Office for Environmental Protection

Progress in improving the natural environment in England, 2021/2022

January 2023

Office for Environmental Protection

THE OFFICE FOR ENVIRONMENTAL PROTECTION

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The Office for Environmental Protection is a non-departmental public body, created in November 2021 under the Environment Act 2021. Our mission is to protect and improve the environment by holding Government and other public authorities to account. Our work covers England and Northern Ireland. We also cover reserved matters across the UK.

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Foreword

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Despite other immediate and pressing worries, public concern about the environment remains high. We all know instinctively the intrinsic value and the pleasure to be had from open green spaces, clean waters and the abundance of nature. A healthy environment is not just nice to have, but essential for human wellbeing, progress and prosperity. Indeed, there is a comprehensive evidence base demonstrating the negative impact on the economy from environmental deterioration.

In this report, we review Government's progress in improving the environment in the year to March 2022, as required by statute. Reviewing progress is not straightforward for us, government or others. Although information about the natural environment is now plentiful, data have not generally been collected with government's environmental goals in mind. Years can pass before valuable data are collated and reported. This is not simply a problem for us. It makes effective policy making and the early evaluation of policy difficult and uncertain, when time is so often of the essence. For some years, Government has been developing a system to report environmental outcomes. We welcome that, but completion cannot come soon enough. Simple measures, promptly reported and closely aligned to environmental targets and goals are needed urgently.

Using the data and information available, we conclude that progress in protecting, restoring and improving the environment over the year under review falls far short of that required to meet Government's stated, longer-term ambitions.

We have little good news to report. There have been some improvements in air quality in recent years. People's engagement with nature is also up markedly. Both of these welcome developments are in part associated with societal changes brought about by lockdown. Yet many of the extremely worrying environmental trends that we spoke of in our first monitoring report[1] remain unchecked.

Biodiversity is intrinsic to the health of the environment and yet we are witnessing a chronic decline in species abundance in this country. Government is required by law to halt this decline by 2030. Species naturally depend on habitats, but the condition of many areas of land so essential to threatened species has continued to deteriorate. Government must change gear immediately, to provide bigger, better and more joined up habitats.

The large majority of land in England is in agricultural use. Inarguably, Government must incentivise farmers and landowners to play their full part in achieving the Government's stated specific goals for the environment, and to maintain good stewardship of the nation's countryside. Without their participation over the long-term, Government cannot succeed in protecting, restoring and improving the environment to meet its stated ambitions.

Government has made some progress in climate change mitigation. England's greenhouse gas emissions are reducing overall. But as many of the public recognise, this is not enough. The nation must also adapt to current and predicted changes to the climate. And Government should take account of the likely future climate as it plans for the environment, or else it risks being outpaced.

Government has continued to play its part on the international stage. At home, however, it has been slow to act. It was late setting statutory targets for the environment when required

1 Office for Environmental Protection, *Taking Stock: Protecting, Restoring and Improving the Environment in England*, 2022, https://www.theoep.org.uk/report/taking-stock-protecting-restoring-and-improving-environment-england.

by law; there are other statutory deadlines missed and it has not yet published its long-awaited statement on environmental principles for all government departments. Its absence is so regrettable. Without the statement, policies could be made without Ministers having regard to key principles that will contribute to environmental protection and sustainable development. This cannot be right, in the current day.

There is a chance to change course. In January 2023, Government is due to review the 25 Year Environment Plan and to produce a new Environmental Improvement Plan for the next five years. We hope that the advice given in our May 2022 report will have been influential. This is a timely opportunity to make meaningful cross-government plans to protect, restore and improve the environment, and for Government to make real its stated ambitions. In reviewing progress this year, we have seen that things that go well are well organised. We urge Government to be bold, to prioritise those aspects of the environment most needy of attention, to make sure it is monitoring those aspects closely, and to concentrate on delivery and the governance and organisation necessary to get the right things done in time.

Colleagues at Defra, Natural England, the Environment Agency and the Climate Change Committee have supported our analysis in numerous ways. We are grateful for their assistance, and the help of others in government and beyond.

Dame Glenys Stacey
Chair, Office for Environmental Protection

Executive Summary and Recommendations

Executive Summary and Recommendations

Government's ambition is to be the first generation to leave the environment of England in a better state.

This ambition was first articulated in 2011 in the Natural Environment white paper. It was a manifesto commitment in 2017, followed in 2018 with the 25 Year Environment Plan (25 YEP). This Plan set out Government's commitments and goals for realising its ambition.

The Environment Act 2021 then provided a new governance framework for the environment, with four key provisions: a new oversight body; a long-term Environmental Improvement Plan (EIP) that must set out the steps HM Government intends to take to improve the natural environment; statutory targets; and an Environmental Principles Policy Statement applicable across government.

Parliament has established the Office for Environmental Protection as the new oversight body and has designated the 25 YEP as England's first EIP. But Government has been slow to act. It was late to set the legally binding long-term targets for the environment required by the Environment Act 2021 and has not yet published the required Environmental Principles Policy Statement. It is due to complete the first statutory review of the EIP by 31 January 2023.

With this report, we provide our independent assessment of Government's progress in improving the natural environment, in accordance with the EIP for England in 2021/2022. This is as required by section 28 of the Environment Act 2021. Where appropriate, we also assess progress over a longer period.

Are Government plans for the environment working?

Our view is that the 25 YEP has so far failed to bring about the changes needed, at the pace and scale required, to meet Government's stated ambitions for the environment in England. The natural environment in England remains under serious threat. It is characterised by adverse trends in many areas, frequent failure to make progress towards targets, and a lack of progress in addressing existential risks, including from climate change.

We assessed 32 trends across the breadth of the natural environment; nine trends were improving, eleven were static, and eight were deteriorating. We were unable to make a sufficiently reliable assessment of trends in four areas due to a lack of evidence. National trends for clean air and climate change mitigation are somewhat encouraging. Conversely, there is a deeply concerning decline in biodiversity. Our assessment here is especially hampered by a lack of adequate reporting of recent data. However, the available evidence suggests that, among other adverse trends, abundance of priority species declined by 17% between 2013 and 2018, coming at the end of a chronic decline between 1970 and 2018. The situation is poor across the board, with adverse trends across marine, freshwater and terrestrial environments.

We assessed 23 environmental targets and found none where Government's progress was demonstrably on track. For 14 of 23 targets (61%), we considered progress was off track, in some cases significantly so. We were unable to assess the remaining nine targets due to baselines set in the future or a lack of sufficient evidence. Government data show that many targets are at significant risk of not being achieved, including targets relating to improving water quality and halting the decline in the abundance of species.

Climate change is exacerbating the challenge facing government and its impacts are likely to increase. Progress towards climate change adaptation is poor and many of the steps necessary to adapt and to improve resilience have not yet been taken. With around two-thirds of land in England in agricultural use, it is particularly concerning that climate change adaptation within this sector is consistently given the worst rating by the Climate Change Committee.

Why have Government plans not worked and what can be done better?

There are several background reasons why the 25 YEP is not yet delivering improvements as it should. To begin with, it was not grounded in a comprehensive baseline for the state of the environment and did not state clear and ambitious targets for all goal areas, leaving some areas adrift. Then, during its lifetime, strategy and policy responsibilities were repatriated to the UK, with Defra developing a significant number of new policies in recent years. The Government has faced exceptional challenges since 2018: a pandemic, a war in Ukraine, and now a cost of living crisis. Together, these developments have exacerbated a known problem – a lack of coherence in environmental strategy and policy within Defra and across government – that in all probability has held back progress.

This picture of progress with the existing 25 YEP need not be dispiriting. There are opportunities for Government to change trends, make positive progress towards targets, and secure significant environmental improvements. The requirement for Government to review and refresh the EIP at the end of January 2023 provides a clear basis for a new plan and more effective implementation. **With this in mind, we have identified eight attributes of a new and effective EIP**:

An effective new EIP would clearly translate vision into policies, commitments and actions for the whole of government. The 25 YEP had ambition but lacked clarity and commitment. Government's ambition "to leave our environment in a better state than we found it" represented a positive shift away from simply protecting the environment and towards environmental recovery and enhancement. Realising the ambition will require alignment and co-ordination at all levels, local and national, and actions that extend beyond Defra, across government and all sectors of society.

An effective new EIP would establish clear governance arrangements that drive delivery on the ground. Governance arrangements for the 25 YEP were unclear and complex. There is an abundance of environmental plans, strategies and policies. These are often presented without context or explanation of how policy measures interact, or of their relative importance. The bodies and mechanisms for delivery and decision-making for all these strategies and policies are similarly numerous and unclear, making it difficult to discern who is responsible for what.

An effective new EIP would have a unifying overall delivery plan and one for each goal area. The 25 YEP lacked a unifying delivery plan. This hampered effective policy development and left implementation inadequate. Effective delivery plans would define outcomes (including targets and their means of assessment) and the specific policies and activities that contribute towards their achievement. Effective delivery plans will provide assurance that government's activities will deliver outcomes, improve coherence across policies, and make clear who is accountable.

With new long-term targets set, an effective new EIP would set and pursue clear and achievable interim targets that are as ambitious as possible in the areas needing most attention. The Environment Act 2021 long-term targets are now set and specify a vital set of long-term outcomes. Interim targets must be suitably ambitious in order to front-load action, to stimulate nature's recovery, and to make early and rapid progress towards long-term outcomes. Gaps in targets remain to be addressed and there must also be clarity in how Environment Act 2021 targets work alongside wider, existing commitments.

An effective new EIP would make clear use of robust and current data and analyses that are well aligned with all targets. Government's published data about the natural environment are not yet adequate for monitoring progress across all goal areas. The Outcome Indicator Framework is a challenging endeavour and is a work in progress, but it is not yet sufficiently comprehensive. The Framework should include indicators to track progress against all targets. Some indicators are unsuited to measuring the specified policy outcome. For others, reporting of available data lags by several years.

An effective new EIP would establish an evaluation framework and use it to generate feedback on actions and progress, to learn and to improve delivery. The 25 YEP lacked a purpose-driven monitoring, evaluation and learning framework. The Outcome Indicator Framework is the main platform for bringing together and sharing environmental monitoring information. The Annual Progress Report addresses the statutory requirement for government to report on EIP implementation, but it remains largely an account of policy development and actions taken, more than of progress made, outcomes and impacts realised, or prospects of environmental improvement. These two reporting mechanisms should be more closely integrated and embedded in a broader EIP evaluation framework for learning promptly how to improve delivery.

An effective new EIP would diagnose the cause of adverse trends, identify the most urgent, harmful or widespread concerns, and develop effective and timely responses. There has been limited progress in synthesising and interpreting evidence for the key drivers of change and the pressures on the environment, or the relationships between these drivers and pressures and their cumulative impacts. This understanding is critical to effective implementation and adaptation.

An effective new EIP would develop assessment regimes that look more to the future, anticipate trends and project outcomes. Assessing progress towards an improved natural environment has so far been largely retrospective. Robust predictive quantitative and qualitative assessments of future states of the environment can help government foresee the effects of current and proposed policy, and indicate the likelihood of achieving, or not achieving, targets in future.

