



# State of Natural Capital Annual Report 2020

Natural Capital Committee



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# Chair's message

Nine years have now passed since the government published the 2011 White Paper, *The Natural Choice*, committing to the objective *“to be the first generation to leave the environment in a better state than it inherited.”* To achieve this, the Natural Capital Committee (NCC) proposed a 25 year plan for environmental improvement. In 2018, the 25 Year Environment Plan (25 YEP) was finally published, following further advice from the NCC.

Of prime importance in the Environment Bill is to ensure that the 25 YEP is put on a statutory basis along with all ten goals, with firm milestones and all environmental institutions aligned to ensure that the 25 YEP's objectives are met. The absence of progress since 2011 is more notable than the successes. Broadly the natural environment is deteriorating. The government's first report on progress against the 25 YEP published in 2019 provides a long list of actions and very little evidence of improvements in the state of England's natural capital. This failure is due in large part to the lack of a natural capital assets baseline against which to measure progress.

The NCC remains critical of the biodiversity net gain measure in the Environment Bill. This does not go far enough – only an environmental net gain approach in planning and development will ensure that aggregate natural capital is maintained and enhanced.

Without these changes, there is a very real danger that the 2011 White Paper and the 25 YEP go the way of so many bold initiatives that have punctuated the decline of England's natural environment over the previous generations. To allow this to happen would not only undermine confidence in environmental policy generally but condemn the next generation to a poorer economy and environment. We can be green and prosperous, but it will not happen by default. The huge opportunities, both economic and environmental, should be grasped by the new government.

Let me conclude by thanking my fellow NCC members and the secretariat for all of their hard work, putting time and effort in far beyond what is required of them.

## **Professor Dieter Helm**

Chairman of the Natural Capital Committee



# Executive summary

**The government published its 25 Year Environment Plan (25 YEP) in 2018, setting out how it will deliver on its commitment to leave the environment in a better state for the next generation: as first made in the 2011 White Paper, The Natural Choice. Progress on the Agriculture and Fisheries Bills has been limited, but the Natural Capital Committee (NCC) welcomes the legislation for a target of net-zero greenhouse gas emissions by 2050. Nature based interventions will be critical in meeting this target.**

The government's first Progress Report fails to provide an assessment of progress towards environmental outcomes and instead focuses on a long list of actions. This emphasises the urgent need for a comprehensive natural capital baseline census, as recommended by the NCC, against which progress can be measured.

Based on a partial assessment of available data, only moderate / limited progress has been made towards some of the 25 YEP ten goals, with many areas of the environment declining. For example:

- There has only been a 2.2% increase in restoring protected sites to favourable condition since 2013; the figure currently stands at 38.9%, against a 25YEP target of 75%;
- The 25 YEP commits to improving at least 75% of water bodies to be as close to their natural state as soon as practicable; currently only 16% of England's surface water bodies are in a high or good condition status, and this percentage is declining;
- In 2017, abstraction from around 28% of groundwater bodies and up to 18% of surface waters was higher than sustainable levels;

- The 2050 UK net zero target of 17% woodland cover will require tree planting at a rate of 30,000 ha per year: only 13,400 ha were planted in 2018/19 and;
- In 2018, the breeding seabird index in the UK was 28% lower than in 1986, this is the second lowest point recorded, with the lowest point being in 2013 (at 29% lower).

There have been some improvements – including a fall in the emissions of sulphur dioxides by around 58% since 2011. The extent of marine protected areas has increased across the UK and is now just over 21.8 million hectares.

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## Key points

**The NCC reiterates its advice that the 25 YEP must be placed on a meaningful statutory basis. Without a credible statutory underpinning, the 25 YEP may end up as yet another interesting document on the shelf.**

1. The Environment Bill should include a general duty to protect and enhance the natural environment, and legally binding interim and long term targets for each of the ten 25 YEP goals. Long term targets in the four priority areas is insufficient.
2. The Environment Bill should explicitly cover key marine natural capital, such as the seabed, with targets for fisheries extraction set within the framework of the overarching targets of the Environment Bill rather than the Fisheries Bill.
3. The current scope of the Office for Environmental Protection (OEP) covers public bodies only – this leaves a gaping hole in legal enforcement. The OEP's scope should be expanded to cover environmental law related to private companies and landowners.
4. Three principles should be at the heart of environmental legislation: 1. public money for public goods; 2. the polluter pays; and 3. net environmental gain.
5. The NCC stated in its sixth annual report that *“there is a case to be made for incorporating all aspects of environmental protection at a national level within one body. This would entail substantial changes to the existing bodies.”* It is therefore extremely disappointing that the current Environment Bill does not address this issue.
6. The NCC is concerned that the OEP will not be able to issue fines in the same way that the European Commission currently can – or require that legislation is revised to meet environmental objectives. Without the ability to carry out these actions it will be difficult to say there is no regression from EU standards. The 25 YEP is more ambitious than the EU directive requirements, and the OEP setup should reflect this.
7. The Agriculture and Fisheries Bills should put the public money for public goods principle at the heart of spending decisions and clearly define public goods, noting that these exclude food production. The Fisheries Bill should be explicit about minimising impacts on marine natural capital.
8. Government should urgently work towards replacing biodiversity net gain with marine and terrestrial environmental net gain in the Environment Bill.
9. The government's net zero target should be viewed in the broader context of the 25 YEP goals and be delivered through a joined-up government response to climate change. The current siloed approach, with several departments and committees involved but with no overall coordination will fail to deliver the intended outcome, and could even contribute to further degradation of the natural environment. The implementation of measures such as international carbon taxes, innovative incentives and behaviour change initiatives all need to be part of an integrated response to restoring England's degraded natural capital.

**Based on a partial assessment of available data, no significant progress has been made towards most of the 25 YEP ten goals since 2011, with many areas in decline. A proper assessment of progress is inhibited by the lack of a baseline against which progress can be measured.**

10. The NCC's advice is clear: a comprehensive, England-wide environmental census of the stock of natural capital assets is urgently needed to establish a baseline against which progress towards the environmental goals articulated in the 25 YEP can be measured. Progress cannot be measured properly until a baseline is established.
11. The baseline census should be designed in a way that it is compatible with the Office for National Statistics (ONS) national natural capital accounts. For example, as more complete data on natural assets emerges, this will improve our understanding of asset condition / extent and as a result increase the value and range of ecosystem services reported in the accounts.
12. A wide ranging set of natural capital asset-based metrics need to be developed. Defra's 25 YEP Indicator Framework, as currently designed, does not meet this criteria. Plans to develop healthy soils and marine headline indicators should be fast tracked and feature in the next 25 YEP Progress Report.

**A natural capital approach should be embedded at the heart of all government decision making. This means it must be integrated fully into local planning, infrastructure decisions and national / corporate accounts.**

13. The government should require businesses to make the use of the corporate accounting template that the NCC has developed, including a set of corporate accounting standards as a formal audit requirement. The NCC is concerned that the plethora of initiatives and different 'natural capital accounting' approaches that are currently emerging will lead to greenwashing.
14. Natural capital should be viewed as infrastructure in its own right: it underpins all other infrastructure. It is as important as physical and human capital in producing economic outputs and hence economic well-being. The National Infrastructure Commission (NIC) has failed once again in its recent advice to consider the degradation of natural capital (including marine capital). The NIC should give due regard to the role that ecosystem services play in the proper functioning of infrastructure. This should be urgently addressed in its future advice.

**There is a huge economic prize to improving the environment for the next generation. If government fails, the environment will become a drag on the economy. This has been recognised in legislating for net zero – and should also be recognised for the wider environment in the Environment Bill.**

**The government's net zero target should be viewed in the broader context of the 25 YEP goals and be delivered through a joined-up government response to climate change.**







# 1. Implementing the legislative framework for the 25 YEP

**Nine years ago, the government launched its Natural Environment White Paper, *The Natural Choice*.<sup>1</sup> This important document set out an ambition to halt decades of environmental degradation and to begin rebuilding England's natural capital. The government committed to being the first generation to reverse environmental decline; pledging to leave the environment in a better state for the next generation. It recognised that natural capital is often considered as an afterthought, omitted from decision making. It aimed to place the environment at the heart of economic considerations.**

The White Paper committed to establishing a Committee to advise government on what was happening to the environment, whether this mattered and what needed to be done to reverse the declines. The Natural Capital Committee (NCC) was duly established and recommended in 2015 that the government needed to urgently develop a 25 year plan to improve the environment.

In January 2018, the Prime Minister launched the government's 25 Year Environment Plan (25 YEP).<sup>2</sup> Natural capital is at the heart of the 25 YEP and it explicitly recognises the important contribution to human well-being and the significant economic benefits investment in natural capital can yield.

The importance of the Environment Bill, Agriculture Bill and Fisheries Bill<sup>3</sup> in laying the foundations for implementing the 25 YEP should not be underestimated. To be effective, long-term certainty is needed across multiple fronts. As it stands, the statutory basis of the 25 YEP (and future Environmental Improvement Plans) needs to be stronger with a requirement for all of the ten goals to be met. Efforts to deliver net zero are likely to rely heavily on the biological

mitigation of greenhouse gases through land use change, sea use change and forestry to protect and restore key carbon stocks. The delivery of net zero should be embedded into a natural capital approach<sup>4</sup> so decisions on nature based interventions are not trading off functioning ecosystems for carbon capture.

## The Environment Bill

In October 2019, the government introduced the Environment Bill<sup>5</sup> into parliament. The NCC welcomes this significant step forward in providing the statutory basis for reversing environmental declines within one generation. However, **the Environment Bill needs to go much further to properly place the 25 YEP on a meaningful statutory footing.**

1 HM Government, *The Natural Choice: securing the value of nature* (2011): <https://www.gov.uk/government/publications/the-natural-choice-securing-the-value-of-nature>

2 HM Government, *A Green Future: Our 25 Year Plan to Improve the Environment* (2018): <https://www.gov.uk/government/publications/25-year-environment-plan>

3 Parliament, *Environment Bill 2019-20* (2019): <https://services.parliament.uk/Bills/2019-20/environment.html>, Parliament, *Fisheries Bill 2017-19* (2018): <https://services.parliament.uk/bills/2017-19/fisheries.html> and Parliament, *Agriculture Bill 2017-19* (2018): <https://services.parliament.uk/bills/2017-19/agriculture.html>

4 As defined in previous NCC documents, for example see: *The State of Natural Capital: Towards a framework for measurement and valuation*: <https://www.gov.uk/government/publications/natural-capital-committees-first-state-of-natural-capital-report> and *How to do it: a natural capital workbook version 1*: <https://www.gov.uk/government/groups/natural-capital-committee>

5 HM Government, *Government introduces ground-breaking Environment Bill* (2019): <https://www.gov.uk/government/news/government-introduces-ground-breaking-environment-bill>

## Recommendations:

- The Environment Bill must include a general duty to protect and enhance the environment. Without such a duty, the Bill is unlikely to achieve significant environmental improvement.
- The Environment Bill gives government the power to set long-term targets in relation to the natural environment<sup>6</sup> or people's enjoyment of it. However, it mandates for only one long-term target in each of the four priority areas: i) air quality, ii) water, iii) biodiversity and iv) resource efficiency and waste reduction. The impact these targets will have on the environment is difficult to quantify until the government publishes detail on what targets they are planning to set. To ensure that targets are effective, a number of issues need to be addressed:
  - The Bill should go further than requiring targets for four priority areas as this leaves vast holes in environmental protection, for example in soils. The NCC previously recommended that *"the Environment Bill... should include enshrining the ten goals in legislation."*<sup>7</sup> In its current state the Environment Bill fails to mandate legally binding targets for all ten 25 YEP goals.
  - The Bill should require more than one SMART target per priority area, reflecting that the environment is a complex system and that one target is unlikely to result in positive environmental change across the range of natural assets.
  - The targets have to achieve *"a significant improvement in the natural environment in England"*: this wording is highly subjective. For targets to deliver actual improvements this wording should urgently be revised.
- The Bill mandates government to have and maintain an Environmental Improvement Plan (EIP) – currently the 25 YEP – which sets out interim targets towards meeting the long-term targets. Without legally binding interim targets which are linked to clear legally binding long-term targets, it is likely that the ten 25 YEP goals and future EIPs will become aspirational. The interim targets should be placed on a statutory footing. Failing to place the interim targets on a statutory footing will risk long-term targets being missed because, for example, the government may prioritise other short term public expenditure items.
- Potential trade-offs between the targets need to be recognised, particularly with respect to net zero and the incentive to divert domestic carbon consumption abroad.
- The Bill legislates for environmental principles<sup>8</sup> which legally oblige all government policy-makers to consider choosing policy options which cause the least environmental harm. The NCC recommended in its 2019 annual report that the three environmental principles should be *"public money for public goods, net environmental gain and the polluter pays."* It is therefore extremely disappointing that only one of these principles, the polluter pays, has made it into the Environment Bill.
- The NCC notes that all Ministers of the Crown will have to ensure 'due regard' to the five environmental principles. The wording of the clause is insufficient and should be strengthened to 'act in accordance with' before the Bill is re-introduced into parliament.
- Provision for the protection of the marine environment through the Environment Bill should also provide the means to address the impacts of different land management practices on the marine environment.
- The 'Nature and biodiversity' part of the Environment Bill, where there is a *"general duty to conserve and enhance biodiversity and for public authorities to publish biodiversity reports"*, should instead have a natural capital focus. The environment is an integrated system and a duty to enhance only biodiversity (including species and habitats) will have limited success in improving the environment.
- The Environment Bill should explicitly include natural capital of the marine environment, including the seabed, with targets for fisheries extraction set within the overarching targets of this Bill rather than set under the Fisheries Bill.

