking on board the concerns of the STEM community throughout recent EU Exit negotiations[55].

3.13. A key motive in researcher participation in EU funding programmes has been access to associated researcher networks, provisioning an extended knowledge base and access to essential skills and capabilities. Wherever possible, Government should provide immediate clarity to the STEM community on decisions pertaining to relevant immigration rules and regulations in the short and long term[56]. More appropriate mechanisms need to be put in place to ensure that such restrictions have limited impact on essential research and the associated workforce in order to uphold environmental principles. Further information on the importance of *an immigration system that works for science and innovation* is provided in the ***RSB's response to the Commons Science and Technology Committee Inquiry on an immigration system that works for science and innovation***[57].

4. Creation of a new environmental body

Goals and objectives (Question 5)

4.1. In order for a *world-leading* environmental body to effectively meet the goal of holding the Government to account, it must be apparent what statutory mechanisms will be in place

[49] UK election: science spending pledges overshadowed by Brexit. URL: https://www.nature.com/news/uk-election-science-spending-pledges-overshadowed-by-brexit-1.22067
[50] Forward together: the Conservative and Unionist party manifesto 2017. URL: https://s3-eu-west-1.amazonaws.com/2017-manifestos/Conservative+Manifesto+2017.pdf
[51] European Commission. (2015). Seventh FP7 Monitoring Report 2013. URL: http://ec.europa.eu/research/evaluations/pdf/archive/fp7_monitoring_reports/7th_fp7_monitoring_report.pdf#view=fit&pagemode=none
[52] Horizon 2020. The EU Framework Programme for Research and Innovation. URL: https://ec.europa.eu/programmes/horizon2020/
[53] The Royal Society. (2015). UK research and the European Union: The role of the EU in funding UK research. URL: https://royalsociety.org/~/media/policy/projects/eu-uk-funding/uk-membership-of-eu.pdf
[54] Marie Sklodowska-Curie Actions: individual fellowships. URL: http://ec.europa.eu/research/mariecurieactions/about/individual-fellowships_en
[55] HM Government (2018). The future relationship between the United Kingdom and the European Union. URL: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/725288/The_future_relationship_between_the_United_Kingdom_and_the_European_Union.pdf
[56] Campaign for Science and Engineering (CaSE). (2018). Home Office FOI reveals scale of skilled worker refusals due to visa cap. URL: http://www.sciencecampaign.org.uk/news-media/press-releases/home-office-foi-reveals-scale-of-skilled-worker.html
[57] Response from the Royal Society of Biology to the Science and Technology Committee of the Commons' inquiry on an immigration system that works for science and innovation, June 2018. URL: https://www.rsb.org.uk/images/Policy/RSB_response_to_HoC_STC_An_Immigration_system_that_works_for_science_and_innovation_inquiry_for_submission.pdf

allowing it to enforce targets and policies. Without implementation measures, the ambitions of the 25 Year Environment Plan risk becoming a 'wish-list.' A properly resourced body could ensure that specified targets are met. Functions of the new body must be appropriately defined along with its specific remit and jurisdiction. As per the Brundtland Report[58], the ability to scrutinise and advise on environmental issues pertinent to a range of policies and legislation (e.g. planning, agricultural or economic policies) should be a key function of any independent watchdog, allowing for the application of any environmental principles across a wider policy context. A model example of this in practice – could be how Parliament endeavours to ensure that new laws are compatible with the rights set out in the European Convention on Human Rights[59]. The RSB welcomes suggestions by the Prime Minister that the recently proposed Environment Act should recognise the need for environmental issues to be addressed across multiple departments.

4.2. Collaboration and data sharing with third party organisations should be appropriately utilised to ensure efficient use of resources, and the best environmental outcomes possible. Where responsibility lies regarding holding the Government and/ or individuals to account, scope for overlap between bodies should be avoided to enable clarity on jurisdiction and swift action as and when appropriate (e.g. NGOs). There is current scope for improved and maintained connectivity among governmental organisations, including Defra and the Home Office, to ensure that information is being appropriately disseminated and utilised. As per the *RSB's response to the House of Lords Science and Technology Committee inquiry into Life Sciences and the Industrial Strategy*[60], "*the right regulatory, funding and social environment to support collaborative and international activity is vital*". It is important that the future regulatory environment of the UK builds holistically on knowledge about human and ecosystem health and provides ecosystem services with protection.