Conclusion

Overall, we do not think the current pace and scale of action will deliver the changes necessary to improve the environment in England significantly, as required by the Environment Act 2021. The Act provides government with the tools necessary to achieve this, but only if they are used in a timely manner and with commitment.

Government must review the 25 YEP by 31 January 2023, set interim targets, and ensure it details the measures intended to deliver a significant improvement in the natural environment. We look forward to welcoming an enhanced EIP, that rises to the challenges of realising Government's ambitious vision.

Government must do more to close the gap between the current reality and its vision of the future or it will fail in its ambition. It must act with energy and urgency if it is to deliver significant improvement of the environment in England for the next generation.

Recommendations

In last year's *Taking Stock* report,[2] we made 16 recommendations to Government (Annex One). They all remain entirely relevant. We make five further recommendations here. We hope to see all our recommendations followed through as Government publishes and implements the new EIP for England.

Recommendation 1: Implement the next Environmental Improvement Plan effectively. Government should take the opportunity to jump start the next EIP immediately after publication. We have identified eight attributes of a new and effective EIP that should address the shortcomings of the previous plan. Government should drive bold, prompt action where most needed, for example in relation to species abundance. It should use all tools at its disposal, and work at pace and at scale.

Recommendation 2: Develop and implement clear governance. Government should make clear who is accountable, how decisions are made, and how delivery of the new EIP will be assured across government as a whole. In our view, the Cross-Government 25 YEP Delivery board could have full authority to oversee, co-ordinate and drive forward action to implement the new EIP and should be accountable for ensuring delivery. Publication and application of the Environmental Principles Policy Statement remain indispensable in this regard.

Recommendation 3: Develop and implement unifying delivery plans. Government should establish a unifying delivery plan for the new EIP, and a delivery plan for each of its goal areas. Each plan should build on an understanding of drivers and pressures, define outcomes, set out all targets and their means of assessment, establish clear governance, and identify the specific policies and activities that contribute towards their achievement.

Recommendation 4: Set and vigorously pursue clear and achievable interim targets that are as ambitious as possible in the areas needing most attention. All targets will require prompt and concerted effort. To ensure adequate progress, Government should now set interim targets that will drive immediate action, enable nature's recovery, and allow assessment of progress.

Recommendation 5: Implement an effective monitoring, evaluation and learning framework. Data must be made available that are adequate for understanding underlying drivers and trends in environmental protection, as well as monitoring improvement and assessing progress towards targets. By the time of government's next annual reporting period, data should be comprehensive, current and consistent with the standards detailed in targets. Predictive assessments should underpin government's plans and actions. Government should establish an evaluation framework for the EIP to enable learning and feedback that will ensure effective delivery in the long-term. Government's reporting should combine quantitative assessments with evaluation evidence to provide more rigorous accounts of progress.

2 Office for Environmental Protection, *Taking Stock: Protecting, Restoring and Improving the Environment in England*.

Chapter 1: Introduction

Introduction

In the 25 Year Environment Plan (25 YEP), published in 2018, government set out its ambitious vision *'to be the first generation to leave the natural environment of England in a better state'*.[3]

The Environment Act 2021 (the Act) empowers and requires government and other public authorities to protect and improve the natural environment. It introduces a new governance framework for the environment, of which there are four key provisions: legally binding long-term targets; Environmental Improvement Plans (EIPs), the first of which is the 25 YEP, that "must set out the steps that HM Government intends to take to improve the natural environment"; a policy statement on environmental principles to be applied across government, and a new oversight body, the Office for Environmental Protection, to hold government to account for compliance with environmental law.

The Act also introduced statutory reporting requirements for government and for the Office of Environmental Protection. Government must prepare Annual Progress Reports (APRs) on the implementation of the EIP. These reports must consider improvement in the natural environment and progress towards any targets set under the Act and interim targets set in the EIP.

We, in turn, must report our independent assessment of government's progress in improving the natural environment, in accordance with the EIP, and its progress towards achieving targets. We must consider government's APR and the data published by government for the reporting period, and any other reports, documents or information we consider appropriate. Our report must encompass government's annual reporting period, in this instance April 2021 to March 2022. During this period, long-term environmental targets had not been set and so progress towards the full suite of these, and their associated interim targets, will be detailed in our future reports. Our report must be laid in Parliament within six months of the government's APR,[4] which in this instance was published on 20 July 2022.

Our approach this year

We assess environmental trends and progress towards meeting targets for improving the natural environment. We group our assessment according to the 10 goal areas of the 25 YEP (Figure 1). We then evaluate Government's performance, activities and actions that influence the environment, which we term environmental stewardship.

3 Department for Environment, Food and Rural Affairs, *25 Year Environment Plan*, 2018, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/693158/25-year-environment-plan.pdf.

4 Department for Environment, Food and Rural Affairs, *25 Year Environment Plan Annual Progress Report – April 2021 to March 2022*, 2022, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1092495/25yep-annual-progress-report-2022.pdf.

Figure 1. The 10 goal areas of the 25 Year Environment Plan, used to structure our analysis of environmental trends and progress towards targets.

Assessing environmental trends and targets

We detail our methodology for assessing trends and targets in Annex Two. In brief, for each goal area of the 25 YEP, we have made a simple assessment of current trends in our headline indicators, progress towards relevant targets, and the current state of climate adaptation. Where necessary, we have developed our own suite of headline indicators by which to assess progress. Our selection of indicators is based on expert judgement, guided by objective criteria. We used the Outcome Indicator Framework (OIF)[5] as a starting point and worked with 22 OIF indicators that commit to achieving a desired goal and are objectively measurable. Where we identified gaps in the OIF, we worked with additional evidence, all from government data. We selected a total of 32 headline indicators across the 10 goal areas of the 25 YEP, while the OIF contains 66 indicators and 44 headline indicators.

We have assessed progress in improving the natural environment over the annual reporting period (1 April 2021 to 31 March 2022). Our assessment extends to appropriate data, information and reports from preceding years, thereby providing an overview of progress that encompasses the annual reporting period, the period of the 25 YEP, and beyond, as appropriate.

5 Department for Environment, Food and Rural Affairs, *Outcome Indicator Framework for the 25 Year Environment Plan: 2022 Update*, 2022, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1084360/25-year-environment-plan-2022-update.pdf.

To show the direction of trends, and whether they constitute improvement or deterioration, we use a combined five-arrow Red-Amber-Green status. Where we have not made an assessment, primarily where data are not available, we use a grey cross. We assess progress towards meeting targets based on our level of confidence in the current trend direction, the gap between current levels of performance and the defined standard, and the time available for meeting the target. To communicate progress, we adopt a Red-Amber-Green approach, where green is on track, amber is off track and red is significantly off track.

We considered climate risks and adaptation measures, and how these affect progress in each of the 25 YEP goal areas. Climate adaptation relates to measures responding to the consequences of climate change and is distinct from climate mitigation, which focusses on the reduction of greenhouse gas emissions. We developed our assessment of climate adaptation in consultation with the Climate Change Committee (CCC). The CCC has determined that the second National Adaptation Programme[6] has not delivered the minimum level of resilience required for current and future climate change.[7] With the third National Adaptation Programme due in 2023, it is the right time to assess Government's performance relating to the natural environment in this important area.

Assessing Government's environmental stewardship

We have detailed our approach to assessing Government's environmental stewardship in Annex Two. In brief, we have applied the Building Blocks approach we first developed to structure our analysis in our *Taking Stock* report[8] last year. Our six Building Blocks are: Understanding environmental states, drivers and pressures; Creating a vision; Setting targets; Coherent strategy and policy; Governance; and Monitoring, evaluation and learning.

Given the breadth of the 25 YEP (the current EIP), we focus on the barriers and enablers affecting delivery of the overall Plan. This year, we have not examined the barriers and enablers that affect delivery in the individual 25 YEP goal areas, or of individual environmental targets.

We have used case studies from two goal areas, Clean Air, and Thriving Plants and Wildlife, to illustrate our analyses. We selected the goal area of Clean Air as an example of where positive progress has been made, though major challenges remain, and where policy measures are relatively mature and coherent. By contrast, we selected the goal area of Thriving Plants and Wildlife as an example of where trends are adverse and where policy measures are under development and appear less coherent.

Our assessment of environmental stewardship considers Government's APR, as well as the OIF. The OIF and the APR underpin much of our assessment, but they provide an incomplete picture. We provide our assessment of the recent APR in Annex Three. We have extended our analysis to include wider sources of information, such as departmental Outcome Delivery Plans, environmental evidence reports and policy evaluations.

6 Department for Environment, Food and Rural Affairs, *Climate Change: Second National Adaptation Programme (2018 to 2023)*, 2018, https://www.gov.uk/government/publications/climate-change-second-national-adaptation-programme-2018-to-2023.

7 Climate Change Committee, *Progress in Adapting to Climate Change 2021 Report to Parliament*, 2021, https://www.theccc.org.uk/wp-content/uploads/2021/06/Progress-in-adapting-to-climate-change-2021-Report-to-Parliament.pdf.

8 Office for Environmental Protection, *Taking Stock: Protecting, Restoring and Improving the Environment in England*.

Our approach in future

Government has recently set long-term environmental targets as required by the Environment Act 2021. Government must conclude its review of the 25 YEP and publish a revised EIP by 31 January 2023. It must also publish an assessment of whether meeting its targets will significantly improve the natural environment in England, again by 31 January 2023. We will scrutinise the revised EIP and the detail of Government's assessment of its targets. We will also consider the degree to which Government has acted on our earlier advice (Annex One).

In future, we expect to integrate our assessments of trends and targets with our assessment of environmental stewardship. We will consider cross-departmental governance, especially in terms of the implementation of the Environmental Principles Policy Statement. While we have so far taken a broad approach, in future we will select areas for in-depth assessment. Overall, we expect to adapt our approach to our assessment year by year, to ensure the greatest impact and contribution towards environmental protection, restoration and improvement.

Chapter 2: Assessing environmental trends and targets

Assessing environmental trends and targets

Government has made progress in the goal areas of Clean Air, and Mitigating and Adapting to Climate Change. We found little evidence of improvement in the goal areas of Clean and Plentiful Water, Thriving Plants and Wildlife, and Enhanced Biosecurity. There is deterioration in relation to Minimising Waste. For the other four goal areas, the picture is mixed.

Government must halt the decline in species abundance by 2030, but the available evidence suggests there is a deeply concerning decline in priority species. More up-to-date reporting of data is desperately needed, with some data four years old by the time of their use.

Climate change is exacerbating the challenge facing Government in many areas of the environment, and its impacts are likely to increase.

Overall assessment

Environmental trends

Of our 32 headline indicators, nine trends (28%) show improvement, 11 (34%) are static and eight (25%) are deteriorating (Figure 2). We were not able reliably to assess four trends (13%), due to a lack of evidence.

In the goal areas of Clean Air, and Mitigating and Adapting to Climate Change there has been some encouraging progress. These two goal areas account for five of the nine improving trends in our assessment. They are the exception.

Three goal areas showed no improving trends: Clean and Plentiful Water, Thriving Plants and Wildlife, and Enhanced Biosecurity. Minimising Waste showed two deteriorating trends. The remaining four goal areas present a mixed picture, with some evidence of improvement. The available evidence suggests that, among other adverse trends, there is a deeply concerning decline in biodiversity, a proxy for the overall state of the environment. The ‘abundance of priority species’ indicator declined by 17% between 2013 and 2018.