6 Clause 39: meaning of the "natural environment" In this Part the "natural environment" means – plants, wild animals and other living organisms, their habitats, land (except buildings and other structures), air and water, and the natural systems, cycles and process through which they interact.

7 See NCC, Natural Capital Committee's Sixth Annual Report (2019): <https://www.gov.uk/government/publications/natural-capital-committees-sixth-annual-report>

8 1) Environmental protection should be integrated into policy-making principle; 2) the preventative action to avert environmental damage principle; 3) the precautionary principle; 4) environmental damage should as a priority be rectified at source principle and 5) the polluter pays principle.





## The Office for Environmental Protection

The Environment Bill sets out in detail how the Office for Environmental Protection (OEP) will operate, its objectives and the requirement to prepare a strategy that will set out the role it will play in holding government to account on its environmental targets. The NCC's view is that the current powers within the Bill for the OEP are likely to result in a weaker regime for holding the government and its agencies to account for environmental degradation. It is critical that the OEP has the independence, resources and teeth to deliver its role.

To ensure that the OEP can function effectively, the NCC recommends that the following issues need to be addressed:

- **The role of the OEP needs to be refined. The OEP should be responsible for enforcing all environmental law including legislation that has to be implemented by private companies and landowners. The current scope covers public bodies only and does not include private landowners. This leaves a gaping hole in the legislation. Carbon budgets, from the Climate Change Act, should also be within scope of the OEP's enforcement function.**
- **The NCC stated in its sixth annual report that *"there is a case to be made for incorporating all aspects of environmental protection at a national level within one body. This would entail substantial changes to the existing bodies."* It is therefore extremely disappointing that the current Bill does not address this issue. When no single organisation is in charge there are considerable challenges associated with identifying, agreeing and delivering outcomes.**
- **There should be no regression from the protection the European Commission and the European Court of Justice provided. The previous Prime Minister, Theresa May, committed to non-regression in EU standards in her speech, stating that *"Brexit will not mean a lowering of environmental standards."*<sup>9</sup> Non-regression has also been committed to by the current Prime Minister, Boris Johnson. The 25 YEP is more ambitious than the EU directive requirements, and the OEP should reflect this. The NCC is concerned that the OEP will not be able to issue fines in the same way that the European Commission currently can – or require that legislation is revised to meet environmental objectives. This increases the risk of weakening environmental protections.**

- **The government should clarify the role of the OEP in setting, revising and approving any potential change in long term targets.**
- **The OEP should be accountable to parliament, rather than government. The NCC does not consider this to be a credible position. Other similar regulatory bodies, such as the Office for National Statistics (ONS) or the Audit Commission are accountable to parliament. The OEP should be independent from the organisations it is responsible for.**
- **The scrutiny function of the OEP should not be independent from its enforcement role. There is little point of the OEP reviewing the EIPs and reporting on annual progress if it cannot act when the government is failing to make progress.**
- **Defra should review the roles and remit of all the existing environmental delivery bodies, including the Environment Agency, Natural England, the Marine Management Organisation and Local Authorities to clearly identify responsibilities for delivery of the many actions in the 25 YEP and future EIPs.**

## Environmental net gain

In 2017, the NCC proposed that environmental net gain should be incorporated as a key policy intent within the government's 25 YEP.<sup>10</sup> The Committee welcomed its inclusion in the 25 YEP where government committed to *"embed an 'environmental net gain' principle for development, including housing and infrastructure."*

The NCC was therefore disappointed when in 2018 the government pursued the much narrower concept of biodiversity net gain. The NCC reiterates its advice that: *"the proposed net biodiversity gain approach falls short of many of the goals of the 25 YEP as it fails to address most of the natural capital assets that are included within the plan."*<sup>11</sup> It is extremely disappointing that biodiversity net gain, rather than environmental net gain, has been included in the Environment Bill. The NCC regards this as a missed opportunity to embed a net environmental gain principle at the heart of decision making. Furthermore, contrary to the NCC's recent advice,<sup>12</sup> nationally significant infrastructure and the marine environment remain out of scope which poses a real danger of further degradation of England's terrestrial and marine ecosystems.

9 Prime Minister's speech on the environment: 11 January 2018: <https://www.gov.uk/government/speeches/prime-ministers-speech-on-the-environment-11-january-2017>

10 NCC, *Natural Capital Committee advice on government's 25 year environment plan* (2017): <https://www.gov.uk/government/publications/natural-capital-committee-advice-on-governments-25-year-environment-plan>

11 NCC, *Advice to government on environmental net gain* (2019): <https://www.gov.uk/government/publications/natural-capital-committee-advice-to-government-on-net-environmental-gain>

12 NCC, *The Natural Capital Committee's response to Defra's net gain commission* (2019): <https://www.gov.uk/government/publications/natural-capital-committee-advice-to-government-on-net-environmental-gain>

To deliver environmental net gain the following points need to be addressed:

- **Government should replace biodiversity net gain in the Environment Bill with environmental net gain.**
- **The environmental net gain principle should apply to all development covered by the Town and Country Planning system, all nationally significant infrastructure projects and the marine environment.**
- **Environmental net gain proposals associated with development should adopt an avoid, minimise, remediate, compensate hierarchy. The approach needs to cover the costs of remediation as well as including a distinct investment component that delivers a gain over and above the starting baseline. Environmental net gain must result in a demonstrable, evidence-based increase in natural capital assets compared with the baseline.**
- **The NCC recommends that environmental net gain should be mandatory and funded by the developers whose activities give rise to the environmental damage.**
- **The remediate aspects of environmental net gain should be as close as possible to the development site. The investment aspects, as highlighted in previous advice, may be more remote. However, the public acceptability of a development may be predicated on at least some if not the majority of the investment aspects of net gain being in locations that those impacted by the development can enjoy or benefit from.**

## The Agricultural Bill, public goods approach

Part one of the Agriculture Bill<sup>13</sup>, as it was introduced in 2018, gave the Secretary of State power to incentivise those managing the land to deliver public benefits such as air and water quality, public access and productivity, providing financial assistance for these 'public goods'. In its 2019 Annual Report, the NCC repeated its strong endorsement of the move from a system of agricultural support predicated mainly on the ownership of land to one following the public money for public goods principle.

Agriculture is a private enterprise and food is sold in markets, directly to consumers, and is therefore by definition (and according to official government guidance) a private, rather than a public, good.<sup>14</sup>

Public subsidy of private production is extremely unusual (especially at the rates of up to 50% which pertain in UK agriculture) and runs the risk of consumers paying twice, once as purchasers of food and again as taxpayers. Just because food is a private good, this does not mean that farms cannot also produce public goods through good environmental management of the land. Indeed, as noted by the House of Commons<sup>15</sup> the “*only long-term justification for future expenditure in the agricultural sector is the provision of public benefits*”, a position accepted, and indeed supported, by many landowners and increasingly by farmers (e.g. CLA).<sup>16</sup>

The main public good highlighted in the government's farming consultation document is environmental improvement. The marine environment should be included within environmental improvement and landowners should reduce their impact upon the coastal and marine economy and environment. The 25 YEP includes the polluter pays principle: this principle should be built into the Agriculture Bill.

Improving farming productivity is acceptable **only when it protects and enhances natural capital**. For example, increasing the numbers of beneficial insects to optimise crop yield and reduce pest pressure.

### Recommendations:

- **The NCC advises that public funding for agriculture should be focused on the delivery of environmental public goods. There should be no presumption that historic levels of funding or the current distribution of these are correct; in some cases they might rise, in others fall.**
- **Payments to support productivity should only be made when they protect and enhance natural capital e.g. increasing the numbers of beneficial insects. The main public good highlighted in the government's farming consultation document is environmental improvement, and food is not a public good.**
- **Consideration should be given to including the polluter pays principle in the Agriculture Bill.**
- **Public money for public goods schemes should include reducing the impact upon coastal and marine natural capital.**
- **The Agriculture Bill should include a duty to create a public money for public goods payment system and include a mechanism for how much money should be invested in it.**

<sup>13</sup> Parliament, *Agriculture Bill 2017-19* (2018): <https://services.parliament.uk/bills/2017-19/agriculture.html>

<sup>14</sup> HM Treasury, *The Green Book: Central Government Guidance on Appraisal and Evaluation* (2018): <https://www.gov.uk/government/publications/the-green-book-appraisal-and-evaluation-in-central-government>

<sup>15</sup> House of Commons, *The UK Government's Vision for the Common Agricultural Policy, House of Commons Environment, Food and Rural Affairs Committee, Fourth Report of Session 2006-07, vol. 1, Page 3. The Stationery Office Limited, London* (2007) HC 546-I: <https://publications.parliament.uk/pa/cm200607/cmselect/cmenvfru/546/546i.pdf>

<sup>16</sup> Country Land and Business Association, *The Land Management Contract* (2018): <https://www.cla.org.uk/Land-Management-Contract#>



## Environmental Land Management Scheme

The NCC's Terms of Reference asks the Committee to advise on the "...implementation of an integrated 25 year environment plan..."<sup>17</sup> The Environmental Land Management (ELM) scheme set out in the Agriculture Bill will have a major impact on how the 25 YEP is delivered.

The ELM scheme proposes to pay public money for a range of public goods such as clean water and clean air. Under current plans, the ELM scheme aims to deliver outcomes which fall under six categories of public goods as identified in the 25 YEP: clean air, clean and plentiful water, thriving plants and wildlife, reducing risk from environmental hazards, mitigating and adapting to climate change, and enhanced beauty, heritage and engagement with the natural environment. Actions to conserve and restore soil health will be central to delivering on these goals, although current plans do not include it as an outcome in itself.

Defra's plans for a three tier payment scheme should make sure that payments deliver positive environmental outcomes (for example, clean water), i.e. public goods, rather than paying for actions or subsidising production. Food, by definition, is not a public good, and repeated attempts to present it as such may subvert the public money for public goods principle. As each tier is likely to address a different scale, from the individual farm (tier 1) to local scale planning (tier 2) to landscape scale planning (tier 3), this will require an appropriate level of funding allocation across the three tiers to make sure that payments can support actions which take appropriate account of scale and the trade-offs involved to deliver positive environmental outcomes through a natural capital approach. The scheme should avoid the perverse economic incentives created by payments to landowners under the Common Agricultural Policy, avoiding constant per hectare payments ensuring that the rates of payment reflect the value of public goods different farms deliver.

Any actions funded by the scheme (for example, nutrient management) should be incorporated into a process of monitoring, review and reallocation, to make sure that the scheme is delivering on the broad environmental outcomes and values, driven by results, rather than delivering unmonitored payments for actions which may have unintended consequences. One further route is to incentivise self-monitoring, so higher rates are available to those who can prove they are improving outcomes.