4.3. A skilled, well advised and informed, and properly resourced regulator will be an effective driving force for change. An interdisciplinary approach adhering to advice from experts is essential to the integrity of this process. Such expertise should include but not be limited to: environmental managers, ecologists, conservationists, farmers, fisheries and forestry managers, landscape planning and sustainable infrastructure developers (including renewables and transport), health workers, climate scientists, economists, academics and policy-makers. As per the *RSB's response to Defra's consultation on Health and Harmony* (para.33; p.15)[61], more cross-disciplinary knowledge-exchange links are required and could be facilitated with the cooperation of industry, from Government directly, and through the Research Councils under UK Research and Innovation (UKRI). Many other European countries implement free and reliable locally tailored public advice, enabled through state-owned or state-affiliated research institutes. Within agriculture for example, this has proven effective in improving farmers' understanding of evidence behind policies and practices, while equally allowing them to communicate their needs to researchers. Experience, local

[58] [58]United Nations (1987). The Brundtland report: 'Our common future'. URL: http://www.un-documents.net/wced-ocf.htm
[59] Equality and Human Rights Commission. (1998). The Human Rights Act. URL: https://www.equalityhumanrights.com/en/human-rights/human-rights-act
[60] Response from the Royal Society of Biology to the House of Lords Science and Technology Committee inquiry into Life Sciences and the Industrial Strategy, September 2017; URL: https://www.rsb.org.uk/images/RSB_response_Life_Sciences_Industrial_Strategy_inquiry_submitted.pdf
[61] Response from the Royal Society of Biology to Defra's consultation on "Health and Harmony: the future for food, farming and the environment in a Green Brexit, May 2018; URL: https://www.rsb.org.uk/images/RSB_response_to_Defra_consultation_on_Health_and_Harmony_submitted.pdf

knowledge and creative enterprise should be integrated into the implementation of policy, such as on a regulatory scale. Reward could be provided for those providing independent professional advice; where such advice is not readily available, there is call for the upskilling of the workforce in relation to a number of priority sectors.

Responding to and investigating complaints (Question 8)

4.4. While domestic mechanisms are currently in place to funnel complaints directly to the responsible body, no single specialist body with environmental expertise currently holds overall remit for this function, thus there are limitations surrounding appropriate action being implemented. Defra, for example, already has effective functioning complaints procedures in place, however the appropriateness for later implementation across the devolved administrations must be considered. A third party independent body that does not answer directly to Westminster, with sufficient funding to function, may be better received across devolved legislatures (para.3.1; p.8). Similar to auditing processes, mechanisms should be in place to manage resources, and collate and act swiftly to investigate community level complaints, with governmental oversight. Structures and procedures should also be in place to enable issues of public concern to come to light, through whistle-blowing cases for example, with clearly defined action.

Interaction with the planning system (Question 13)

4.5. Across the European Union there is widespread acceptance that the areas of land use planning, transport and the environment are all closely interlinked and therefore integrating decisions across the sectors is vital towards achieving sustainable development[62]. Policies across sectors should be complementary rather than single-measured (para. 3.5 &.4.1; pp.10 & 13-14), and lack of co-ordinated planning processes can lead to segmented approaches that slow down progress. Collaborative involvement should be encouraged to better sustainable development initiatives. Well-informed environmental impact assessments for the production of goods and services (for example), synthesising the available baseline data and predictions, allow for a more informed assessment surrounding the scope of impact on the wider ecosystem, and reduce the need for future retrospective mitigation efforts.