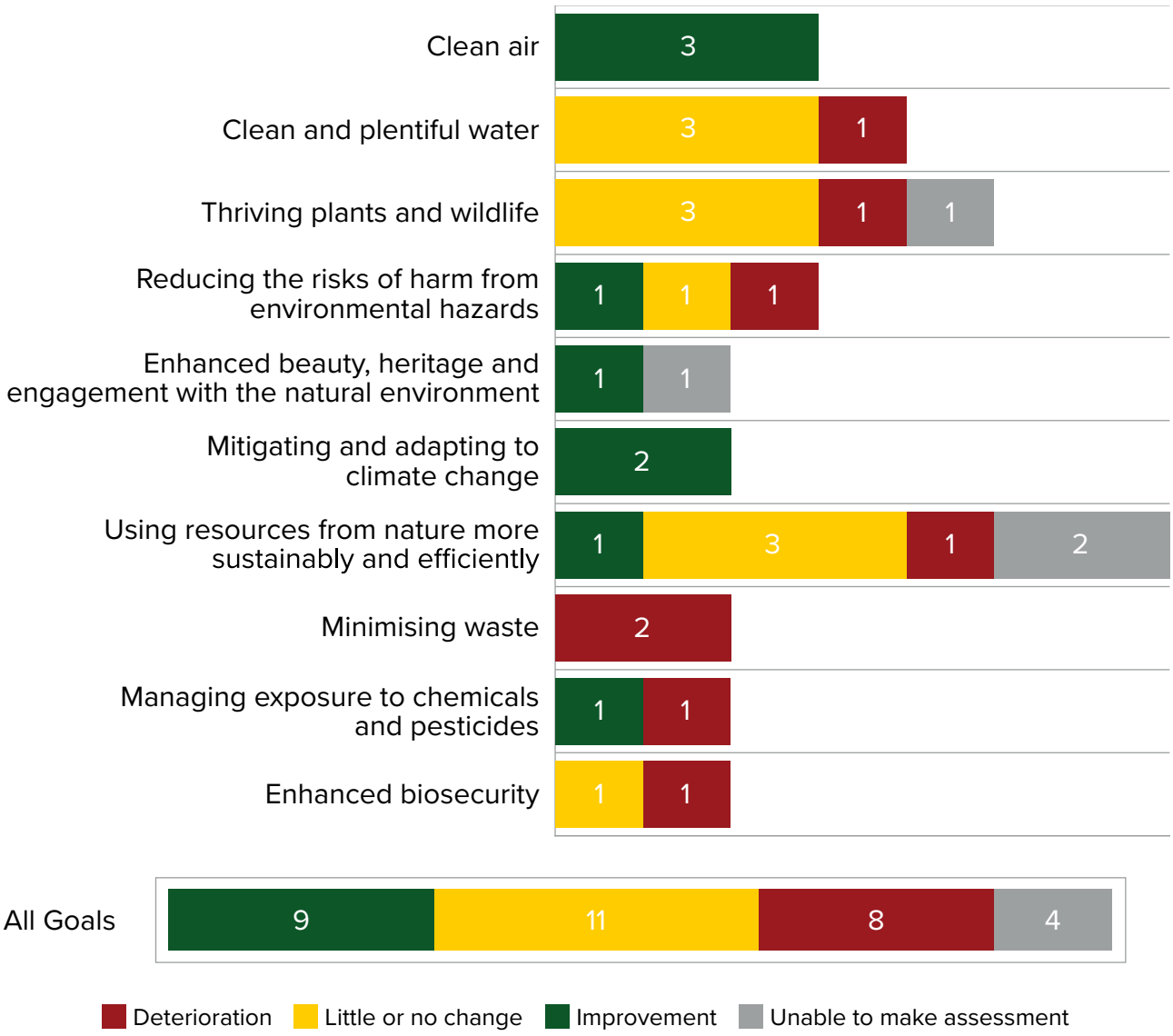

Figure 2. Summary of the Office for Environmental Protection's assessment of trends in 32 headline indicators in the 10 goal areas of the 25 Year Environment Plan. Values represent the number of indicators. Red indicates deterioration, amber is little or no change, green is improvement. Grey shows that the indicator lacked adequate data for assessment. Note: climate adaptation is assessed in each goal area separately.

Of the 32 headline indicators assessed, 13 (41%) have data from the annual reporting period 2021/2022 and four (12.5%) have data from 2020 (Figure 3). For 11 (34%) indicators, the most recent data are from before 2020. Four (12.5%) have no recent data.

It is concerning that many of the indicators lacking recent data are in goal areas showing adverse trends, namely: 'abundance of priority species', 'raw material consumed', 'residual waste', 'achievement of marine 'good environmental status'' and 'state of the water environment' (Figure 3). We did not assess four indicators due to a lack of suitable data and analysis: 'condition of offshore marine protected areas', 'healthy soils', 'resource productivity' and 'exposure to transport noise'.

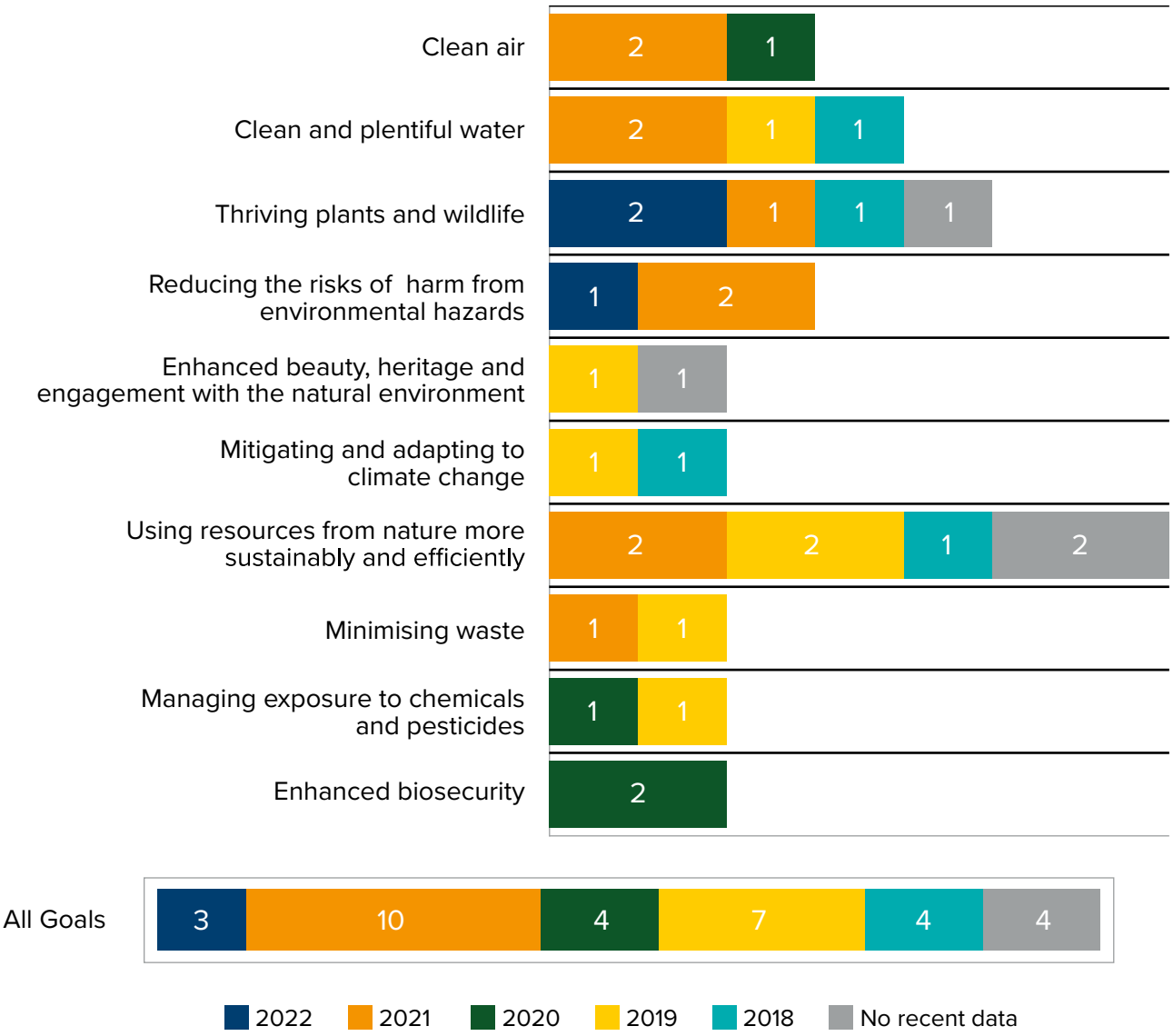

Figure 3. Summary of the availability of recent data for the Office for Environmental Protection's headline indicators in the 10 goal areas of the 25 Year Environment Plan. Values represent the number of indicators with the most recent data in the specified years. Note: climate adaptation is assessed in each goal area separately.

Environmental targets

In the 10 goal areas, we identified 23 environmental targets set or agreed by government that commit to achieving a desired goal and are objectively measurable (Figure 4). These are a mix of legally binding and non-legally binding targets that relate to our headline indicators. We have considered all the legally binding Environment Act targets. Where we assess non-Environment Act targets, we only assess apex targets. We detail our target criteria, scoping and assessment in Annex Two.

Progress is not demonstrably on track for any of the 23 environmental targets.

Progress towards almost two in three targets (14 of 23) is off track, some significantly so. We were unable to assess the remaining nine targets due either to baselines set after the reporting period, or to a lack of sufficient evidence or credible delivery plans.

For the goal area of Clean and Plentiful Water, we found that progress towards five of six targets was either off track, or deadlines had passed and the target not met. Progress in the goal area of Using Resources from Nature More Sustainably and Efficiently was similar, and progress towards three of four targets was off track or targets not met.

The 'abundance of priority species' showed a sharp decline immediately prior to publication of the 25 Year Environment Plan (25 YEP), coming at the end of a long-term decline of 82% between 1970 and 2018. This chronic loss of priority species and recent sharp decline, suggests that progress towards meeting the Environment Act 2021 target of halting the decline in species abundance by 2030 remains a major challenge. Hence, we already consider progress to be significantly off track. Achieving this target will require very substantial change in the pace and magnitude of interventions.