The ELM scheme will be a key delivery mechanism for practices that will be beneficial to peat and soil extent, condition and health. These include those that reduce climate change, increase biodiversity, avoid soil erosion and increase water holding capacity. Peat restoration is governed by relationships with landowners and available funding. EU Life programme funding is currently the main mechanism for supporting peat restoration. To ensure the success of their peat management strategy the upcoming Lowland Peat Taskforce for England should adopt and support the recommendations of the International Union for Conservation of Nature (IUCN) Peatland Strategy.

### Recommendations:

- **Significant funding should be delivered for payment for results, i.e. desired environmental outcomes, as research indicates that this delivers greater environmental benefits.<sup>18</sup> Where payments for actions are necessary these should be broadly assessed for their contribution to environmental outcomes including any perverse / unforeseen outcomes.**
- **ELM baselining data needs should be aligned with the environmental baseline census proposed by the NCC.<sup>19</sup>**
- **The ELM scheme programme needs to apply new tools to assess the value of public goods. Modelling challenges include the fact that different public goods do not all deliver equal value, and that the level and value may differ according to location (for example some recreational assets near to people may be more valuable than physically identical assets located in remote areas); these complexities should not however be used as an excuse to delay development of the tools.**
- **The NCC advise that efforts to create auction platforms enabling landowners to bid ought to incorporate tools to assess the value and spatial extent of public goods. The pricing and allocation of land improvements should be underpinned by an evidence base to determine which areas will deliver the greatest environmental improvement, with consideration of the implications for each of the 25 YEP goals.**

17 NCC, *Natural Capital Committee Terms of Reference*: <https://www.gov.uk/government/groups/natural-capital-committee#terms-of-reference>

18 Natural England, *Pilot Results-Based Payment Approaches for Agri-environment schemes in arable and upland grassland systems in England* (2019): <http://publications.naturalengland.org.uk/publication/6331879051755520?category=35001>

19 NCC, *Natural Capital Committee's advice on an environmental baseline census of natural capital stocks: an essential foundation for the government's 25 Year Environment Plan* (2019): <https://www.gov.uk/government/publications/natural-capital-committee-advice-on-developing-an-environmental-baseline-census>

- **Healthy soils are a public good and should be a priority outcome for the scheme, with the same priority given to it as to air, water and wildlife. This should be underpinned by time bound targets for both national and local improvement, with appropriate metrics developed for assessing this.**
- **Payments should account for the impact of land use on coastal and marine natural capital. Users of the marine environment and its resources should be similarly incentivised for good environmental stewardship.**

## Fisheries Bill and the marine environment

In 2019 the NCC published advice on marine and the 25 YEP<sup>20</sup>, advice on marine monitoring in the NCC's advice on an environmental baseline census of natural capital stocks<sup>21</sup> and advice on marine net gain.<sup>22</sup> The 25 YEP and the forthcoming Environment Bill<sup>23</sup> and Fisheries Bill<sup>24</sup> provide the opportunity for a more integrated and coordinated approach to management of *all* marine natural capital (in the same way that terrestrial environmental management seeks to align with agricultural management).

The amending of fisheries legislation as it is transposed from EU legislation into UK law is an opportunity to set total allowable catches for British waters, in line with the ambitious targets for improvement that have been given statutory footing in the Environment Bill. At present, the Fisheries Bill simply aims to implement an ecosystem-based approach to fisheries management to make sure that negative impacts of fishing activities on the marine ecosystem are minimised, and to avoid degradation of the marine environment.

There is no indication in the latest version of the Fisheries Bill that fisheries policy, including setting fishing catch targets, will be implemented in a manner that is wholly consistent with the 25 YEP, including improving the whole marine environment and taking into account that fish are one element of a complex and highly integrated marine system delivering multiple services. The UK marine economy is estimated to have an output of £192 billion in 2014, representing 6.1% of total output in the UK economy. Marine leisure and recreation considerably surpasses marine fishing and aquaculture in terms of output, gross value added and jobs.<sup>25</sup>

The ecosystem based approach that is currently proposed as the basis of fisheries management and for setting catch targets is beneficial inasmuch as it considers the impacts of wild fish and shellfish extraction through fisheries on other fish and shellfish species and on other components of the ecosystem with which the target species interact. However it has two failings:

1. There are still many stocks that are commercially exploited for which the required ecological information to support an ecosystem based approach is not available.<sup>26, 27, 28</sup>
2. It does not take into account several other ecosystem services that may be dependent on wild fish and shellfish remaining in the sea as fundamental natural capital assets rather than being extracted for human consumption. There are emerging tools for consideration of impacts on other ecosystem services and the trade-offs involved.<sup>29</sup>

20 NCC, *Natural Capital Committee advice on marine and the 25 year environment plan* (2019): <https://www.gov.uk/government/publications/natural-capital-committee-advice-on-marine-management>

21 NCC, *Natural Capital Committee advice on developing an environmental baseline census* (2019): <https://www.gov.uk/government/publications/natural-capital-committee-advice-on-developing-an-environmental-baseline-census>

22 NCC, *Net environmental gain: The Natural Capital Committee's response to Defra's commission* (2019): <https://www.gov.uk/government/publications/natural-capital-committee-advice-to-government-on-net-environmental-gain>

23 Parliament, *Environment Bill 2019-20* (2019): <https://services.parliament.uk/Bills/2019-20/environment.html>

24 Parliament, *Fisheries Bill 2017-19* (2018): <https://services.parliament.uk/bills/2017-19/fisheries.html>

25 Stebbings et al, *The marine economy of the United Kingdom* (in press)

26 MMO, *UK sea fisheries annual statistics report 2018* (2018): <https://www.gov.uk/government/collections/uk-sea-fisheries-annual-statistics>

27 Defra, *Measuring environmental change: outcome indicator framework for the 25 Year Environment Plan* (2019): <https://www.gov.uk/government/publications/25-year-environment-plan>

28 Cefas, *Biodiversity, food webs and marine protected areas, Fish* (2019): <https://moat.cefas.co.uk/biodiversity-food-webs-and-marine-protected-areas/fish/>

29 See e.g. Broszeit et al, *What can indicators of good environmental status tell us about ecosystem services? Reducing efforts and increasing cost-effectiveness by reapplying biodiversity indicator data* (2018): <https://www.sciencedirect.com/science/article/pii/S1470160X17303126?via%3Dihub>; and Hooper et al (in press).



### Recommendations:

- A more holistic approach is required for the protection and growth of marine natural capital. This approach should consider what further actions could be taken, in addition to marine protected areas, so that all of the UK's marine environment and its natural capital could be improved to deliver increased economic and social benefits and public services.
- The extent of extractive activity for fisheries should be set within the wider environmental improvement targets within the Environment Bill.
- Until the ecological data required to inform an ecosystem based approach is available, a strongly precautionary approach should be taken when setting targets and limiting pressures.
- The targets for environmentally sustainable fishing and aquaculture activities within the Fisheries Bill should include mandatory timelines for when these must be achieved. If government plans to set specific targets for marine then consideration should be given to restoring biomass of harvested species to levels capable of producing maximum sustainable yield and maintaining it at these levels, and eliminating discards.
- The public money for public goods principle should be at the heart of spending decisions regarding fisheries and aquaculture activities, clearly defining public goods and noting that these exclude food production.
- Natural capital thinking should be applied when implementing marine regulation and decision making under the Marine and Coastal Access Act.
- Marine protected areas should be implemented, existing ones reviewed, and all managed to improve marine natural capital, flows of ecosystem services and benefits including increased efforts to reduce fisheries, dredging and dredge spoil dumping impacts on the natural capital of the seabed.
- The Fisheries Bill should prevent fish catches above Maximum Sustainable Yield. The current wording in the Joint Fisheries Statement that the Secretary of State need only comply with this "*unless relevant considerations indicate otherwise*" is unacceptable and should be amended.



## Net zero

In June 2019 the UK legislated to set a target of net-zero greenhouse gas emissions by 2050.<sup>30</sup> The UK Climate Change Committee (CCC) has recommended that land use change should be a significant element of a holistic strategy to deliver this challenging target.<sup>31</sup> In line with HM Treasury Green Book guidance<sup>32</sup> and the government's 25 YEP the NCC advise a natural capital approach to addressing these targets, specifically when considering nature based interventions to remove greenhouse gases from the atmosphere.

Nature based interventions need to incorporate the multiple goals of the 25 YEP, so that decisions on land use change and the marine environment are not unduly trading off functioning ecosystems and habitat for carbon capture. Failure to recognise these co-benefits and costs to pursue a single objective irrespective of its wider consequences will simply repeat the failures of decades of land use and, in particular, agricultural policy. Policy and decision makers should fully assess the options available, accounting for the challenges of scale and time horizons to prioritise methods which deliver multiple benefits for climate change mitigation, adaptation and wider environmental goals.

The management of the marine environment should not be undervalued, marine ecosystems are responsible for an estimated 55% of the world's biologically sequestered carbon.<sup>33</sup> Mitigation should only be delivered where it can be embedded into a natural capital approach which ensures no net loss of natural capital, to increase the resilience of England's ecosystems and the services they provide – this is the only approach which addresses the full long term economic risks of a changing climate.

Decisions on what action to take will need to account for the fact that some habitats hold greater carbon stocks than others, some have greater capacity for sequestration, and all of them also provide other ecosystem services which need to be considered alongside carbon sequestration and storage. Long-term thinking is required when considering the appropriate course of action, planning beyond 2050 and to 2100.

The following options need to be evaluated:

- Sequestering carbon into soils;
- Afforestation;
- Peatland and peat bog restoration;
- Coastal and ocean management, and;
- Improving biodiversity.

Future action to protect England's soils is likely to arise from the role that they could play in carbon capture / sequestration (particularly peat), and the provision of ecosystem services e.g. food production, water storage and purification. Delivery mechanisms include peat restoration to address the net zero commitment and the lowland peat strategy, improved soil health delivered through ELMs (schemes like EN-trade<sup>34</sup>), and the legislation and enforcement of farming standards (soil is defined as a natural asset in the Agriculture Bill).

### Recommendations:

- **Net zero should be part of a wider joined up government response to climate change. The implementation of measures such as international carbon taxes, innovative incentives and behaviour change initiatives all need to be part of an integrated response to restoring degraded natural capital carbon stocks. For example, linkage with the Agriculture Bill is essential.**
- **The price of carbon should factor for the ten natural capital based 25 YEP goals and externalities.**
- **Government should take international leadership in adopting a natural capital approach to reaching its net zero target, and influence other countries to do the same.**
- **Nature based interventions should consider the impacts on the whole system; with any approach there will be trade-offs and benefits.**
- **In relation to net zero objectives, soil and agricultural practice needs to be a major focus of consideration in any future land use policy.**
- **Evidence gaps surrounding carbon sequestration need to be filled, specifically investigating negative externalities. There are significant constraints with the current available data.**

30 Department for Business, Energy and Industrial Strategy, *UK becomes first major economy to pass net zero emissions law* (2019): [//www.gov.uk/government/news/uk-becomes-first-major-economy-to-pass-net-zero-emissions-law](https://www.gov.uk/government/news/uk-becomes-first-major-economy-to-pass-net-zero-emissions-law)

31 CCC, *Land use: Reducing emissions and preparing for climate change* (2018): <https://www.theccc.org.uk/publication/land-use-reducing-emissions-and-preparing-for-climate-change/>

32 H.M. Treasury, *The Green Book: Central Government Guidance on Appraisal and Evaluation* (2018): <https://www.gov.uk/government/publications/the-green-book-appraisal-and-evaluation-in-central-government>

33 Nellemann, Christian et al., *Blue carbon A UNEP rapid response assessment* (2009): [https://gridarendal-website-live.s3.amazonaws.com/production/documents/s\\_document/83/original/BlueCarbon\\_screen.pdf?1483646492](https://gridarendal-website-live.s3.amazonaws.com/production/documents/s_document/83/original/BlueCarbon_screen.pdf?1483646492)