4.6. The current UK system, on a national scale, has not yet achieved the type of integrated and informed decision-making processes which are integral to supporting sustainable land use[63]. Simplified planning systems give Local Councils the freedom to make local decisions in the best interests of their area, for example in relation to local health needs, while any cumulative impact on national resources is also taken into consideration. Environmental impacts and implemented policies need to take account of national and local scale impacts concurrently, allowing decisions to be implemented that work against local environmental damage.

[62] Geerlings, H., and Stead, D. (2003). The integration of land use planning, transport and environment in European policy and research. Transport Policy. 10(3), pp. 183-196.
[63] Defra (2011). The Natural Choice: securing the value of nature. URL: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/228842/8082.pdf

4.7. A strategic overview may be required to better provision for large scale planning (e.g. to river catchment size or landscape scale). This could assist in ensuring cross-border cooperation where key landscapes, wildlife corridors and biodiversity networks are linked (para.1.6 & 3.1; pp.5&8). The 25 Year Environmental Plan includes goals based on the 2010 Lawton Review[64] which look to assist nature in continuing to thrive, even under continually increasing man-made pressures. This includes the necessity for wildlife sites to be "better", "bigger", "more", and "joined" to allow for development of resilient ecological networks[65].

4.8. Interdisciplinary operations pose challenges, and where relevant scientific expertise is lacking, relevant stakeholders may require comparative reference points to better understand the nature of natural capital stakes, the wider benefits of ecosystem services, and subsequently better inform decision-making processes. As previously noted, the principle of *biodiversity net gain* alone provides no point of comparative reference. Use of the more integrated *net outcomes*[66] however allows for a counterbalanced set of principles which can be applied within environmental management and policy – as long as the inputs into a system (of production, for example), from start to finish, are also assessed in a proportionate fashion. This has recently been formally applied in the Natural Capital Planning Tool (NCPT)[67]. This open source platform assumes no prior ecosystems services knowledge, and provides guidance and assigns quantifiable scores related to impact. Such provisioning tools may prove effective, however it is important that we have an appropriately skilled workforce to collect, record and analyse the necessary datasets that allow for the implementation of such programmes, and to monitor their progressive outputs. Such tools cannot replace the skills and experience of subject matter experts within the biosciences, and other sectors, who are required for regulatory and advisory purposes. The NCPT, as a case study, does however highlight the potential for the development of successful innovation projects via appropriately shared datasets informed by evidence.

5. Overall environmental governance (Question 14)

5.1. The biosciences contribute to growth and enhanced wellbeing and are an essential component of the research and innovation landscape, delivering key economic and societal benefits. In developing or implementing policy, it is fundamentally important that scientific data, peer-reviewed studies and evidence is taken carefully into consideration. Any decisions made by the responsible body should be informed by scientific evidence of relevant biological parameters and should involve wide-ranging expert consultation.

[64] Lawton, Prof. Sir. J. (2010). Making Space for Nature: A review of England's Wildlife Sites and Ecological Network. Submitted to the Secretary of State, Defra, 16 Sept 2010. URL: http://webarchive.nationalarchives.gov.uk/20130402170324/http://archive.defra.gov.uk/environment/biodiversity/documents/201009space-for-nature.pdf

[65] Isaac, *et al*. (2018). Defining and delivering resilient ecological networks: Nature conservation in England. *Policy Direction*. *Journal of Applied Ecology*. 0(0), pp. 1-7

[66] Maron, M., Brownlie, S., Bull, J.W., Evans, M.C., von Hase, A., Quétier, F., Watson, J.E.M., & Gordon, A. (2018). The many meanings of no net loss in environmental policy. Nature Sustainability. 1, pp. 19-27.