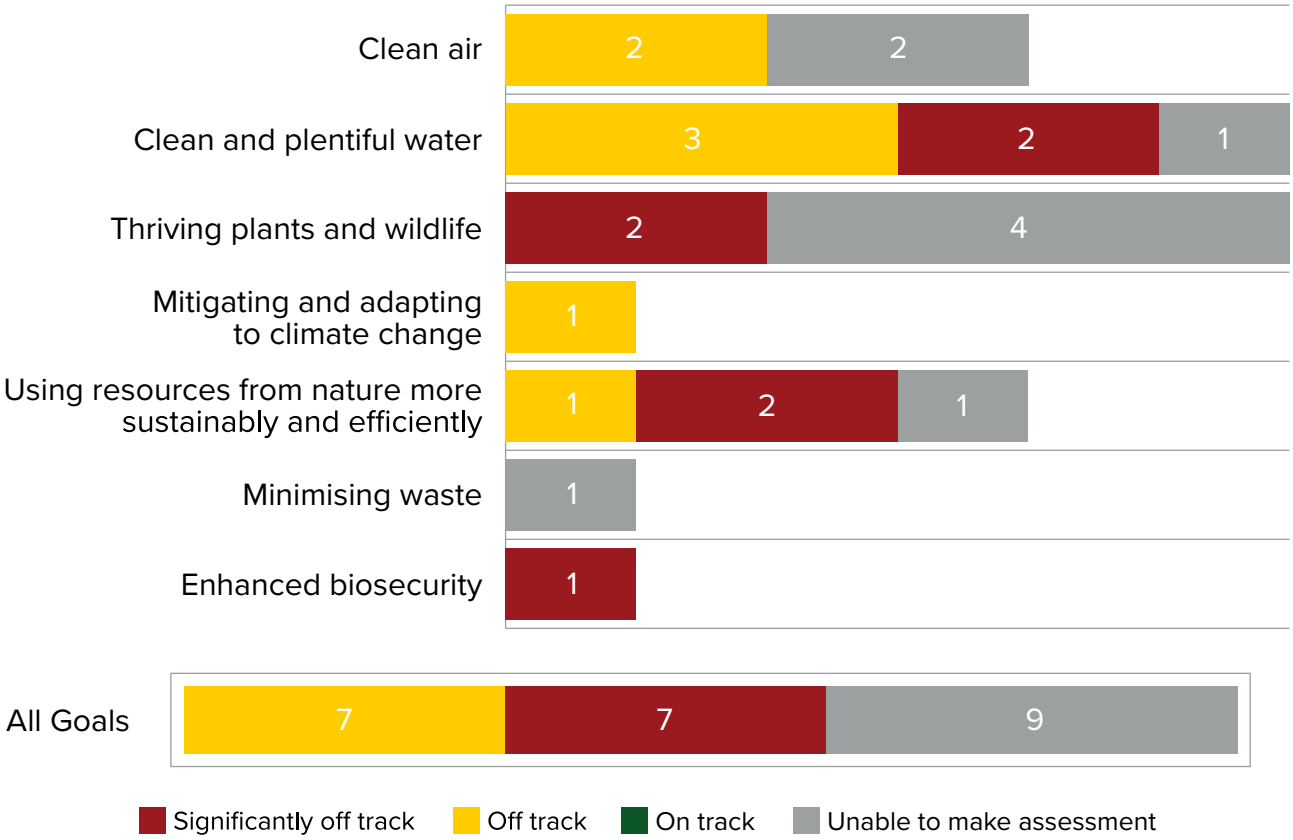

Figure 4. Summary of the Office for Environmental Protection's assessment of progress towards 23 environmental targets for headline indicators in the 10 goal areas of the 25 Year Environment Plan. Red indicates progress is considered significantly off track, amber is off track and green is on track. Grey shows that the indicator lacked adequate data for assessment. Note: climate adaptation is assessed in each goal area separately.

Climate adaptation

Our assessment of climate adaptation[9] shows that overall progress has not been sufficient. The necessary improvements in resilience, as set out in the Government's National Adaptation Programme, have not materialised.[10]

9 In consultation with the CCC, our assessment is by goal area rather than as a single indicator. We have assessed six goal areas where they align with CCC adaptation priorities. Further information is presented in Annex Two.

10 Climate Change Committee, *Progress in Adapting to Climate Change 2021 Report to Parliament*.

The Climate Change Committee (CCC) identifies 34 adaptation priorities across the sectors of natural environment, infrastructure, health and the built environment, and business.[11] Relevant priorities include 'air quality', 'agricultural productivity', 'public water supply infrastructure' and 'river and coastal flood alleviation'. The CCC makes assessments to understand progress in managing the risks posed by climate change, and the quality of planning. Further information on the approach to assessing climate adaptation is in Annex Two.

Of the CCC's 34 adaptation priorities, 20 are relevant to the 10 goal areas of the 25 YEP (Figure A1 and Table A17). In the CCC's 2021 adaptation progress report, only three of the 20 adaptation priorities received a score greater than five (on a scale of one to nine): 'river and coastal flood alleviation', 'water demand in the built environment', and 'public water supply infrastructure'. None of the adaptation priorities received a score of nine (the highest score, having the highest quality plan and level of progress) in 2021.

By comparing the CCC's progress assessments in 2019 and 2021, three of the 20 adaptation priorities showed improved scores: 'river and coastal flood alleviation', 'surface water flood alleviation', and 'commercial fisheries and aquaculture'.

Government action has been insufficient to make progress in most areas, and the gap between the level of climate risk and the level of response widened over the five years to 2021.[12]

Assessment by goal area

In this section, we present our assessments of progress within each of the 10 goal areas of the 25 YEP. We summarise progress by our analysis of trends and targets (Table 1 to 10) and climate adaptation. To show the direction of trends, and whether they constitute improvement or deterioration, we use a combined five-arrow Red-Amber-Green status. The directional arrows clearly distinguish between headline indicators for which an improvement may be a reduction (for example, a decrease in the emission of air pollutants) or an increase (for example, increased tree cover) in the absolute value. Where we have not made an assessment, primarily where data are not available, we use a grey cross. To communicate progress with targets, we adopt a Red-Amber-Green approach, where green is on track, amber is off track and red is significantly off track. If no assessment has been possible, we have marked the target as grey.

11 Climate Change Committee, *Progress in Adapting to Climate Change 2021 Report to Parliament*.

12 Climate Change Committee, *Progress in Adapting to Climate Change 2021 Report to Parliament*.

Clean Air

This goal area seeks to address all sources of air pollution, making air healthier to breathe and protecting the wider natural environment. We consider emissions for five key air pollutants and ambient concentrations of 12 pollutants. Ambient concentrations relate to the exposure of people and the environment to air pollutants, allowing for an assessment of potential harm.

Table 1. Clean Air: trend assessment and progress towards targets

Indicator	Source of Target	Target Description	Progress Against Target	Indicator Trend
Emissions for five key air pollutants	National Emissions Ceiling Regulations 2018	The Secretary of State [for Environment, Food and Rural Affairs] must ensure that, in 2030 and in each subsequent year, the total anthropogenic emissions occurring within the United Kingdom of each relevant pollutant do not exceed the percentage of base year emissions specified		
Percentage of monitoring stations above 10 µg/m^3 of PM2.5	Environment Act 2021	An Annual Mean Concentration Target for PM2.5 levels in England to be 10 µg/m^3 or below by 2040		
	Environment Act 2021	A Population Exposure Reduction Target for a Reduction in PM2.5 population exposure of 35% compared to 2018 to be achieved by 2040		
Air quality zone compliance	Air Quality Standard Regulations 2010	The Secretary of State [for Environment, Food and Rural Affairs] must ensure that levels of sulphur dioxide, nitrogen dioxide, benzene, carbon monoxide, lead and particulate matter do not exceed the limit values set out in Schedule 2 of The Air Quality Regulations 2010		

Environmental trends

For this goal area, we used one indicator to assess air pollution emissions and two to assess ambient concentrations. All three indicators show improvement in their trends.

We used the Outcome Indicator Framework (OIF) indicator 'emissions for five key air pollutants' as the basis for developing our indicator. Our composite indicator of the UK's emissions for five key air pollutants shows a decline between 2015 and 2020. Emissions of sulphur dioxide show the greatest reduction (48%), followed by nitrogen dioxide (31%). The reduction in PM2.5, non-methane volatile organic compounds and ammonia emissions are more modest (8%, 5% and 1.5%, respectively). No data are available for the period of the Annual Progress Report (APR).

We developed our own indicators for ambient concentrations of air pollutants: 'percentage of monitoring stations above 10 µg/m^3 of PM2.5' and 'air quality zone compliance'.

Our indicator 'air quality zone compliance' quantifies the number of individual instances of non-compliance with all air quality standards[13] across England's 31 air quality zones. We used this measure to provide an assessment of progress in reducing ambient concentrations of the 12 pollutants as defined in the regulations (Table A13). This indicator shows an improvement, with instances of non-compliance declining by 28% over the five years 2016 to 2021. There was a corresponding reduction of 19% during the annual reporting period.

Two pollutants saw significant improvements between 2016 and 2021, in part due to social and economic effects of reduced traffic associated with COVID-19 control measures. The percentage of Automatic Urban and Rural Network stations recording PM2.5 levels above 10 µg/m^3 decreased by 76% across stations in England between 2016 and 2021. While there was a gradual decline from 58% to 43% between 2016 and 2019, the greatest reduction (down to 6% of stations) occurred in 2020, followed by an increase to 12% in 2021. A similar pattern was apparent for nitrogen dioxide. While challenges exist in transitioning, there are continued opportunities in moving towards a transport system that reduces emissions to benefit both local air quality and mitigate climate change.[14]

Beyond compliance with emissions and ambient concentrations at the national scale, important spatial variations in air quality still exist. Poor air quality at local and regional scales persists and is extremely concerning, as it may compound existing health or social inequalities.[15] For example, concentrations of nitrogen dioxide pose a risk at a local level due to the build-up of pollution around major roads, mostly in urban areas.[16] At a national level, in urban areas, background ozone concentrations have gradually increased since 1992 and the long-term objective[17] has been missed in all 31 of England's air quality zones in four of the five years between 2016 and 2021.[18]

Environmental targets

We identified four targets for air pollution. Progress towards the National Emissions Ceiling Regulations 2018 target is off track.

13 Targets, limits and objectives set out in the Air Quality Standards Regulations 2010.

14 Public Health England, *Review of Interventions to Improve Outdoor Air Quality and Public Health: Principal Interventions for Local Authorities*, 2020, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/937341/Principal_interventions_for_local_authorities-air_quality_public_health.pdf.

15 Public Health England, *Health Matters: Air Pollution*, 2018, https://www.gov.uk/government/publications/health-matters-air-pollution/health-matters-air-pollution.

16 Department for Environment, Food and Rural Affairs and Department for Transport, *Air Quality Plan for Nitrogen Dioxide (NO_2) in UK*, 2017, https://www.gov.uk/government/publications/air-quality-plan-for-nitrogen-dioxide-no2-in-uk-2017.

17 A maximum daily eight-hour mean of 120 µg/m^3 within a calendar year as set out in The Air Quality Standards Regulations 2010 (legislation.gov.uk).

18 Department for Environment, Food and Rural Affairs, "Concentrations of Ozone," accessed January 3, 2023, https://www.gov.uk/government/statistics/air-quality-statistics/concentrations-of-ozone.

Emissions for five key air pollutants have declined over the last five years. However, projections under current policies and measures suggest that legally binding commitments for reduced emissions by 2030 will be missed for four of the five.[19] Only emissions of non-methane volatile organic compounds are projected to meet the 2030 target.

Instances of non-compliance with the limit values for seven pollutants set out in the Air Quality Standards Regulations 2010 are driven by nitrogen dioxide. However, compliance with the nitrogen dioxide limit values improved from 29 instances of non-compliance in 2016 to eight in 2021.[20] Overall, we assess progress towards achievement of the six pollutant limit values to be off track. We accept that compliance with individual pollutant levels is variable. We will assess compliance in more detail for all limits, targets and objectives when the UK Air Quality Strategy is published for consultation.