34 See: <https://www.entrade.co.uk/>

# 2. Assessing progress towards the ten 25 YEP goals

**A critical first step in enabling a robust assessment of progress is to establish a comprehensive baseline census of natural capital stocks. The Committee has reviewed the evidence on the long term trends for each of the ten 25 YEP goals<sup>35</sup> and has – given the the lack of a baseline and significant data gaps – summarised below what should be regarded as only a very partial assessment of progress since 2011.**

## The NCC's high level assessment of progress

### Goal one: Clean air

Poor air quality is recognised as the leading environmental cause of premature death in Europe.<sup>36</sup> The UK Government is one of six countries taken to court by the European Court of Justice for breaching legally binding standards for ambient air quality (NO<sub>2</sub>), with breaches continuing to take place on a regular basis for a range of pollutants.<sup>37, 38</sup>

- Progress on air pollutant reductions, as displayed in Figure 1, has stalled following significant reductions between 1990 and 2011. There has been a decline in sulphur dioxide and nitrogen oxides emissions of just over 58% and just under 28% respectively since 2011.<sup>39</sup>
- Public Health England has estimated that the annual mortality burden of human-made air pollution in the UK is estimated as an effect equivalent to 28,000 to 36,000 deaths.<sup>40</sup>

- Emissions of non greenhouse gas air pollutants from agriculture, such as ammonia, remain a persistent cause of concern in terms of the health impacts they impose upon both urban and rural populations<sup>41</sup> as well as their effects on biodiversity.<sup>42</sup>
- The UK government is not on track to meet the National Emissions Ceilings Directive (NECD) legally binding target for ammonia. The UK has committed to reducing emissions by 8% from the 2005 baseline. Latest data from 2017 show almost no change since 2005 at just under 283 kilo tonnes.<sup>43, 44</sup>

35 The ten goals are as follows: Clean air, clean and plentiful water, thriving plants and wildlife, reduced risk of harm from environmental hazards such as flooding and drought, using resources from nature more sustainably and efficiently, enhanced beauty, heritage and engagement with the natural environment, mitigating and adapting to climate change, minimising waste, managing exposure to chemicals, and enhancing biosecurity.

36 EU Clean Air Policy: [https://ec.europa.eu/environment/air/index\\_en.htm](https://ec.europa.eu/environment/air/index_en.htm)

37 Defra, *UK Air Information Resource 2018 Annual Report* (2019): [https://uk-air.defra.gov.uk/library/annualreport/viewonline?year=2018\\_issue\\_1#report\\_pdf](https://uk-air.defra.gov.uk/library/annualreport/viewonline?year=2018_issue_1#report_pdf)

38 AirClim, *Acid News* (2018): <https://www.airclim.org/acidnews/six-countries-taken-court-over-air-quality-breaches>

39 National Atmospheric Emissions Inventory, *UK emissions data selector* (2019): <http://naei.beis.gov.uk/data/data-selector>

40 Public Health England, *Associations of long-term average concentrations of nitrogen dioxide with mortality* (2018): <https://www.gov.uk/government/publications/nitrogen-dioxide-effects-on-mortality>

41 Air Quality Expert Group (2018): Air Pollution from Agriculture, report to the Department for Environment, Food and Rural Affairs; Scottish Government; Welsh Government; and Department of the Environment in Northern Ireland, Defra, London.

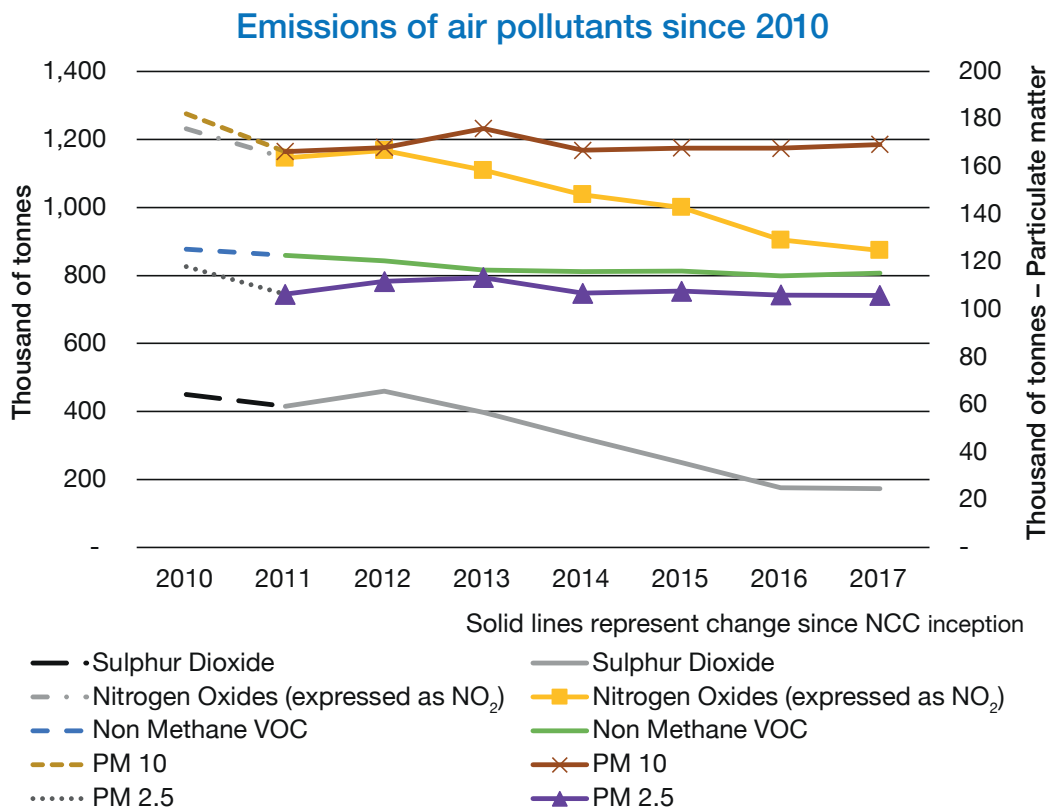
42 Guthrie, Susan, Sarah Giles, Fay Dunkerley, Hadeel Tabaqchali, Amelia Harshfield, Becky Ioppolo, and Catriona Manville, Impact of ammonia emissions from agriculture on biodiversity: An evidence synthesis. The Royal Society, 2018. [https://www.rand.org/pubs/research\\_reports/RR2695.html](https://www.rand.org/pubs/research_reports/RR2695.html)

43 National Atmospheric Emissions Inventory, *UK emissions data selector* (2019): <http://naei.beis.gov.uk/data/data-selector>

44 National Atmospheric Emissions Inventory, *About Ammonia* [https://naei.beis.gov.uk/overview/pollutants?pollutant\\_id=21](https://naei.beis.gov.uk/overview/pollutants?pollutant_id=21)



Figure 1 : Emission of air pollutants since 2010



Source: NAEI 2019

## Goal two: Clean and plentiful water

Water body quality is impacted by discharges from agriculture, industry and surface runoff, particularly during flooding events and increasingly from abstraction. Abstraction provides essential water for public water supply, agriculture and industry. However, unsustainable levels of abstraction impact the ecology and resilience of rivers, wetlands and aquifers. The identification of which bodies to monitor for water quality, has been moved to a 'risk based' approach, which has reduced the total number of water bodies monitored. Furthermore, the frequency of reporting on Water Framework Directive compliance has moved from annual to three yearly cycles, which will make breaches in quality harder to address<sup>45,46</sup> and reporting against 25 YEP targets more difficult to quantify.

- The 25 YEP commits to improving at least 75% of water bodies to be as close to their natural state as soon as practicable; currently only 16% of England's surface water bodies – as displayed in Figure 2 – are in a high or good condition, and this percentage is declining.<sup>47</sup>
- In 2017, abstraction from around 28% of groundwater bodies and up to 18% of surface waters was at higher than sustainable levels.<sup>48</sup>
- In the marine environment, litter levels have not fallen since the 2012, the trend is steadily increasing for beach and floating litter. In addition, litter is widespread on the seafloor across UK seas with plastic as the predominant material.<sup>49</sup>
- In 2017, the average number of litter items per km<sup>2</sup> on the seabed around the UK was 354. This is 219% higher than the 1992-94 baseline.<sup>50</sup>
- The number of bathing waters meeting excellent and good status has increased from 92.4% in 2018 to 93.3% in 2019.<sup>51</sup>

45 ENDS Report, *Why official data could show a decline in England's water quality* (2019):

<https://www.endsreport.com/article/1665877/why-official-data-show-decline-englands-water-quality>

46 The 2000 Water Framework Directive (2000/60/EC) established a framework for the protection of inland surface waters, estuaries, coastal waters and groundwater: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32000L0060> 47

47 Defra, *Biodiversity 2020: A strategy for England's wildlife and ecosystem services: Indicators* (2019): <https://www.gov.uk/government/statistics/england-biodiversity-indicators>

48 Environmental Agency, *State of the environment: water resources* (2019): <https://www.gov.uk/government/publications/state-of-the-environment>

49 Cefas, *Marine Online Assessment Tool: Marine Litter* (2019): <https://moat.cefas.co.uk/pressures-from-human-activities/marine-litter/>

50 Defra, *England Natural Environment Indicators 2018* (2018): <https://www.gov.uk/government/statistics/england-natural-environment-indicators#history>

51 Defra, *ENV17 – National bathing waters in England for 2019 summary and classification* (2019): <https://www.gov.uk/government/statistical-data-sets/env17-bathing-water-quality-additional-datasets>

52 Defra, *Biodiversity 2020: A strategy for England's wildlife and ecosystem services: Indicators* (2019): <https://www.gov.uk/government/statistics/england-biodiversity-indicators>

53 MOAT, *Cefas Assessment of Good Environmental Status, Seals* (2018): <https://moat.cefas.co.uk/biodiversity-food-webs-and-marine-protected-areas/seals/> and *Cetaceans*: <https://moat.cefas.co.uk/biodiversity-food-webs-and-marine-protected-areas/cetaceans/>

54 CCC, *Net Zero The UK's contribution to stopping global warming* (2019): <https://www.theccc.org.uk/wp-content/uploads/2019/05/Net-Zero-The-UKs-contribution-to-stopping-global-warming.pdf>

55 Forest research, *Woodland Statistics* (2019): <https://www.forestresearch.gov.uk/tools-and-resources/statistics/statistics-by-topic/woodland-statistics/>

56 Defra, *Biodiversity 2020: A strategy for England's wildlife and ecosystem services: Indicators* (2019): <https://www.gov.uk/government/statistics/england-biodiversity-indicators>

57 JNCC, *UK Biodiversity Indicators 2019. Indicator C1 – Protected areas* (2019): <https://hub.jncc.gov.uk/assets/e79d820e-5b1d-45de-94db-752f2542478d>

58 Defra, *Wild bird populations in the UK* (2019): <https://www.gov.uk/government/statistics/wild-bird-populations-in-the-uk>

## Goal three: Thriving plants and wildlife

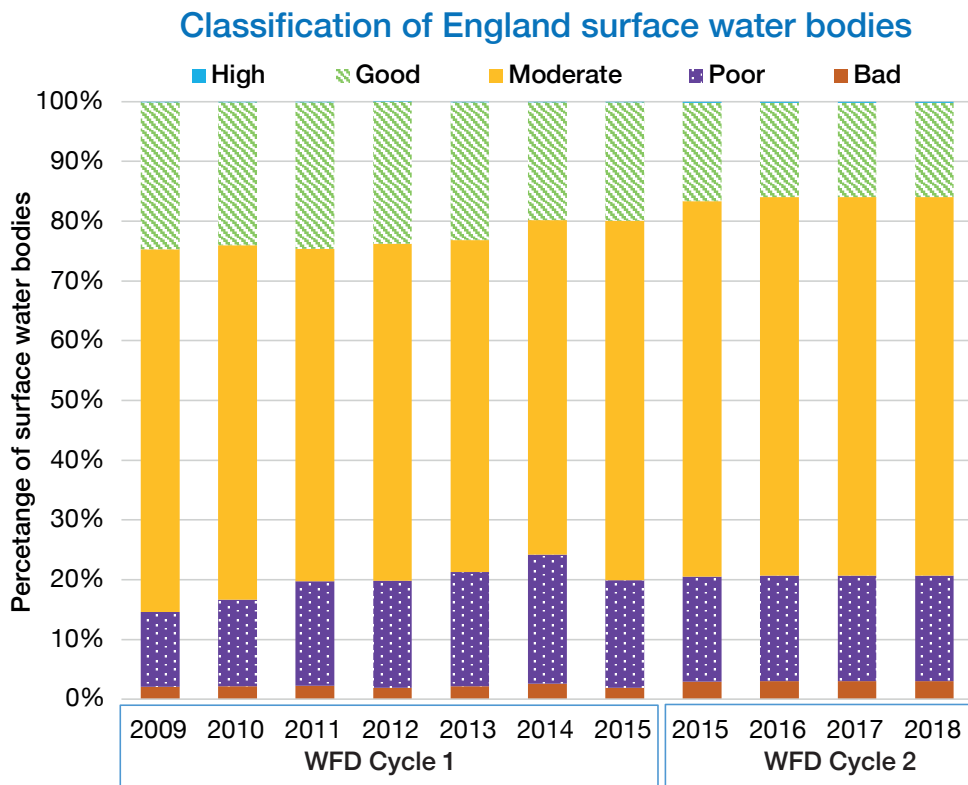
The condition of the nation's biodiversity is both difficult to quantify and value in natural capital terms. A number of surveys indicate decline in particular groups of species (e.g. pollinators, farmland birds and seabirds)<sup>52</sup>, however there are identified increases in other areas (e.g. seals, cetaceans)<sup>53</sup>. There is a tension between monitoring progress in protected areas (e.g. Sites of Special Scientific Interest (SSSI) condition) and the wider environment, which the 25YEP does not directly address.