[67] Natural Capital Planning Tool, 2018. URL: http://ncptool.com/

5.2. As per the *RSB's response to Defra's consultation on the draft Animal Welfare Bill*[68], in order for environmental principles retrofitted into UK policy to carry weight and have appropriate effect we recommend that Government's decision making-processes are as transparent as possible and put evidence at the centre. There must be a willingness to work in conjunction with any newly established environmental body so that the ambitions of the *25 Year Environment Plan* carry weight. **In the process of policymaking, evidence should be weighted in a way that acknowledges its strength and grounding in good data, strong studies, and reliable sources, all within a sound ethical framework.** It is suggested that a specific framework outlining the purpose of all involved bodies and existing authorities (e.g. Environment Agency, Natural England) be developed to avoid scope for functional overlap. We recommend a broad consideration of public interest, for example by considering results from surveys about consumers' attitudes and public dialogues; opinions by technical expert working groups, advisory groups, non-governmental organisations, the private sector and stakeholder groups- all weighing the potential consequences of action and inaction.

5.3. It is crucial that statutory obligations are met efficiently through the use of accurate, independent and accessible evidence synthesis[69]. Short and long-term environmental challenges must be addressed utilising ongoing consultation with community expertise, within and beyond the biosciences and broader disciplines of the STEM community - including members of the public and other affected communities - to evolve ongoing and future policy delivery, including through the UK's exit from the EU. Through such an approach, key priorities such as those three proposed in the 2017 *Science for Defra: excellence in the application of evidence* conference report should be attainable: to "*achieve growth, value, impact*"; "*understand future risks and opportunities*"; and "*use cutting edge technologies for improved delivery*" [70]. These concepts also adhere well to the *Grand Challenges* posed within the UK Government's *Industrial Strategy: Building a Britain fit for the future*[71]. Defra's key evidence gaps and research priorities need to be identified and addressed via cross-sector knowledge channels including but not limited to bodies and individuals representing academia, industry and Government. Increased dialogue between the science and policy communities will allow for better informed policy-making and decisions, particularly in times of uncertainty.

5.4. Globally there is an increased need for interdisciplinary research, for example when investigating relationships between the natural environment, and health and wellbeing. Development of an appropriate framework needs to encompass strategic decisions and overlying principles, and should address the key components raised during the 2017 *Science for Defra* report across the main areas of focus: *Natural Environment*; *Rural Communities*; *Floods*; *Food & Farming*; *Environmental Quality*; *Marine & Fisheries*; *Water*; and *Animal Health and Welfare and Plant Health*. In particular there is a need to better identify and assess risk, drive innovation and encourage investment, better understand change (locally and globally), make use of and drive technological developments, and understand what action

[68] Response from the Royal Society of Biology to the Department for Environment, Food and Rural Affair's consultation on the draft Animal Welfare (Sentencing and Recognition of Sentience) Bill, February 2018; URL: https://www.rsb.org.uk/images/RSB_response_Defra_draft_Animal_Welfare_Sentencing_and_Recognition_of_Sentience_Bill.pdf
[69] "Making the most of our evidence: A strategy for Defra and its network" (2014). p.18.
[70] Department for Environment, Food & Rural Affairs and The Royal Society (2017). "Science for Defra: excellence in the application of evidence" conference report, 29-30 March 2017. p.18.
[71] "Industrial Strategy: Building a Britain fit for the future" (2017). Department for Business, Energy & Industrial Strategy, p. 23.

needs taking by whom and over what timescale. Collation of information would support the needs of the 25 Year Environment Plan based on evidence use and attributed value of the natural environment. Subsequently, Natural Capital decisions may be supported and contribute towards a progression evaluation framework against the 25 Year Environment Plan's outcomes. Management techniques must respond to pressures and undertake fair and competitive economic measures. This will allow for the enhancement of ecosystem services and sustainable development. Any response must be publically acceptable, accessible and practical to ensure consumer confidence.

The Society welcomes Defra's consultation on Environmental Principles and Governance after EU Exit. We are pleased to offer these comments which have been informed by specific input from our members and Member Organisations (see Appendix, p.19) across the biological disciplines. The RSB is pleased for this response to be publicly available. For any queries, please contact the Science Policy Team at Royal Society of Biology, Charles Darwin House, 12 Roger Street, London, WC1N 2JU. Email: consultation@rsb.org.uk

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Genetics Society
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