Due to the timescales for delivery and the level of uncertainty in delivery plans, we could not assess progress towards meeting 'an annual mean concentration target for PM2.5 levels in England to be 10 µg/m^3 or below by 2040' or 'a population exposure reduction target for a reduction in PM2.5 population exposure of 35% compared to 2018 to be achieved by 2040'. Government modelling suggests that the targets proposed cannot be achieved without additional action beyond the existing measures.[21]

Climate adaptation

One CCC adaptation priority ('air quality') applies to Clean Air (Figure A1, Table A17), for which the CCC considers there to be a plan of moderate quality, though there has been slow progress in managing risk. Vulnerability to air pollution has continued to increase and, while plans and long-term targets are in place to reduce emissions and ambient concentrations, they do not fully consider the impact of climate change. Temperature increases resulting from climate change are likely to compound some pressures on air quality, with complex implications for human health and the natural environment.[22] [23]

19 Department for Environment, Food and Rural Affairs, *Draft UK National Air Pollution Control Programme*, 2022, https://consult.defra.gov.uk/napcp/consultation-on-the-draft-national-air-pollution-c/supporting_documents/Draft%20NAPCP%20for%20consultation.pdf.

20 Department for Environment, Food and Rural Affairs, "Air Pollution in the UK Reports," accessed January 3, 2023, https://uk-air.defra.gov.uk/library/annualreport/.

21 Department for Environment, Food and Rural Affairs, *Air Quality Targets Detailed Evidence Report*, 2022, https://consult.defra.gov.uk/natural-environment-policy/consultation-on-environmental-targets/supporting_documents/Air%20quality%20targets%20%20Detailed%20Evidence%20report.pdf.

22 Air Quality Expert Group, *Air Quality and Climate Change: A UK Perspective*, 2007, https://uk-air.defra.gov.uk/assets/documents/reports/aqeg/fullreport.pdf.

23 World Meteorological Organization, *WMO Air Quality and Climate Bulletin No. 2*, 2022, https://public.wmo.int/en/our-mandate/focus-areas/environment/air_quality/wmo-air-quality-and-climate-bulletin-no.2.

Clean and Plentiful Water

This goal area seeks to bring the water environment close to its natural state and to ensure water is sustainably managed. This is a broad goal area that includes protection and improvement of a wide range of ecosystems and species, drinking water and human wellbeing. The goal area seeks to protect the quality and resource of surface, ground, fresh and marine waters.

Table 2. Clean and Plentiful Water: trend assessment and progress against targets.

Indicator	Source of Target	Target Description	Progress Against Target	Indicator Trend
State of the water environment	Water Environment (Water Framework Directive) (England and Wales) Regulations 2017	Each body of surface water (other than an artificial or heavily modified water body) to achieve or maintain good ecological status by 2021		
	Environment Act 2021	Reduce nitrogen (N), phosphorus (P) and sediment pollution from agriculture into the water environment by at least 40% by 2038, compared to a 2018 baseline		
	Environment Act 2021	Reduce phosphorus loadings from treated wastewater by 80% by 2038 against a 2020 baseline		
	Environment Act 2021	Halve the length of rivers polluted by harmful metals from abandoned mines by 2038, against a baseline of around 1,500 km		
Condition of bathing waters	Bathing Water Regulations 2013	Ensure that, by the end of the bathing season in 2015, all bathing waters are classified at least as ‘sufficient’		
Serious pollution incidents to water	No relevant targets identified that meet our selection criteria			

Indicator	Source of Target	Target Description	Progress Against Target	Indicator Trend
Achievement of marine 'good environmental status'	Marine Strategy Regulations 2010	Achieve or maintain 'good environmental status' by 31 December 2020		

Environmental trends

For this goal area, we considered four headline indicators, none of which has shown an improvement. Three indicators show little or no recent change, while 'serious pollution incidents to water' has deteriorated.

Our first indicator is based directly on the OIF indicator 'state of the water environment'. We recognise that the use of 'good ecological status' as an indicator for the 'state of the water environment' for freshwater has limitations. While effective at showing an overall picture, there are challenges to defining areas of improvement or deterioration. Only 16% of surface waters attain 'good ecological status', and this did not change between 2015 and 2019. This finding is related to a troubling lack of progress in meeting the objectives of River Basin Management Plans, which have been in place since 2009.

Our second indicator is the OIF 'condition of bathing waters'. Bathing waters are subject to pollution from agricultural runoff, sewage discharges and other sources of contamination. This pollution can impact human health as well as coastal water quality. The condition of bathing waters has shown substantial progress over the medium-term. In 2021, 99% of designated bathing waters were classed as sufficient, good or excellent and 1% were classed as poor. Our assessment shows little or no change in the condition of bathing waters between 2016 and 2021. Because of discrepancies in the data used, and our use of the more recent data, our assessment differs from the OIF determination of improvement, though with both approaches it is evident there has been little or no change since 2018.[24]

Our third indicator is 'serious pollution incidents to water', though we differ from the OIF by considering only serious pollution incidents reported through the Environment Agency Environmental Performance Assessments.[25] Serious incidents increased by 63% between 2017 and 2021. The number of incidents during the annual reporting period increased from 39 to 62, which is a return to numbers seen in 2014. Our assessment contrasts with the OIF indicator, which suggests an improvement. The OIF data quantify incidents where investigations and responses were completed by the Environment Agency. We consider the Environmental Performance Assessments to be a partial but truer reflection of incident rates.

We developed our fourth indicator, 'achievement of marine 'good environmental status''. It quantifies the condition of 15 environmental components that comprehensively cover marine species, habitats and water quality. This indicator has shown little or no change

24 Department for Environment, Food and Rural Affairs, "Indicator: B4 – Condition of Bathing Waters – Outcome Indicator Framework for the 25 Year Environment Plan," accessed December 2, 2022, https://oifdata.defra.gov.uk/2-4-1/.

25 Environment Agency, *Water and Sewerage Companies in England: Environmental Performance Report 2021*, 2022, https://www.gov.uk/government/publications/water-and-sewerage-companies-in-england-environmental-performance-report-2021/water-and-sewerage-companies-in-england-environmental-performance-report-2021.

since 2012. Four of 15 components (27%) reached good status and six of 15 components (40%) show improvement since 2012.[26] It is concerning that none of the four species-related components, namely those relating to seals, cetaceans, birds and fish, is yet to reach 'good environmental status'. The component relating to birds has been declining since 2012.

Environmental targets

Government's progress towards environmental targets for Clean and Plentiful Water falls short in those we assessed. Two targets have deadlines in the past, but the available data do not permit assessment of whether they were met. Our assessments, based on the most recent data and trends, suggest they were unlikely to have been met by the specified date; in these circumstances we characterise progress as significantly off track.

For the target that bodies of surface water should 'achieve or maintain good ecological status by 2021', the latest available data are from 2019. They show that 16% of water bodies had achieved 'good ecological status', but that this had remained similar between 2015 and 2019. More recent data in the updated River Basin Management Plans will allow assessment of whether the 2021 target was met. Government's own analysis of achieving 'good ecological status' in freshwaters suggests that without further interventions there will be a decline in the number of waterbodies classified as having 'good ecological status'.[27] Considering lag times in environmental responses, it is doubtful whether, even with these interventions, 'good ecological status' can be achieved for all water bodies in the near to medium-term. Our assessment at this time is that there is insufficient indication that improvement will have happened at the necessary scale, and we consider progress significantly off track.

The target to 'reduce nitrogen (N), phosphorus (P) and sediment pollution from agriculture into the water environment by at least 40% by 2038, compared to a 2018 baseline' could not be assessed. The status of land management schemes, which are critical for delivering this target, remains uncertain.

We have assessed progress towards the two targets to 'reduce phosphorus loadings from treated wastewater by 80% by 2038 against a 2020 baseline', and 'halve the length of rivers polluted by harmful metals from abandoned mines by 2038, against a baseline of around 1,500 km', as off track. Despite both targets being newly set, there are established planning cycles in place to achieve them. In addition to River Basin Management Plans, delivery of the phosphorus target by the water industry is driven by the Price Review and Asset Management Plan (AMP) cycles used by Ofwat. These are five years in duration (with the current AMP7 running from 2020 to 2025), meaning that longer-term ambitions are more challenging to assess, as investment plans beyond 2025 have yet to be developed. The Coal Authority, which carries responsibility for mines and their discharges, has a 10-year plan to 2032 and outcome-driven objectives for mine water treatment in their business plan.[28]

Progress in relation to the bathing water target has been positive. Government was within 3% of attaining its target that 'by the end of the bathing season in 2015, all bathing waters

26 Centre for Environment, Fisheries and Aquaculture Science, *Summary of Progress towards Good Environmental Status – Marine Online Assessment Tool*, 2018, https://moat.cefas.co.uk/summary-of-progress-towards-good-environmental-status/#.

27 Environment Agency, "River Basin Management Plans: Updated 2022," accessed January 3, 2023, https://www.gov.uk/guidance/river-basin-management-plans-updated-2022.

28 Coal Authority, *Coal Authority Business Plan 2022 to 2025*, 2022, https://www.gov.uk/government/publications/coal-authority-business-plan-2022-to-2025/coal-authority-business-plan-2022-to-2025.

are classified at least as ‘sufficient’. While the target was not met, we consider progress to be only slightly off track due to the small margin remaining, and the level of progress made.

For the target to ‘achieve or maintain ‘good environmental status’’ in the marine environment by 31 December 2020’, the latest available data are from 2018. These data show limited progress from 2012 to 2018. There is insufficient evidence that the necessary improvement had been made by 2020. In the absence of recent data, we consider progress to be significantly off track.

Climate adaptation

Five CCC adaptation priorities apply to the Clean and Plentiful Water goal area (Figure A1, Table A17). In 2021, the CCC deemed that two of the five priorities had high-quality plans in place, though none of the five showed major progress in managing risk.

The CCC adaptation score for ‘freshwater habitats and species’ decreased from five out of nine in 2019 to three out of nine in 2021. This change was due to an increase in the proportion of protected sites assessed as ‘unfavourable (no change or declining condition)’, ‘part destroyed’ or ‘destroyed’. The CCC scored progress in ‘preparing public water supply infrastructure for climate change’ as eight out of nine, as water companies have committed to more ambitious targets to reduce leakage and improve resilience to extreme weather.

Thriving Plants and Wildlife

The abundance and diversity of plants and wildlife, together with wider components of life, comprise the biological diversity that is so critical for sustaining life on earth. Biodiversity is the foundation of healthy ecosystems, which in turn provide essential goods and services for humans. Plants and wildlife also have high intrinsic values for people.

This goal area seeks to restore nature in terrestrial, freshwater and marine environments, so they are richer in plants and wildlife living in healthy, sustainable ecosystems. This goal area is key for the commitment to protect and manage 30% of land and sea for nature by 2030.[29]

Table 3. Thriving Plants and Wildlife: trend assessment and progress against targets.