- The 2050 UK net zero-related target of 17% woodland cover will require tree planting at a rate of 30,000 ha per year;<sup>54</sup> in 2018/19 only 13,400 ha were planted.<sup>55</sup>
- In terms of restoring 75% of England's one million hectares of terrestrial and freshwater protected sites to favourable condition; the latest estimate for SSSI's currently stands at 38.9%, having increased by around 2.3% since 2011.<sup>56</sup>
- The extent of protected areas at sea has increased by just over 4% from 2018. Since 2011 the protected area has increased to just over 21.8 million hectares.<sup>57</sup>
- In 2018, the breeding seabird index in the UK was 28% lower than in 1986, this is the second lowest point recorded, with the lowest point being in 2013 (at 29% lower). In addition, between 2012 and 2017 46% of the 13 counted seabird species increased with the majority showing a strong increase, 31% showed little change and 23% declined.<sup>58</sup>





Figure 2 : Water surface bodies classification



Source: Environmental Agency 2019

## Goal four: Reducing the risk from environmental hazards

The 25 YEP lists flood, drought and coastal erosion as hazards that need to be addressed over the lifetime of the plan. Commitments are focused on improving the resilience of infrastructure and raising awareness of environmental hazards, both of which are difficult to quantify. The interaction between flood defence, drought resilience, coastal processes, and other 25 YEP goals, (e.g. thriving plants and wildlife, clean and plentiful water, etc.) could be used to help inform where multiple outcomes should be sought and the role of green/blue infrastructure in delivering nature based interventions (e.g. soil management and tree planting).

- Between 2012 and 2017 there has been an increase in the number of properties identified as being at risk of flooding from rivers and the sea by around 100,000 (2.5 to 2.6 million).<sup>59, 60</sup>

## Goal five: Using resources more sustainably

There is limited data available regarding the current health of soils. The regular updating of any collected data will be important to demonstrate progress and justify changes to agricultural policy.

- Defra's estimate of the cost of soil degradation in England and Wales from 2011 is approximately £1.2 billion per annum, with 80% caused by loss of soil organic matter and compaction.<sup>61</sup>
- Annual arable soil losses from erosion are 2.2 million tonnes in the UK, this is 20 fold greater than the formation rate.<sup>62</sup>
- The social cost of soil carbon loss for the UK is estimated at £3.2 billion (based on a social cost of carbon (SSC) of £173 per tonne of CO<sub>2</sub>).<sup>63</sup>

## Goal seven: Mitigating and adapting to climate change

Since the publication of the 25 YEP the government has made a legal commitment to achieving net zero emissions of greenhouse gas emissions by 2050. This commitment exceeds the 25 YEP ambitions for mitigation, which are based around considering the effects of new development and developing a national adaptation programme. The Climate Change Act does not contain specific targets related to adaptation, as it does for climate change mitigation, and the goals of the 25 YEP remain vital to this. In order to demonstrate that the net zero ambition is being achieved, a baseline of emissions and the contribution of nature (both in terms of emissions from use of natural resources and sequestration from the natural environment) will need to be developed.

- Overall greenhouse gas emissions since 2011 have fallen by just under 17%, however this has been limited to a few sectors such as energy, waste management and business, in other areas (transport, agriculture, residential) there have been increases – as displayed in Figure 3.<sup>64</sup>
- The UK government is not on track to meet the fourth carbon budget.<sup>65</sup>

59 Environmental Agency, *Flood and coastal erosion risk management annual report: 1 April 2017 to 31 March 2018* (2019): <https://www.gov.uk/government/publications/flood-and-coastal-risk-management-national-report>

60 Environmental Agency, *Flood and coastal erosion risk management annual report 1 April 2011 to 31 March 2017* (2018): <https://www.gov.uk/government/publications/flood-and-coastal-risk-management-national-report>

61 Defra, *Cost of Soil Degradation final draft* (2011): <http://sciencesearch.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=0 &ProjectID=16992>

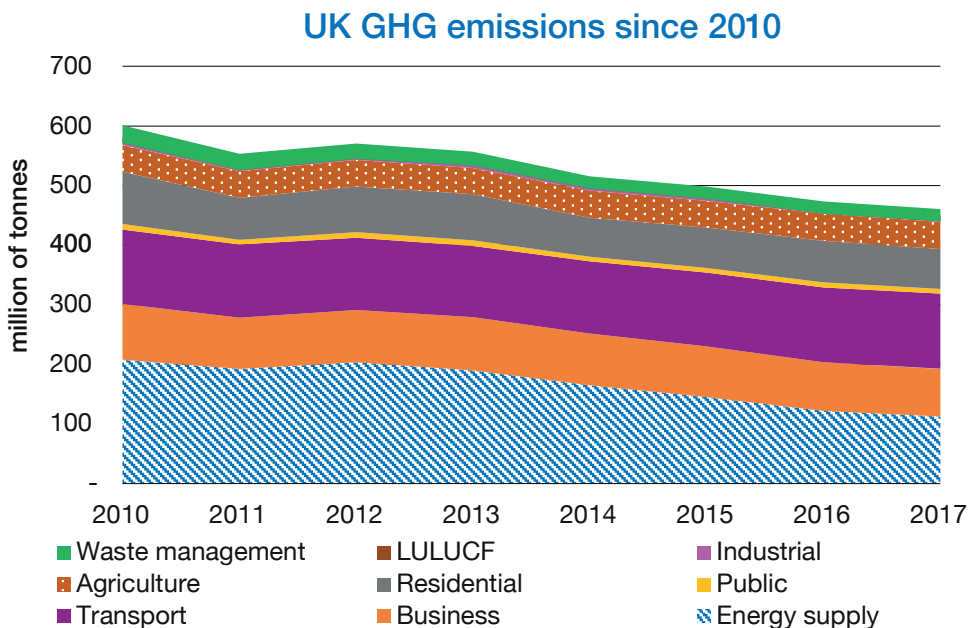
62 Posthumus, H., Deeks, L. K., Rickson, R. J. and Quinton, J. N., *Costs and benefits of erosion control measures in the UK* (2015): *Soil Use Manage*, 31: 16-33. <https://onlinelibrary.wiley.com/doi/abs/10.1111/sum.12057>

63 The Sustainable Food Trust, *The Hidden Cost of Food* (2018): <http://sustainablefoodtrust.org/wp-content/uploads/2013/04/HCOF-Report-online-version-1.pdf>

64 BEIS, *Final UK greenhouse gas emissions national statistics (1990-2017)* (2019): <https://www.gov.uk/government/statistics/final-uk-greenhouse-gas-emissions-national-statistics-1990-2017>

65 CCC, *Carbon budgets: how we monitor emissions targets*: <https://www.theccc.org.uk/tackling-climate-change/reducing-carbon-emissions/carbon-budgets-and-targets/>

Figure 3 UK Greenhouse Gases emissions by sectors since 2010



Source: BEIS

### Goal eight: Minimising waste

The publication of the government’s Waste Strategy is intended to deliver a range of improvements for the reduction of waste and the recovery of materials for reuse. The strategy proposes a range of milestones and changes to policy, based on making the best use of natural capital resources. The strategy identifies the limitations of currently available data on material use and recycling, but does not provide detailed commitments on how and when this data will be collected and by whom.<sup>66</sup>

- The 25 YEP committed government to meet all existing waste targets, including those on landfill, reuse and recycling. The latest data shows government is not on track to meet the recycling rate of 50%, latest estimates for waste from household recycling from 2018 show a small decrease to 44.7% from 45.2% in 2017.<sup>67</sup>

The NCC have been unable to provide an assessment for all ten 25 YEP goals, either because data is not available to provide an assessment of change or because the goals are poorly defined.

From the partial evidence presented in this section, little or no progress has been made in improving the environment for England’s natural capital assets. In fact, government has failed to achieve many of its own targets. Urgent action is required if government is to deliver on its commitment to leave the environment in a better state for the next generation

66 Defra, *Resources and waste strategy for England* (2018): <https://www.gov.uk/government/publications/resources-and-waste-strategy-for-england>

67 Defra, *Local authority collected waste management – annual results* (2019): <https://www.gov.uk/government/statistics/local-authority-collected-waste-management-annual-results>

## First 25 YEP Progress Report

The government published the first report on progress<sup>68</sup> against each of the ten 25 YEP goals in 2019.<sup>69</sup> The NCC published its response to the Progress Report shortly after, as requested by the former Defra Secretary of State, Michael Gove.<sup>70</sup>

Overall, the Committee concluded that the Progress Report fails to make a rigorous, evidence based assessment of progress on the overall objective of the 25 YEP. This is unsurprising given the lack of relevant data available, which only allows for a partial assessment of progress (as highlighted in the previous section). The NCC identified three main issues with the Progress Report, as follows:

- i. An over emphasis on a long list of actions rather than real, measurable outcomes;
- ii. The lack of a comprehensive environmental baseline against which to assess trends in environmental change, and;
- iii. A poorly designed 25 YEP Indicator Framework, as highlighted in the 2019 NCC Annual Report report.

The Committee's advice on these three issues is summarised below.

### i. Actions vs. measurable outcomes

The NCC assessment of the Progress Report highlighted that in most cases, progress is framed in the context of long list of actions with very little empirical evidence of impact. The 25 YEP states that: *"We will report on progress annually and refresh the plan periodically to make sure our actions continue to target the right improvements and make a real difference."* Reporting on progress must go beyond a summary of what actions or administrative processes have been taken over a particular time period.

### Recommendations:

- **Each of the ten 25 YEP goals should be clearly defined. The goals in the 25 YEP and the Progress Report are high level descriptive statements. They are not quantitative.**
- **Each goal may require a number of individual targets relating to the different aspects of the high-level goal. The NCC reiterates that *"to drive progress, quantified targets should be established for the various aspects of the 25 YEP goals."*<sup>71</sup>**

68 HM Government, *25 Year Environment Plan progress report: January 2018 to March 2019* (2019): <https://www.gov.uk/government/publications/25-year-environment-plan-progress-reports>

69 The ten goals are as follows: Clean air, clean and plentiful water, thriving plants and wildlife, reduced risk of harm from environmental hazards such as flooding and drought, using resources from nature more sustainably and efficiently, enhanced beauty, heritage and engagement with the natural environment, mitigating and adapting to climate change, minimising waste, managing exposure to chemicals, and enhancing biosecurity.