Indicator	Source of Target	Target Description	Progress Against Target	Indicator Trend
Condition of Sites of Special Scientific Interest	Biodiversity 2020: A strategy for England's wildlife and ecosystem services	By 2020, at least 50% of Sites of Special Scientific Interest (SSSIs) in favourable condition		
Abundance of priority species	Environment Act 2021	Halt the decline in species abundance by 2030		
		Ensure that species abundance in 2042 is greater than in 2022, and at least 10% greater than 2030		
Threat of extinction to UK species	Environment Act 2021	Improve the Red List Index for England for species extinction risk by 2042, compared to 2022 levels		
Condition of offshore Marine Protected Areas	Environment Act 2021	70% of the designated features in the MPA network to be in favourable condition by 2042, with the remainder in recovering condition		
Extent of land-use change	Environment Act 2021	Restore or create in excess of 500,000 hectares of a range of wildlife-rich habitat outside protected sites by 2042, compared to 2022 levels		

29 United Nations Environment Programme, "COP15 Ends with Landmark Biodiversity Agreement," accessed January 3, 2023, http://www.unep.org/news-and-stories/story/cop15-ends-landmark-biodiversity-agreement.

Environmental trends

We used five indicators for this goal area. Of the five indicators, the 'abundance of priority species' has deteriorated, while three have seen little or no change: 'condition of SSSIs', 'threat of extinction to UK species' and 'extent of land-use change'. The 'condition of offshore marine protected areas' could not be assessed.

Our first indicator directly uses OIF indicator 'condition of Sites of Special Scientific Interest (SSSIs) in England, 2003 to 2021'. Only 38% of the area of SSSIs was in favourable condition in 2021. There has been little or no change in the area of SSSIs in favourable condition for a decade. The government has made negligible progress in understanding the condition of SSSIs, as only 53% of sites had condition assessments between 2012 and 2018.[30]

The second OIF indicator we used is 'relative abundance and distribution of priority species in England'. The relative abundance of key priority species represents a good proxy measure for wider trends in species abundance. Between 2013 and 2018, there was a 17% decrease in the abundance of priority species, comprising part of a chronic decline of 82% between 1970 and 2018. While the overall trend in species abundance remains deeply concerning, there is evidence of recovery in some species groups, notably widespread bats, and it is somewhat encouraging that the downward trend in pollinators appears to be stabilising.

The third OIF indicator is 'conservation status of our native species'. In this case, we used data from the Red List index for the UK as a proxy for England, as they are highly correlated.[31] The UK Red List index has shown little or no change in the short-term, or the period of the latest APR. The trend has remained stable since 2000. Change in this index is likely to be slow, not least because of inertia in the Red List categorisation process. The OIF cites the UK Red List index but does not use it, as a new indicator for threat of extinction is in development.[32]

We developed two further indicators. Our fourth indicator is 'condition of offshore Marine Protected Areas' (MPAs). We think this valuable and intend to use it to assess the marine environment and as a complement to the 'achievement of marine 'good environmental status'', used in the Clean and Plentiful Water goal area. However, it was difficult to assess the condition of offshore MPAs, as only 30% of offshore MPAs have accessible condition monitoring survey data.

We developed our fifth indicator, 'extent of land use change' to assess progress with habitat improvements. Land use statistics data released by Government in 2022[33] show an overall increase in land use that could support wildlife-rich habitats. For example, there was an increase in total area of forestry and woodland area (approximately 40,000 hectares) between 2018 and 2022. However, there was a contemporary increase in the area of development and urbanisation of similar magnitude (approximately 32,000 hectares). It is not easy to assess the net gain or rate of change in the extent of wildlife-rich habitats, without understanding the quality of the habitats that are gained and those that are lost.

30 UK Parliament, "Written Questions and Answers – Sites of Special Scientific Interest," accessed January 3, 2023, https://questions-statements.parliament.uk/written-questions/detail/2018-06-19/155250.

31 Natural England, *Outcome Indicator Framework for England's 25 Year Environment Plan: D5 Conservation Status of Our Native Species*, 2022, http://publications.naturalengland.org.uk/publication/6315201438941184.

32 Natural England, *Outcome Indicator Framework for England's 25 Year Environment Plan: D5 Conservation Status of Our Native Species*.

33 Department for Levelling Up, Housing & Communities, "Land Use in England, 2022," accessed January 3, 2023, https://www.gov.uk/government/statistics/land-use-in-england-2022.

Differences in government's methodology in producing land use statistics, relating to how the total land area is defined,[34] led to further uncertainty in assessing the trend, particularly for wildlife-rich coastal habitats.

Environmental targets

Progress towards relevant environmental targets in this goal area has generally been poor. Of the five assessed targets, one has not been met ('by 2020, at least 50% of English SSSIs would be in favourable condition') and progress towards another is significantly off track ('halt the decline in species abundance by 2030'). The status of land management schemes, which are critical for delivering against multiple targets in this goal area, remains uncertain. This affects confidence in meeting multiple targets.

Government did not meet its Biodiversity 2020 target of ensuring at least 50% of SSSIs were in favourable condition. The continued decline in the condition of SSSIs means government is now further from this endpoint, and further still from the target of restoring 75% of terrestrial and freshwater protected sites to favourable condition, as set in the 25 YEP.

With the chronic decline in priority species, progress towards meeting the target to halt the decline in species abundance by 2030 remains a major challenge. Meeting this target will require substantial change in the pace and magnitude of interventions. Against this background, we already consider progress to be significantly off track.

Because their baselines are after our assessment period, we could not assess progress towards the targets 'improve the England-level GB Red List Index for species extinction risk by 2042, compared to 2022 levels', 'restore or create in excess of 500,000 hectares of a range of wildlife-rich habitat outside protected sites by 2042, compared to 2022 levels' ensure that species abundance in 2042 is greater than in 2022, and at least 10% greater than 2030'.

Due to the level of uncertainty in recovery timescales and delivery plans, we have been unable to assess progress towards meeting the target '70% of the designated features in the MPA network to be in favourable condition by 2042, with the remainder in recovering condition'. Limited monitoring of MPAs makes the assessment of progress towards a target based on feature conditions particularly problematic.

Climate adaptation

Four CCC adaptation priorities apply to the Thriving Plants and Wildlife goal area (Table A17). In 2021, the CCC did not consider any areas to have high-quality plans in place, or to have shown significant progress in managing risk.

34 Taken from tab P400b of Department for Levelling Up, Housing & Communities "Land Use in England, 2022" live tables which states that "The land use dataset has been mapped to local authority district 2021 boundaries at the mean high tide mark, the figures for 2017 and 2018 land use were not mapped to the mean high tide mark" https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fassets.publishing.service.gov.uk%2Fgovernment%2Fuploads%2Fsystem%2Fuploads%2Fattachment_data%2Ffile%2F1113459%2FLive_Tables_-_Land_Use_Stock_2022.ods&wdOrigin=BROWSELINK.

The adaptation score for ‘freshwater habitats and species’ declined between 2019 and 2021 (from five to three out of nine). While revisions to River Basin Management Plans consider climate impacts at 2°C and 4°C, long-term trends in the health of surface water bodies indicate persistent decline. ‘Farmland habitats and species’ received the worst possible adaptation score (one out of nine), due to long-term downward trends in species abundance and the fact that agri-environment schemes do not sufficiently consider climate adaptation.

Reduced Risk of Harm from Environmental Hazards

This goal area seeks to reduce the risk of harm to people, the environment and the economy from natural hazards. Environmental hazards such as floods and droughts are well known, but others, such as extreme weather events, are of mounting concern. Here, we consider floods, droughts and wildfires.

Table 4. Reduced Risk of Harm from Environmental Hazards: trend assessment and progress against targets.

Indicator	Source of Target	Target Description	Progress Against Target	Indicator Trend
Properties at high risk of flooding	No relevant targets identified that meet our selection criteria			
Water company security of supply performance	No relevant targets identified that meet our selection criteria			
Number of fires affecting grassland, woodland and crops	No relevant targets identified that meet our selection criteria			

Environmental trends

For this goal area, our three indicators show a mixed picture, with improvement to flood risk to properties, no change in water company security of supply, and an increase in the number of fires affecting grassland, woodland and crops.

The first indicator we used from the OIF, 'disruption or unwanted impacts from flooding or coastal erosion', is in development and has no published data with which to assess a trend, so we sourced data from the Environment Agency. Properties at high risk of flooding are those which have a greater than 3.3% likelihood of flooding annually.[35] There has been encouraging progress in protecting properties at high risk from flooding, with our composite indicator showing an overall improvement (Table A13). There was a net reduction of approximately 71,000 properties at high risk between 2016 and 2021, mainly due to reductions in risk from rivers and the sea. In the annual reporting period, the number of properties at high risk of flooding did not change. There has been little progress with the number of properties at high risk from surface water flooding.[36] Between 2016 and 2021, there was an increase of 2000 properties at high risk, resulting in a total of 326,000. There was no change during the annual reporting period. The National Infrastructure Commission states that without action, climate change and new developments may result in a further 295,000 properties being at high risk in the next 30 years.[37]

35 Environment Agency, *Flood and Coastal Erosion Risk Management Report: 1 April 2020 to 31 March 2021*, 2022, https://www.gov.uk/government/publications/flood-and-coastal-risk-management-national-report/flood-and-coastal-erosion-risk-management-report-1-april-2020-to-31-march-2021.

36 Department for Environment, Food and Rural Affairs, *Surface Water Management: A Government Update*, 2021, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1045764/Suface_water_management_update.pdf.

37 National Infrastructure Commission, *Reducing the Risk of Surface Water Flooding*, 2022, https://nic.org.uk/app/uploads/NIC-Reducing-the-Risk-of-Surface-Water-Flooding-Final-28-Nov-2022.pdf.

Our second indicator 'water company security of supply performance' is a proxy for the ability to cope with drought conditions. Water resource security has changed little between 2016 and 2021, with two water companies having performed significantly below the target set by the security of supply objectives presented in the Environmental Performance Assessments.[38] Risks remain high, with 15% of surface water bodies and 27% of groundwater sources still unsustainably abstracted.[39]

Finally, our third indicator is 'number of fires affecting grassland, woodland and crops'. We use fire service data as a proxy for wildfires which have the potential to cause damage to biodiversity and habitats. Increased temperatures and changes to rainfall patterns caused by climate change are likely to lead to greater risk of wildfires, which can have devastating impact on people, local landscapes, wildlife and air quality.[40] There has been an increase in fires affecting grassland, woodland and crops between 2017 and 2022, although there was a reduction of 7% over the annual reporting period. We note that the Forestry Commission and others have measures to identify and reduce risk,[41] [42] although we were unable to determine whether mitigation plans are effective.

Environmental targets

There are a number of broad commitments relating to this goal area in the 25 YEP. However, we were unable to identify apex targets for this goal area which meet the requirements of our criteria; namely those legally binding and non-legally-binding targets that: (i) relate to the selected headline indicators, (ii) agree with our definition of a target, and (iii) are objectively measurable. Further information is presented in Annex Two.

Climate adaptation

Seven CCC adaptation priorities are relevant to this goal area (Table A17). The CCC assessed just one area, 'river and coastal flood alleviation', to have a high-quality plan in place, but none made high progress in managing risk.

Publication of the National Flood and Coastal Erosion Risk Management Strategy[43] resulted in improvements to many flood-risk scores (surface water, river and coastal) since 2019. However, CCC provided the lowest possible score (one out of nine) in 2019 and 2021, for 'new developments in areas at risk of surface water flooding'. This low score is due to planning system issues with the installation of Sustainable Drainage Systems. Scores for adaptation to coastal erosion remain low (three out of nine).

38 Environment Agency, *Water and Sewerage Companies in England: Environmental Performance Report 2021*.

39 Department for Environment, Food and Rural Affairs, "Indicator: B5 – Water Bodies Achieving Sustainable Abstraction Criteria – Outcome Indicator Framework for the 25 Year Environment Plan," accessed December 2, 2022, https://oifdata.defra.gov.uk/2-5-1/.

40 Natural England, "Public Encouraged to Take Action to Prevent Wildfires," accessed December 2, 2022, https://www.gov.uk/government/news/public-encouraged-to-take-action-to-prevent-wildfires.

41 Forestry Commission, "Assessment of Potential Wildfire Risk Resulting from Planned Deforestation to Open Habitat: Operations Note 40," accessed January 5, 2023, https://www.gov.uk/government/publications/assessment-of-potential-wildfire-risk-resulting-from-planned-deforestation-to-open-habitat-operations-note-40/assessment-of-potential-wildfire-risk-resulting-from-planned-deforestation-to-open-habitat-operations-note-40.

42 Met Office, "UK Fire Severity Index," accessed December 2, 2022, https://www.metoffice.gov.uk/public/weather/fire-severity-index/#?tab=map&fcTime=1668686400&zoom=5&lon=-4.00&lat=55.74.

43 Environment Agency, *National Flood and Coastal Erosion Risk Management Strategy for England*, 2020, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/920944/023_15482_Environment_agency_digitalAW_Strategy.pdf.

Wildfire risk is increasing, although Government is further developing plans to address this. The Home Office has plans in place, while the UK Forestry Standard considers wildfire risks in management planning. Natural England's latest adaptation plan[44] also considers the management of wildfire risks in nature reserves.

44 Natural England, *Natural England's Climate Change Risk Assessment and Adaptation Plan (2021)*, 2021, http://publications.naturalengland.org.uk/publication/4891702237331456.

Enhanced Beauty, Heritage and Engagement with the Natural Environment

This goal area seeks to protect, enhance and safeguard natural heritage for future generations. It aims to support equitable access and connection to the natural environment for all. Engagement with the natural environment is known to benefit health and wellbeing. Issues such as noise pollution can adversely affect health and wellbeing and be a barrier to enjoyment of the natural environment.

Table 5. Enhanced Beauty, Heritage and Engagement with the Natural Environment: trend assessment and progress against targets.

Indicator	Source of Target	Target Description	Progress Against Target	Indicator Trend
Visits to the natural environment	No relevant targets identified that meet our selection criteria			
Exposure to transport noise	No relevant targets identified that meet our selection criteria			

Environmental trends

For this goal area, we used two OIF indicators, 'engagement with the natural environment' shows an improving trend, while for 'exposure to transport noise' there is a significant gap in evidence.

We commend Natural England's Monitor of Engagement with the Natural Environment,[45] and the subsequent People and Nature surveys.[46] There has been progress with the 'visits to the natural environment' indicator since surveys began, and visits continue to increase. Between 2014/2015 and 2018/2019, there was a 9% increase in the number of visits to the natural environment. The surveys also show that 65% of respondents visit natural spaces at least once a week. Protecting the environment was important to 86% of respondents and 94% agreed that it provided health and wellbeing benefits. During the COVID-19 pandemic (March 2020 to April 2021), the Office for National Statistics reported that, along with a rise in outdoor exercise, people's interest in nature surged in England and the use of parks and public green spaces was up on previous years.[47] In 2017 it was estimated that Londoners avoid £950 million per year in health costs due to public green space in the city.[48]

Government estimates that the annual social cost of urban road noise in England is £7 billion to £10 billion, a similar magnitude to the cost of road accidents (£9 billion).[49] Traffic noise is harmful to around 30% of Europeans, with 20% exposed to night-time noise levels

45 Natural England, "Monitor of Engagement with the Natural Environment (MENE)," accessed January 3, 2023, https://www.gov.uk/government/collections/monitor-of-engagement-with-the-natural-environment-survey-purpose-and-results.

46 Natural England, "The People and Nature Survey," accessed January 3, 2023, https://www.gov.uk/government/collections/people-and-nature-survey-for-england.

47 Office for National Statistics, *How Has Lockdown Changed Our Relationship with Nature?*, 2021, https://www.ons.gov.uk/economy/environmentalaccounts/articles/howhaslockdownchangedourrelationshipwithnature/2021-04-26.

48 Vivid Economics Limited, *Natural Capital Account for London*, 2017, https://www.london.gov.uk/sites/default/files/11015viv_natural_capital_account_for_london_v7_full_vis.pdf.

49 Department for Environment, Food and Rural Affairs, "Noise Pollution: Economic Analysis," accessed January 3, 2023, https://www.gov.uk/guidance/noise-pollution-economic-analysis.

which could significantly damage health.[50] For children, noise exposure can also result in lifelong reductions in cognitive performance and impaired wellbeing.[51] These impacts may also combine with those from reduced air quality relating to traffic discussed in the Clean Air goal area.

There is a significant gap in regularly collated and processed data on noise exposure. Data are available from existing mapping, which is already supporting planning authorities, but there is no indicator available at the national level.

Environmental targets

There are a number of commitments relating to this goal area in the 25 YEP. However, we were unable to identify apex targets for this goal area which meet the requirements of our criteria; namely those legally binding and non-legally-binding targets that: (i) relate to the selected headline indicators, (ii) agree with our definition of a target, and (iii) are objectively measurable. Further information is presented in Annex Two.

Climate adaptation

As the CCC developed their climate adaptation priorities independently of our headline indicators, the frameworks were not designed to be complementary and therefore do not fully align. For this goal area, we were not able to identify comparable CCC climate adaptation priorities to allow a suitable assessment of climate adaptation. Further information is presented in Annex Two.

50 World Health Organization, "Noise EURO," accessed January 3, 2023, https://www.who.int/europe/health-topics/noise.

51 World Health Organization, "Noise," accessed December 2, 2022, https://www.who.int/europe/health-topics/noise.

Mitigating and Adapting to Climate Change

This goal area aims to reduce greenhouse gas emissions and increase carbon storage across the UK economy, to deliver Net Zero by 2050. The goal area also considers increasing resilience to the impacts of climate change. However, we assess climate adaptation across the six goal areas where suitable CCC climate adaptation priorities are available. Therefore, we confine our assessment here to climate mitigation.

Table 6. Mitigating and Adapting to Climate Change: trend assessment and progress against targets.

Indicator	Source of Target	Target Description	Progress Against Target	Indicator Trend
Emissions of greenhouse gases from natural resources	Climate Change Act 2008	By 2050 UK net greenhouse gas emissions are zero		
Carbon footprint and consumer buying choices	No relevant targets identified that meet our selection criteria			

Environmental trends

For this goal area, we used OIF indicators 'emissions of greenhouse gases from natural resources' and 'carbon footprint and consumer buying choices'. Both indicators show continued positive trends and reductions in greenhouse gas emissions.

Greenhouse gas emissions from natural resources have fallen in all sectors included in our first indicator. However, over the past five years the rate of decline has slowed. There has been a reduction of 0.39 million tonnes of carbon dioxide equivalent ($MtCO_2e$)[52] per year in net greenhouse gases from natural resources between 2014 and 2019, compared with 2.16 $MtCO_2e$ per year between 1990 and 2013. Progress across sectors is mixed, with the waste industry historically driving the majority of the reductions, although this has stalled in recent years.[53] Progress in agriculture, fluorinated gases[54] and from land use change is limited. Net removals from forestry stocks remain stable, and do not currently outweigh emissions from changes in overall land use alone.

There are further opportunities to reduce emissions. Land management schemes and sustainable soil management can support agriculture in bringing down emissions and ultimately sequestering carbon. The use of innovative, less carbon-intensive insulating

52 A CO_2 equivalent (CO_2e) is a unit of measurement that is used to standardise the climate effects of various greenhouse gases https://www.myclimate.org/information/faq/faq-detail/what-are-co2-equivalents/.

53 Climate Change Committee, *Progress in Reducing Emissions 2021 Report to Parliament*, 2021, https://www.theccc.org.uk/wp-content/uploads/2021/06/Progress-in-reducing-emissions-2021-Report-to-Parliament.pdf.

54 Used primarily as insulating gases in electrical equipment.

gases[55] in electricity transmission and distribution networks can reduce the need for fluorinated gases, and land-use changes towards woodland can help to offset emissions.

Consumption-based greenhouse gas emissions are also decreasing. The reductions in emissions related to goods and services is the primary driver. Direct household emissions show very little change, either historically or more recently. The CCC notes that the deployment of energy efficiency measures and heat pumps to deliver the required emissions reductions requires a change in pace. However, delivery rates continue to stagnate.

Environmental targets

Parliament has set a target that 'by 2050 UK net greenhouse gas emissions are zero'.

The CCC published its latest report on progress in reducing emissions in June 2022. It stated that while the UK Government has a 'solid' strategy in place, important policy gaps remain. The CCC argued forcefully that delivery must have greater emphasis and focus. The CCC's assessment of the policy framework is that there are considerable risks to delivery of the Government's emissions reduction pathway.

Climate adaptation

We assess climate adaptation across the 25 YEP goal areas where relevant CCC climate adaptation priorities exist.

55 SSE, "SSEN Transmission: Another Step Closer to Net Zero," accessed December 2, 2022, https://www.sse.com/news-and-views/2019/10/ssen-transmission-another-step-closer-to-net-zero/.

Using Resources from Nature More Sustainably and Efficiently

Consumption of goods and services currently relies on using and exploiting natural resources, creating pressure on the environment. This goal area seeks to manage resource use to sustainable levels. It considers resource productivity and material consumption broadly, as well as management of resources, such as woodland, water, fish and soil, for important uses, such as farming, drinking water, forestry and fishing.

Table 7. Using Resources from Nature More Sustainably and Efficiently: trend assessment and progress against targets.

Indicator	Source of Target	Target Description	Progress Against Target	Indicator Trend
Per capita drinking water consumption in England	Environment Act 2021	Reduce the use of public water supply in England per head of population by 20% from the 2019/2020 baseline reporting year figures, by the end of the reporting year 2037/2038		
Water bodies that are sustainably abstracted for human use	25 YEP	By 2021 ensure that 90% of surface water and 77% of groundwater have enough water to support environmental standards		
Amount of raw material consumed	No relevant targets identified that meet our selection criteria			
Percentage of woodland that is sustainably managed	Environment Act 2021	Increase in tree canopy and woodland cover from 14.5% to 16.5% by 2050		
Fish and shellfish stocks fished sustainably	Marine Strategy Regulations 2010	By 31 December 2020 populations of all commercially exploited fish and shellfish are within safe biological limits		
Healthy soils	No relevant targets identified that meet our selection criteria			
Resource productivity	No relevant targets identified that meet our selection criteria			

Environmental trends

For this goal area, we considered seven indicators. The trend for drinking water consumption is increasing. Trends for water abstraction, raw material consumption and woodland management show little or no change. While fishing practices are generally

increasingly sustainable, progress is still required. For two headline indicators on 'healthy soils' and 'resource productivity', we could identify no suitable data to assess trends.