70 NCC, *Response to the 25 Year Environment Plan progress report 2019* (2019): <https://www.gov.uk/government/publications/natural-capital-committee-advice-on-governments-25-year-environment-plan>

71 See NCC, *Natural Capital Committee's Sixth Annual Report* (2019): <https://www.gov.uk/government/publications/natural-capital-committees-sixth-annual-report>

72 NCC, *Natural Capital Committee's advice on an environmental baseline census of natural capital stocks: an essential foundation for the government's 25 Year Environment Plan* (2019): <https://www.gov.uk/government/publications/natural-capital-committee-advice-on-developing-an-environmental-baseline-census>

### ii. Environmental baseline census

The NCC provided further, detailed advice on the urgent need for a comprehensive, England-wide environmental baseline census of the stock of natural capital assets in 2019.<sup>72</sup> This baseline is critical in determining whether the environment is improving, static or deteriorating further. Progress, as evidenced by the government's first Progress Report, cannot be measured until a baseline is established.

### Recommendations:

- **The government should urgently establish the baseline census in 2020. Following this initial census, the process should be repeated every five years. This does not imply resetting the baseline every 5 years – the proposed interval is to enable a clear periodic understanding of trends in England's natural capital assets.**
- **The government should launch a comprehensive review of available data, including a robust gap analysis, ahead of the 2020 census. New data collection should be targeted on data gaps highlighted by the NCC including soils, marine, biodiversity, ecological communities and urban areas. Conflicting datasets need to be resolved, for example, there is no one simple dataset per habitat type because the responsibility for gathering this data is shared.**
- **The census should prioritise filling the gaps in soils data to determine the state of soils in England. This should include a concerted effort to develop a suite of metrics to deliver a baseline assessment of soil type, condition and extent, with periodic updates every five years to ensure England's soils are being restored. The survey should start on those sites known to be most degraded e.g. peats and arable land. Existing datasets should be integrated into a single, open access database.**
- **The census should aim to improve the spatial and temporal coverage of marine natural capital data. This should include metrics to understand the extent and condition of marine habitats.**

- **The government should design the baseline census in a way that minimises costs and considers environmental data needs across government. This can be done by integrating and ‘synchronising’ existing datasets; and establishing clear leadership to ensure a joined up approach in environmental asset data collection, thereby preventing the current large scale duplication and waste of public funds.**
- **Capturing the environmental baseline should aim to become a global exemplar for citizen engagement with the environment, with the aspiration being that every school in England participate, every landowner encouraged to gather data and every national park participating.**
- **The census should be designed and carried out in a way that it enables integration with other approaches, such as, the Office for National Statistics national natural capital accounts, the Environmental Land Management scheme baselining and the development of legally binding targets.**
- **Scale/scope:** Natural capital assets operate within a system. Any assessment therefore needs to consider the context and identify the co-dependencies and co-benefits. For example, increasing stocks of wetland areas will likely improve both water flows and the quality of that flow. They will also provide valuable recreational benefits as well as key habitats for wildlife.

Despite the inclusion of ‘Healthy Soils’ as a system indicator, the 25 YEP Indicator Framework does not detail what this indicator will include, stating that data is lacking and the indicator requires further development and providing minimal funding to develop this (£200K). Defra has already funded several reports to identify which metrics should be used and where<sup>74</sup> but is still developing a soil health index which will be linked to the aspirations of the 25 YEP.

Urban soils should not be forgotten as they are critical to the well-being of the majority of the UK population. Additionally, there is a need to understand the extent of soil sealing (i.e. soil covered by infrastructure) and the impacts of this on soil function.

Alongside the above initiatives it is vital that metrics support the translation to measures of the value of benefits delivered by change in natural capital and the ecosystem services it delivers. This will allow the incorporation of environmental improvements within economic assessments of government spending and investment decisions. Measures should be compatible with the HM Treasury Green Book guidance in this area and the Natural Capital Committee’s inputs to that guidance.

### iii. Developing natural capital metrics

Defra’s 25 YEP Indicator Framework, published alongside the 25 YEP Progress Report, has barely been used to illustrate progress, demonstrating that it is not fit for purpose. The small number of indicators that have been used in the Progress Report draw on existing monitoring data, resulting in a strong sense of ‘business as usual’ – and not a single indicator measures the extent or condition of natural capital assets. This is concerning given the Committee’s well established advice/guiding principles that need to be applied when developing natural capital metrics, including:<sup>73</sup>

- **Measurement of assets:** It is important that the measures are focused on asset extent, condition and connectivity and on the pressures affecting them, not just on the services provided by the assets. It will then be possible to see early signs of deterioration as there can be a time lag between changes in the state of natural capital. For example, it is possible to be receiving benefits even though the asset itself is in decline. Action can then be taken to mitigate the pressures to these assets so they can continue to deliver benefits. Changes in the indicators of the asset therefore act as an early warning system.
- **Defra should be tasked with identifying and developing natural capital asset related metrics rather than relying on available metrics and approaches. In particular plans to develop healthy soils and marine headline indicators need to fast tracked so they are ready for the next 25 YEP Progress Report.**
- **Metrics should take into account thresholds<sup>75</sup> and limits<sup>76</sup>, to avoid the unsustainable use of the natural capital.**
- **Measures of the value of benefits delivered by change in natural capital and the ecosystem services it delivers. These measures should be compatible with HM Treasury Green Book guidance regarding the incorporation of environmental improvements within economic assessments of government spending and investment decisions.**

<sup>73</sup> For the full list of issues to consider see NCC, *Natural Capital Committee’s Sixth Annual Report* (2019):

<sup>74</sup> See for example Environment Agency, *Using science to create a better place* (2006): <https://www.gov.uk/government/publications/the-development-and-use-of-soil-quality-indicators-for-assessing-the-role-of-soil-in-environmental-interactions>

<sup>75</sup> A point or level at which new properties emerge in an ecological, economic or other system, whereby a small change in a pressure or driver can lead to a relatively large change in the state of natural capital, with consequences for the benefits it provides

<sup>76</sup> Limits (or environmental limits) on the other hand tend to be socially determined and can be defined as the point or range of conditions beyond which the benefits derived from a natural resource system are judged unacceptable or insufficient

# 3. Embedding a natural capital approach

**A natural capital approach is fundamentally about incorporating the wider benefits of the environment into decision making. Natural capital provides many societal benefits, positive externalities and public goods. Landscape scale and marine planning should take this approach to avoid making inefficient decisions where natural capital is over-consumed and under invested in. All policies should seek to achieve the sustainable use of natural capital stocks whilst acknowledging that environment is a system and there will be trade-offs in all decision making.**

Over the length of its term, the Committee has shown that investment in natural capital can yield rates of return which readily outstrip those afforded by spending elsewhere.

To improve decision making and meaningful implementation of a natural capital approach, the Committee recommends action on multiple fronts.

## **Recommendations:**

- **Local nature recovery strategies, Nature Recovery Networks, the national food strategy and the National Infrastructure Commission should all be aligned with the 25 YEP (and the future EIPs) with the aim of delivering the 25 YEP goals. These new policies should aim to deliver the system wide maintenance and improvements of the natural capital assets and benefits they provide.**
- **To maintain and create new natural capital assets, sufficient and long-term funding will need to be made available.**
- **Government should fully review the 25 YEP pioneer projects, using the lessons learned to inform effective design of Environmental Land Management schemes and local nature recovery strategies. Each pioneer should have an appropriate legacy plan in place to make sure this approach does not become another short-term project.**

## **Corporate natural capital accounts**

In 2013, the Committee developed and piloted a corporate natural capital accounting (CNCA) framework<sup>77</sup> for organisations to account for the natural capital they own, for which they are responsible or for which they are dependent on. The CNCA provides organisations with a method to document their natural capital assets and the value derived from it. The framework within the CNCA enables corporations and landowners to account for natural capital, documenting assets and liabilities in a balance sheet format that extends traditional financial reporting. This reports both the private value that an organisation earns from its natural capital (for which an organisation often already accounts) and external benefits that society derives (for which an organisation does not currently account).<sup>78</sup>

The methodology developed by the NCC for CNCA should complement traditional financial and management accounts. This will enable organisations to gather natural capital information in a coherent and comparable format to aid decision making about the management of natural assets, to the benefit of both the organisation and society.<sup>79</sup>

In England and many other countries, the private sector owns and manages the majority of natural assets. For example, over two thirds of land in England is privately owned.<sup>80</sup> In general, privately owned natural capital assets are not reflected in market prices and, therefore, the

<sup>77</sup> NCC, *Developing corporate natural capital accounts* (2015): <https://www.gov.uk/government/publications/natural-capital-committee-research-corporate-natural-capital-accounting>

<sup>78</sup> NCC, *Introduction to the Natural Capital Committee's corporate natural capital accounting project* (2015): <https://www.gov.uk/government/publications/natural-capital-committee-initial-term-working-papers-2012-to-2015>

<sup>79</sup> NCC, *Introduction to the Natural Capital Committee's corporate natural capital accounting project* (2015): <https://www.gov.uk/government/publications/natural-capital-committee-initial-term-working-papers-2012-to-2015>

<sup>80</sup> Guy Shrubsole *Who Owns England?* (2019): <http://map.whoownsengland.org/>



private sector has no overt financial incentive to deliver or conserve them.<sup>81</sup> To address this issue public and private organisations and landowners need to recognise their role in maintaining and enhancing the natural capital they own, the first step being to produce a CNCA.

There are range of reasons why public and private organisations should produce CNCA, such as, legal requirements (e.g. Companies Act 2006).<sup>82</sup> These legal requirements should not be seen as additional bureaucratic burden, but as an opportunity to increase the monetary benefits derived from an organisation's assets. This can be achieved by restoring, improving and maintaining the condition and extent of their assets.

Seven years have passed since the Committee announced the CNCA framework. It is therefore extremely disappointing that the government has not incentivised the use of the CNCA framework and pushed for its use by organisations and landowners in the country.

### Recommendations:

- **Consideration should be given to requiring the production of CNCA for public and private organisations and landowners who own, are responsible for or depend on significant amounts of natural capital.**
- **The government needs to develop a valuation framework for organisations and landowners to value their natural capital assets in a consistent way. There should be a standardisation of structures and principles to support external reporting, similar to those used in financial accounting.**
- **The NCC advises the government to incentivise wider adoption and uptake of the corporate natural capital accounting framework outlined in this report and consider requiring provisions to be made for the maintenance of natural capital.**
- **In the NCC's sixth annual report it recommended that government needs to take ownership and develop NCC's 'How to do it Workbook'.<sup>83</sup> The corporate accounting template should be developed into a corporate accounting standard and made a formal audit requirement.**

## National natural capital accounts

In 2011, the government committed to working with the Office for National Statistics (ONS) and Defra to incorporate natural capital into the UK Environmental Accounts by 2020. The 25 YEP reiterated this commitment, and the ONS in 2018 published an updated road map to 2020.<sup>84</sup> To date, natural capital accounts for several broad habitats, as well as for aggregate UK-wide accounts, have been published and are being regularly updated. The latest UK natural capital accounts estimated that in 2016 the partial value of UK natural capital to be around £951 billion.<sup>85</sup> This is a disappointingly low estimate when compared to the UK housing stock which has been estimated at around £7.3 trillion in 2019.<sup>86</sup>

The next update to the UK aggregate accounts will be in 2020. Development work will continue so that for these accounts all eight broad habitats – woodland, farmland, marine, freshwater, urban areas, semi-natural grassland, coastal margins, and mountains, moorland and heath – will have accounts compiled.

Work is also in progress on country specific accounts for Wales and Scotland.<sup>87</sup> A project is in progress to link the natural capital accounts to the Sustainable Development Goals (SDG) indicators more systematically.

Good progress has been made in estimating the UK Natural Capital, however significant further work is required to properly value the UK's natural capital. Work on refining the accounts, especially on valuation methods and extending the range of ecosystem services covered, is expected to continue post 2020. In addition, there is a need for consistency in linking the condition of natural capital assets to their flows.

81 NCC, *The State of Natural Capital: Restoring our Natural Assets. Second report to the Economic Affairs Committee* (2014): <https://www.gov.uk/government/publications/natural-capital-committees-second-state-of-natural-capital-report>

82 Companies Act (2006) Section 172 and section 414C <http://www.legislation.gov.uk/ukpga/2006/46/section/172> and <http://www.legislation.gov.uk/ukpga/2006/46/part/15/chapter/4A>

83 NCC, *How to do it: a natural capital workbook* (2017): <https://www.gov.uk/government/groups/natural-capital-committee>

84 ONS, *UK Natural Capital: interim review and revised 2020 roadmap* (2018): <https://www.ons.gov.uk/economy/nationalaccounts/uksectoraccounts/methodologies/uknaturalcapitalinterimreviewandrevised2020roadmap>

85 ONS, *UK natural capital accounts: 2019* (2019): <https://www.ons.gov.uk/economy/environmentalaccounts/bulletins/uknaturalcapitalaccounts/2019>

86 Savills, *Value of UK housing stock hits record high* (2019): <https://www.savills.com/blog/article/274512/residential-property-value-of-uk-housing-stock-hits-record-high.aspx>

87 ONS, *Scottish natural capital: Ecosystem Service Accounts, 2019* (2019): <https://www.ons.gov.uk/economy/nationalaccounts/uksectoraccounts/bulletins/scottishnaturalcapital/ecosystemserviceaccounts2019>



## Recommendations:

- **The NCC advise government to invest sufficient resources to deliver on its commitment to produce a comprehensive set of national natural capital accounts by 2020.**
- **ONS and Defra should engage with HM Treasury to develop natural capital updates based on the accounts to accompany annual budget statements.**
- **Consideration should be given to including a comprehensive assessment of the condition and extent of natural capital assets through the proposed environmental baseline census.**
- **To make the natural capital valuation more consistent the ONS needs to develop and publish standardised valuation datasets as soon as possible.**

## National Food Strategy

In 2019 the government committed to delivering a food strategy to address the environmental and health problems caused by our food system.

The food strategy has a broad remit, but should not miss the opportunity to focus on delivering on several principles which will secure the success of the 25 YEP, which is vital to the long term sustainability of the UK food industry. Distinguishing between agriculture (which in 2018 added 0.51% to the national economy)<sup>88</sup>, and the food sector, the review should aim to support land use which delivers positive environmental outcomes (supporting the full range of ecosystem services and ensuring the long term sustainability of the industry).

A move towards open supply chains and improved traceability of products offers an opportunity for businesses to communicate their impact on the environment to consumers. The NCC has helped businesses to deliver corporate natural capital accounts and improvements to the way that businesses report on their environmental impact and communicate this to consumers could build on this. Moves to facilitate the use of new technologies (such as block chain) to improve traceability, accounting standards and labelling, including internationally, could support businesses to adopt good practice in communicating the impact of their products and services on natural capital, and the environment more broadly.

Offering consumers the opportunity to make purchasing decisions based on these impacts could support broader behaviour change, tying in with the goal of the 25 YEP to better engage people with the natural environment. The competitive advantage afforded to companies who are able to advertise positive natural capital accounts would be a carrot to complement the stick of the principles embedded in the Environment, Agriculture and Fisheries Bills. This approach could support and supplement the ELM scheme, by securing additional funding from business to support environmental measures i.e. offset their impact under the polluter pays principle, and support monitoring and reporting. Any milestones, metrics and targets set as a result of the review should tie in with those of the 25 YEP (both the process and reporting). New monitoring and reporting technologies adopted by farmers, to meet higher standards required by industry and consumers (and to meet the requirements of the ELM schemes), could deliver additional resources and data towards the environmental baseline census proposed by the NCC.

## Recommendations:

- **The food strategy should deliver on its commitment to make sure that the food system “restores and enhances the natural environment for the next generation in this country.”<sup>89</sup>**
- **The focus on delivering safe, healthy, affordable food, regardless of where people live or how much they earn should take into account that food is a private, not a public good.**
- **The review should make sure that the food system does not prioritise the subsidy of food over payments to protect our natural capital assets and the services they provide, both to agriculture and to wider society. As part of this policy makers have to understand the ‘systems’ nature of the environment and that changes to one part of this system almost inevitably have consequences (negative or positive) for other parts of that system.**
- **Investigate and communicate the benefits of new methods of ‘scientific’ farming as a means to deliver high quality food with few negative externalities, and reduce pressure on land use from ‘crude’ outdoor farming.**

<sup>88</sup> Defra, Total Income from Farming in the United Kingdom: Second estimate for 2018 (2019): <https://www.gov.uk/government/statistics/total-income-from-farming-in-the-uk>

<sup>89</sup> Defra, *National Food Strategy – Call for Evidence* (2019): <https://consult.defra.gov.uk/agri-food-chain-directorate/national-food-strategy-call-for-evidence/>



## The Landscapes Review

England's national parks and Areas of Outstanding Natural Beauty contain very significant natural capital, and their powers and duties should support the objectives of the 25 Year Environment Plan. In the Landscapes Review<sup>90</sup> published in September last year, the Committee was pleased to see the proposal for *"the state of nature and natural capital in our national landscapes to be regularly and robustly assessed, informing the priorities for action"* which was in line with the NCC's recommendation from its 2017 state of natural capital report.<sup>91</sup>

### Recommendations:

- **The NCC recommends that the assessment of the national landscapes<sup>92</sup> is undertaken as a part of the environmental baseline census exercise in 2020 and by citizens where possible.**
- **Consideration should be given to the creation of new national parks looking at the green belts and recognising environmental potential green belts can have. Urban national parks have considerable societal and health benefits, any expansion of national parks should include urban locations.**
- **The NCC advises the creation of new marine national parks, such as that recently created in south west England, *"to enhance the economic, environmental and social values of Plymouth Sound, and promote opportunities for the understanding and enjoyment of those special qualities by the public."*<sup>93</sup>**
- **Landscape scale planning should take a joined up 'Lawton style'<sup>94</sup> approach to protecting our natural capital assets.**

## Local Nature Recovery Strategies and Nature Recovery Networks

The Environment Bill mandates local nature recovery strategies (LNRS), which follows the commitment in the 25 YEP to establish a Nature Recovery Network (NRN) and to embed environmental net gain principle. The overall aim of LNRS is to meet the challenge set out in the 2010 Lawton report 'Making Space for Nature'<sup>95</sup>, in particular the requirement to provide more, bigger, better and joined up ecological networks.

The Bill requires that local habitat maps are produced to inform the proposals within the LNRSs, but there is no requirement to map the ecosystem services upon which the habitats and species are dependent, such as the condition of freshwater courses, soils or air quality. Without the appropriate underpinning evidence it is likely these strategies will fail to deliver any actual benefit. Setting data standards for the local habitat maps could enable a large amount of data to be compiled into one England-wide habitat map.

The government's independent review into landscapes, recommended that *"The national landscapes should form the backbone of Nature Recovery Networks – joining things up within and beyond their boundaries."* The NRN will therefore necessarily be a combination of top down co-ordination and local delivery. Without overall leadership and clear roles between authorities and agencies there is likely to be confusion and wasted effort. The likely result being maps and strategies which fail to interact with each other and scattered interventions in the wrong places. Given there are no plans for steady funding streams for each NRN, this could result in patchy results which fail to deliver the landscape scale change required to improve the state of the environment.

90 Defra, *Landscapes review: final report* (2019): <https://www.gov.uk/government/publications/designated-landscapes-national-parks-and-aonbs-2018-review>

91 The NCC's 4th State of Natural Capital Report, (2017): <https://www.gov.uk/government/publications/natural-capital-committees-fourth-state-of-natural-capital-report>

92 National landscapes refers to both national parks and Areas of Outstanding Natural Beauty

93 *The Declaration of Intent to create the first National Marine Park in Plymouth Sound* (2019): <https://www.plymouth.gov.uk/94> Lawton, J.H., et. al. *Making Space for Nature: a review of England's wildlife sites and ecological network* Report to Defra (2010): <https://webarchive.nationalarchives.gov.uk/20130402170324/http://archive.defra.gov.uk/environment/biodiversity/documents/201009space-for-nature.pdf>

94 Lawton, J.H., et. al. *Making Space for Nature: a review of England's wildlife sites and ecological network* Report to Defra (2010): <https://webarchive.nationalarchives.gov.uk/20130402170324/http://archive.defra.gov.uk/environment/biodiversity/documents/201009space-for-nature.pdf>

95 Lawton, J.H., et. al. *Making Space for Nature: a review of England's wildlife sites and ecological network* Report to Defra (2010): <https://webarchive.nationalarchives.gov.uk/20130402170324/http://archive.defra.gov.uk/environment/biodiversity/documents/201009space-for-nature.pdf>

## Recommendations:

- **Local habitat maps should include the condition of the natural capital assets within the locality. The NCC advise this is recorded in a nationally consistent way, such that it can be used to develop the environmental baseline census of natural capital stocks.**
- **Each strategy contains plans for improvements of the natural capital assets in the area and not just habitats and biodiversity. This includes compiling an asset register as described in NCC's 'How to do it' workbook.**
- **Governance for the NRN needs top down coordination with a single body in charge of coordinating and determining England-wide coverage.**
- **In all cases adequate funding is needed to create and maintain new habitats and maintain existing natural capital assets.**
- **To achieve a network of habitats planning for the NRN should be carried out at the catchment or landscape scale. Natural capital assets do not recognise administrative borders and if this is implemented incorrectly there will not be a network, but rather a scattered collection of newly created habitats.**

## National Infrastructure Commission

The NCC's Terms of Reference require the Committee to advise the National Infrastructure Commission (NIC) "to ensure that 'green and blue infrastructure' is appropriately considered within wider infrastructure discussions."<sup>96</sup> In 2018 and in its sixth annual report, the NCC advised the NIC that the environment in the NIC's National Infrastructure Assessment (NIA) was considered largely as a constraint rather than core to the plans, with very limited consideration of the 25YEP goals or 'green' and 'blue' infrastructure.

The most recent NIC publications still regard the environment as a constraint to infrastructure. The technical annex<sup>97</sup> to the NIA selects a very small number of natural capital services, departing from the 25 YEP framework, and that used by the ONS and others. The NIC should use the same categorisation of provisioning, regulating and cultural services, and draw on the full range of natural capital services as set out in NCC's 'Towards a Framework for Defining and Measuring Changes in Natural Capital'<sup>98</sup>, and in 'The State of Natural Capital: Protecting and Improving Natural Capital for Prosperity and Wellbeing'.<sup>99</sup> The NIC's narrow approach omits a number of potentially important natural capital costs and benefits.

Throughout the recent regulation study<sup>100</sup> the only environmental challenge considered is climate change. The NIC suggests that all regulators should have a duty to consider resilience and environment, however it ignores the government's 25 YEP in which mitigating and adapting to climate change is only one of the ten 25 YEP goals. Furthermore, the recently published resilience study<sup>101</sup> fails to address the importance of natural capital for well-functioning infrastructure. Most economic infrastructure depends on healthy and resilient ecosystems. The NIC should consider natural capital and services it delivers when making recommendations about economic infrastructure.

## Recommendations:

- **The NIC should consider degradation of natural capital, including marine capital, upon which the economic infrastructure depends (either directly or indirectly) and the role ecosystem services play in the proper functioning of the infrastructure. It should investigate how 'green' and 'blue' infrastructure can contribute towards a more resilient 'grey' infrastructure.**
- **Policy statements suggested by the NIC, which are to set out a long-term strategic vision for each of the regulated sectors, need to include the whole of the environment and natural capital and not just climate change.**

96 NCC, *Natural Capital Committee Terms of Reference*: <https://www.gov.uk/government/groups/natural-capital-committee#terms-of-reference>

97 NIC, *Technical Annex, Measuring infrastructure performance* (2018): <https://www.nic.org.uk/publications/technical-annex-measuring-infrastructure-performance/>

98 NCC, *Towards a framework for defining and measuring changes in natural capital* (2014): <https://www.gov.uk/government/publications/natural-capital-committee-initial-term-working-papers-2012-to-2015>

99 NCC, *The state of natural capital: protecting and improving natural capital for prosperity and wellbeing* (2015): <https://www.gov.uk/government/publications/natural-capital-committees-third-state-of-natural-capital-report>

100 NIC, *Strategic investment and public confidence* (2019): <https://www.nic.org.uk/publications/strategic-investment-and-public-confidence/>

101 NIC, *Resilience study, scoping report* (2019): <https://www.nic.org.uk/publications/resilience-study-scoping-report/>

- **All publicly funded infrastructure projects and programmes, infrastructure providers and public bodies should be required to invest in maintaining and enhancing natural capital which interacts with economic infrastructure. Such projects should also have a net environment gain requirement placed upon them.**
- **The NCC recommends that all infrastructure projects to take full account of natural capital by including it in the project appraisal process as per the Green Book<sup>102</sup> guidelines.**

## Creating an international framework

Following England's example of establishing a Committee to advise on natural capital, Italy has followed the same approach and established its own Natural Capital Committee. The Italian Committee has since published two reports on the state of natural capital in Italy.<sup>103, 104</sup> Other countries are also considering England's approach to natural capital, for example, in 2019 the New Zealand government published their paper 'The Start of a Conversation on the Value of New Zealand's Natural Capital'.<sup>105</sup> As more countries recognise the importance of the natural capital approach in decision making, it is important that the right framework is followed. The environment and environmental pressures do not recognise borders. Climate change is the obvious example, as well as, biodiversity loss. The NCC's pioneering framework can be followed by any country. The framework includes the plan for environmental improvement, appropriate metrics to track progress and getting the right legislative framework in place.

<sup>102</sup> H.M. Treasury, *The Green Book: Central Government Guidance on Appraisal and Evaluation* (2018): <https://www.gov.uk/government/publications/the-green-book-appraisal-and-evaluation-in-central-government>

<sup>103</sup> (translation) *First report on the state of natural capital in Italy* (2017): <https://www.minambiente.it/pagina/primo-rapporto-sullo-stato-del-capitale-naturale-italia-2017>

<sup>104</sup> (translation) *Second report on the state of natural capital in Italy* (2018): <https://www.minambiente.it/comunicati/il-secondo-rapporto-sullo-stato-del-capitale-naturale-italia>

<sup>105</sup> The Treasury, *The Start of a Conversation on the Value of New Zealand's Natural Capital* (2018): <https://treasury.govt.nz/publications/dp/start-conversation-value-new-zealands-natural-capital-dp-18-03>



## Annex 1: 2019 Natural Capital Committee publications

Table 1: List of publications in 2019

Publication and link	Description
<a href="#">Natural Capital Committee advice on soil management</a>	<p>This paper sets out the NCC's advice to government on the management of soils. It makes recommendations taking into account the broad goals of the 25 Year Environment Plan.</p>
<a href="#">Natural Capital Committee advice on marine management</a>	<p>This paper sets out the NCC's advice to government on management of the marine environment. It makes recommendations taking into account the broad goals of the 25 Year Environment Plan.</p>
<a href="#">Natural Capital Committee advice to government on net environmental gain</a>	<p>The NCC published two advice papers on net environmental gain. First one was published in May 2019 and it introduced the approach in detail following Defra's net gain consultation in December 2018.</p> <p>Second advice (published in September 2019) builds on the previous advice and it answers questions commissioned by Defra on broad principles, metrics and delivery of net environmental gain.</p> <p>Both papers address questions related to marine net environmental gain.</p>
<a href="#">Natural Capital Committee response to the 25 Year Environment Plan progress report</a>	<p>The response document sets out the NCC's assessment of the government's first 25 Year Environment Plan progress report. The paper also presents the NCC's recommendations to government on how to improve the reporting framework for future progress reports.</p>
<a href="#">Natural Capital Committee advice on developing an environmental baseline census</a>	<p>This paper sets out the NCC's advice to government on establishing an environmental baseline census of natural capital stocks. This is an essential foundation for measuring the progress of the 25 Year Environment Plan (25YEP).</p>
<a href="#">Natural capital terminology</a>	<p>This paper provides a summary of the main terminology used by the NCC, drawing on definitions used in its previous publications. This paper will be updated and reviewed periodically.</p>

## Annex 2: Background to the Natural Capital Committee

The government's Environment White Paper: *The Natural Choice* was published in 2011. In this report, government committed to “*establishing an independent Natural Capital Committee (NCC) reporting to the Economic Affairs Cabinet Committee... The Committee's remit was to advise the government on the state of English natural capital*” and what needed to be done about it. The NCC was established in 2012 as an independent committee chaired by Professor Dieter Helm.

Since then, the NCC has published a plethora of advice on the sustainable use of natural capital in England and most notably a recommendation to the government to create a 25 Year Environment Plan. The government accepted this recommendation, developed it and it was launched by the previous Prime Minister, Theresa May in January 2018.

The Committee entered its 2<sup>nd</sup> term in January 2016, with the key focus being advising the government on the implementation of the 25 YEP; including the development of suitable metrics to be used to track progress against the Plan's objectives.

In 2019 the Committee has published advice on several key areas, as detailed in Annex 1.

Professor Diane Coyle has left the Natural Capital Committee.

### Chairman Professor Dieter Helm, CBE

Dieter is a Professor of Economic Policy at the University of Oxford and a Fellow of New College, Oxford. He is author of *Natural Capital – how to value the planet* (Yale University Press) and his latest book *Green and Prosperous Land* was published March 2019 (William Collins).

## Members

### Professor Colin Mayer, CBE

Colin is Professor of Management Studies, Said Business School at the University of Oxford. He is an expert on all aspects of corporate finance, governance and taxation, the regulation of financial institutions and the role of the corporation in contemporary society.

### Professor Chris Collins

Chris is Chair of Environmental Chemistry at the University of Reading. He is the Natural Environment Research Council Soils Coordinator and chairs Defra's Hazardous Substances Advisory Committee providing expert advice to the UK government on how to protect the environment, and human health via the environment from chemicals. His research focuses on determining the factors controlling exposure of biota to environmental pollution and the role of soil organic carbon in modifying pollutant exposure and the parallels between pollutant and carbon cycling in soils.

### Professor Melanie Austen

Melanie is a marine ecologist and interdisciplinary marine researcher who is Head of Science for the Sea and Society group at Plymouth Marine Laboratory. She is an independent member of the Joint Nature Conservation Committee (JNCC), completed a 3 year term as the Chief Scientific Advisor to the UK's Marine Management Organisation (MMO) and for the last twenty years she has been developing and leading UK and EU funded collaborative marine research projects. She has been an Honorary Professor at the University of Exeter medical school since 2014, a member of other Expert Advisory Groups, and has chaired an EU Marine Board expert group on marine ecosystem valuation.

### Professor Ian Bateman, OBE

Ian is Professor of Environmental Economics and a Director of the Land, Environment, Economics and Policy Institute (LEEP) at the University of Exeter. His research interests focus on ensuring sustainable wellbeing through the integration of natural and social science knowledge within decision-making and policy. Particular interests lie in the fields of quantitative analysis, integrated modelling and the valuation of non-market benefits and costs.

### Professor Paul Leinster, CBE

Paul is Professor of Environmental Assessment at Cranfield University and was formerly Chief Executive of the Environment Agency. He also worked at BP International and Schering Agrochemicals, led an environmental consultancy and was Director of Corporate Environmental Services at SmithKline Beecham. He holds a BSc in chemistry, a PhD in environmental engineering and an MBA from the Cranfield School of Management.

### Professor Kathy Willis, CBE

Kathy is a Professor of Biodiversity and Head of the Long-term Ecology laboratory at the University of Oxford. She is also the Principal of St Edmund Hall, one of the Colleges that make up the University of Oxford. Until recently she was the Director of Science at the Royal Botanic Gardens, Kew. She has over 30 years of research experience focusing on modelling and remotely determining important landscapes for biodiversity and ecosystem services across the world. Most recently she has been leading a research team to develop new and emerging models and technologies to assist land managers in decision-making to ensure the best outcomes for business and biodiversity.

The Committee is supported by a secretariat based in Defra (Department of Food, Environment and Rural Affairs) – Headed by Maniv Pathak, with Elias Scheuermann, Rebecca McIlhiney, Jake Harvey, Andrew Canning-Trigg and Maja Kent.



## Annex 3: Terms of reference for the Natural Capital Committee

### Background

The government is establishing the Natural Capital Committee (NCC) for the duration of this Parliament (through to September 2020), to provide it with independent advice on protecting and improving natural capital. The government's ambition is to improve the environment within a generation, so that England has the best environment and is one of the most beautiful places in the world to live, to work and to bring up a family.

The NCC are working with the government to develop a 25 YEP to deliver this vision; to empower people, businesses and the third sector to protect and improve the environment; taking into account the use of data, tools, new technologies and techniques. The government has a large number of environmental data sets which others could utilise to achieve positive environmental outcomes.

The initial phase of the NCC concluded on 30<sup>th</sup> September 2015 and the Committee successfully met its Terms of Reference in full. It provided advice to the government on three main issues:

1. The unsustainable use of natural assets;
2. How action to protect and improve natural capital should be prioritised;
3. Research priorities.

### Terms of reference

Over this Parliament, the government requires advice from the NCC on the development and implementation of the 25 Year Environment Plan, which the NCC itself recommended. The Committee, therefore, will move into a new phase of work to help inform the plan's development.

The new NCC will be vital in driving forward the next stage of natural capital work in England. This will include playing a key role in advising the government on environmental assets at risk and ways of identifying priorities for improvement where the benefits are greatest, building on its work of the last three years. To do this, the Committee will need to make use of appropriate knowledge, tools and techniques to ensure natural capital can be properly and consistently assessed, valued and accounted for in decision-making and economic planning. There should be a strong focus on embedding the use of open data, tools and techniques to facilitate positive action on the environment across the country, and consideration of national (England wide) and local delivery.

The Committee will advise on the importance of natural capital to sustainable economic growth, health and wellbeing and identify potential actions that could be taken to boost these.

The Committee will continue working with the government and the Office for National Statistics to develop national natural capital accounts and work with businesses to develop and apply corporate natural capital accounts, recognising that much of our natural capital is privately owned. It will consider the international dimensions of natural capital in formulating its advice where appropriate. The Committee will also advise the National Infrastructure Commission to ensure that 'green and blue infrastructure' is appropriately considered within wider infrastructure discussions.

The NCC will continue to report to the Economic Affairs Committee of the Cabinet.<sup>106</sup>

Specifically, the Committee will advise government and its delivery bodies on the development and implementation of an integrated 25 Year Environment Plan to protect and improve our natural capital; making use of appropriate knowledge and tools to identify priority assets for protection and improvement. In doing so, it should have particular regard to:

- Advising the government on how national environmental priorities could be delivered in partnership with the private, public and third sectors, including local community endeavours;
- Providing practical advice to the government on how people and businesses can reconnect with nature;
- The development of suitable metrics to be used to track progress against the Plan's objectives and benchmarking the English environment with the rest of the world;
- Advising government on progress against the Plan.

The Committee may:

- Produce and publish occasional reports to the Economic Affairs Committee;
- Provide responsive, ad-hoc advice if requested by the Secretary of State for the Environment on behalf of the Economic Affairs Committee;
- Provide advice to Ministers in confidence.

<sup>106</sup> From 2020 the NCC will report to the EU Exit, Economy and Trade Committee of Cabinet.

The Committee may not:

- Perform a watchdog or advocacy role with respect to government policy;
- Be policy prescriptive in its advice or publicly comment on specific projects, unless requested by the Secretary of State for the Environment (or by the Economic Affairs Committee via the Secretary of State);
- Make decisions on classifications or statistical standards.

## **Committee set-up and structure**

The Committee will be set up as an ad-hoc independent advisory body to the government, comprising a Chair and members with expertise in the fields of economics, natural and social sciences, accounting, statistics, data, technical and both local and national delivery. Members of the Committee will be widely recognised as leading experts in their respective fields and have been appointed and perform on the basis of their professional background as opposed to representing any stakeholder interests. Members are expected to act in accord with the principles of public life.

The Committee will be supported in its work by a secretariat based in Defra. It may also set up expert working groups or rely on existing groups to take forward its work.

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