The first OIF indicator we used is 'efficient use of water'. Following a decline between 2005 and 2016, per capita consumption increased by 4% between 2016 and 2021 to 145 litres per day, with levels returning to those a decade ago. This level far exceeds Government's target of 110 litres per day, as set out in the National Framework for Water Resources.[56] Per capita water consumption within the annual reporting period increased by 3.6 litres per day. Climate and population change will have a significant impact on this headline indicator.

Our second OIF-based indicator is 'water bodies achieving sustainable abstraction criteria'. Sustainable abstraction has made little progress between 2017 and 2019, with 85% of surface waters and 73% of groundwater classified as sustainably managed in 2019. This represents a 4% increase in surface waters and 1% increase in groundwater over the three years of available data. A lack of recent data limited our assessment in the annual reporting period.

Our third OIF-based indicator is 'raw material consumption'. England's raw material consumption provides a proxy for the sustainability and efficiency of resource use. The exploitation of non-metallic minerals (such as rock and sand) drives variability in this trend, due to sensitivity to economic cycles, particularly in the construction industry. In the long-term between 2001 and 2018, England's raw material consumption peaked in 2004 at 17 tonnes per person and fell to its lowest level of 11 tonnes in 2010. During the period 2013 to 2018, there was little or no change, with consumption in 2013 and 2018 at 12 tonnes per person.

We developed our own indicator for the 'percentage of woodland that is sustainably managed'. Between 2008 and 2016, sustainably managed woodland increased from 48% to 58%. However, this has levelled off over both the short-term (2016 to 2021) and during the annual reporting period when there was little or no change. Sustainable woodland management contributes to multiple significant and well-recognised benefits across the 25 YEP goals, as well as for environmentally sustainable economic growth and tackling climate change. We note the important contribution of the Forestry Commission, the UK Forestry Standard[57] and the UK Woodland Assurance Standard[58] in this area and the planting of 2,255 hectares of new woodland between 2021 and 2022.[59]

For the OIF indicator 'fish and shellfish stocks fished sustainably', between 2014 and 2019 there was a 32% improvement in harvesting marine fish resources sustainably. However, further work is required; in 2019, only 51% of fish stocks were sustainably fished, with the remaining 49% either unsustainably fished (26%) or having no information available (23%).

For the OIF indicator 'healthy soils', the lack of measures against which to assess progress is a major gap. Healthy soils provide significant supporting functions across many of the 25 YEP goals. We welcome Government's initial progress in beginning to develop mechanisms for assessing soil health and developing indicators.

56 Environment Agency, *Meeting Our Future Water Needs: A National Framework for Water Resources*, 2020, https://www.gov.uk/government/publications/meeting-our-future-water-needs-a-national-framework-for-water-resources.

57 Forestry Commission, *The UK Forestry Standard*, 2017, https://www.gov.uk/government/publications/the-uk-forestry-standard.

58 UKWAS, "UK Woodland Assurance Standard," accessed January 3, 2023, https://ukwas.org.uk/.

59 Forestry Commission, *Annual Report and Accounts 2021-22*, 2022, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1091469/1265-HH-E02755677_-_20220627_FC_AR_A_2021-22_ARA_FINAL_signed_accessible.pdf.

For our headline indicator 'resource productivity', we were unable to identify suitable data to undertake a trend assessment. This represents a further major gap. We noted elsewhere[60] that measurement of resource productivity, to ensure the continued development of the circular economy, requires further progress. Significant knowledge gaps remain around consumption, and we welcome Government's progress in developing indicators, particularly those related to overseas impacts.[61]

Environmental targets

Water consumption is moving in the wrong direction, with consumption increasing rather than decreasing. Progress towards the target to 'reduce the use of public water supply in England per head of population by 20% from the 2019/2020 baseline, by the end of the reporting year 2037/2038' is significantly off track. For example, Water Resources East[62] estimates that in the East of England, water demand will increase by 14% between 2025 and 2050. Plans like those developed by the five regional water resources planning groups and the water companies are key to managing demand, supply and environmental needs effectively.

Data from 2021 are not yet available to assess whether the sustainable water abstraction target was met. The latest data from 2019 show that 85% of surface water bodies and 73% of groundwater bodies were sustainably abstracted, compared to targets of 90% and 77% respectively. Progress during the recent period (2017 to 2019) was limited, although a small increase can be seen. As Government was close to achieving the target and limited progress was being made, we have assessed progress as slightly off track.

We could not assess the current prospects of achieving the target to 'increase tree canopy and woodland cover from 14.5% of land area to 16.5% by 2050' due to the level of uncertainty. There is significant uncertainty in assessing delivery against the woodland creation target. We highlight the necessary pace, noting that the delivery rate in 2021 was less than a third of the pre-existing planting target of 7,000 ha per year by May 2024.[63]

The target that 'populations of all commercially exploited fish and shellfish are within safe biological limits' was due by 31 December 2020. The sustainable management of fish stocks has shown progress. The latest available data for the target are from 2019. However, we consider that progress during the period 2014 to 2019, and the gap between the target and current sustainable fishing levels, mean the target is unlikely to have been met.

We did not include Government's 25 YEP commitment to sustainably manage all soils by 2030 as the target is not adequately defined and objectively measurable. Without a developed indicator on soil condition, or definition of what sustainable management entails, it is not possible to provide an assessment. However, we consider it unrealistic to achieve the sustainable management of soils by 2030, given the scale and scope of the challenge, the lack of measures, and the short timeframe.

60 Office for Environmental Protection, *OEP Response to Consultation on Environmental Targets*, 2022, https://www.theoep.org.uk/report/oep-response-consultation-environmental-targets.

61 Joint Nature Conservation Committee, "A4. Global Biodiversity Impacts of UK Economic Activity/Sustainable Consumption," accessed December 2, 2022, https://jncc.gov.uk/our-work/ukbi-a4-global-biodiversity-impact/.

62 Water Resources East, *Draft Regional Water Resources Plan for Eastern England*, 2022, https://wre.org.uk/wp-content/uploads/2022/11/WRE-draft-Regional-Plan-Executive-Summary.pdf.

63 House of Commons Environment, Food and Rural Affairs Committee, *Tree Planting- Third Report of Session 2021–22*, 2022, https://committees.parliament.uk/publications/9364/documents/160849/default/.

Climate adaptation

Seven CCC adaptation priorities are relevant to this goal area (Figure A1, Table A17). The CCC determined that high-quality plans were in place for two adaptation priorities; medium-quality plans were in place for four priorities and one priority had a low-quality plan.[64] None of the adaptation priorities were determined to have made high progress in managing climate risks.

'Agricultural productivity' exhibited the lowest possible score (one out of nine) in 2019 and 2021, as there is no strategy in place to ensure that the sector can remain productive as the climate changes.

Adaptation in relation to 'water demand in the built environment' scored eight out of nine in 2019 and 2021. This was due to high-quality plans (for example, targets being set for personal water consumption and metering), although projections of water availability suggest that current measures may not be sufficient to keep the risk level constant.

64 Climate Change Committee, *Progress in Adapting to Climate Change 2021 Report to Parliament*.

Minimising Waste

This goal area seeks to minimise waste, re-use materials as much as possible and manage materials at the end of their life to minimise impact on the environment. This goal area has strong synergies with the goal area of Using Resources from Nature More Sustainably and Efficiently.

Table 8. Minimising Waste: trend assessment and progress against targets.

Indicator	Source of Target	Target Description	Progress Against Target	Indicator Trend
Residual waste	Environment Act 2021	Reduce residual waste (excluding major mineral wastes) kg per capita by 50% by 2042 from 2019 levels		
Number of fly-tipping incidents	No relevant targets identified that meet our selection criteria			

Environmental trends

For this goal area, we used two OIF indicators: 'residual waste arising by type and sector' and 'waste crime'. Performance against both headline indicators in this goal area has deteriorated and overall progress regarding waste has stalled.

There was a 13% increase in the amount of residual waste generated (from 26 million tonnes to 29 million tonnes) between 2014 and 2019. Residual waste is managed through incineration or landfill. By assessing the underlying data, we can see a clear trend towards more incineration, while reduction in waste sent to landfill and recycling rates are stalling.

Landfill is at the bottom of the waste hierarchy.[65] The waste hierarchy ranks management options according to what is best for the environment. It gives top priority to preventing waste. The hierarchy gives priority to preparing waste for re-use, then recycling, then recovery (for example, incineration with energy recovery), and last of all disposal (for example landfill).[66] While modern landfills are well regulated, they represent long-term management and economic burdens, sources of methane emissions (particularly at low volumes where methane capture is not economic), and are potential sources of land and water contamination.

The increase in residual waste accompanies a stagnation in recycling rates.[67] Effective application of the waste hierarchy should result in more recycling and less disposal. There should be a reduction in landfill and incineration as waste moves up the hierarchy for recycling and re-use.[68] Government has not realised its aim to move up the waste hierarchy.

65 Department for Environment, Food and Rural Affairs and Environment Agency, *Resources and Waste Strategy for England*, 2018, https://www.gov.uk/government/publications/resources-and-waste-strategy-for-england.

66 Department for Environment, Food and Rural Affairs, *Guidance on Applying the Waste Hierarchy*, 2011, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/69403/pb13530-waste-hierarchy-guidance.pdf.

67 Department for Environment, Food and Rural Affairs, "Indicator: J3 – Municipal Waste Recycling Rates – Outcome Indicator Framework for the 25 Year Environment Plan," accessed December 2, 2022, https://oifdata.defra.gov.uk/9-3-1/.

68 Department for Environment, Food and Rural Affairs and Environment Agency, *Resources and Waste Strategy for England*.

Waste crime is serious and can cause significant harm to health and the environment.[69] Government estimates that 18% of all waste is managed illegally, costing the economy approximately £1 billion per year.[70] The number of fly-tipping incidents increased by 20% between 2016 and 2021.

Environmental targets

While the deteriorating trend is concerning, uncertainty related to delivery of the target to 'reduce residual waste (excluding major mineral wastes) kg per capita by 50% by 2042 from 2019 levels', means that we could not assess progress. However, in its consultation on environmental targets, Government stated that the residual waste target set under the Environment Act 2021 will require significant additional measures. Delivery and effective implementation of a revised resources and waste strategy (expected in 2023) offers a significant opportunity to reverse present performance and implement effective long-term delivery pathways.

We could not identify a target for fly-tipping which met our selection criteria. Levels of waste crime are recorded by the Environment Agency and other enforcement agencies, with intervention centred on prevention and deterrence.[71] The number of waste sites classified by the Environment Agency as 'persistent poor performers' fell from 203 to 113 between 2015 and 2020, although non-compliance remains high in comparison to the rest of the industrial sector.[72]

Climate adaptation

As the CCC developed its climate adaptation priorities independently of our headline indicators, the frameworks have not been designed to be complementary and therefore do not fully align. In the case of this goal area, we were unable to identify comparable CCC adaptation priorities to allow a suitable assessment of climate adaptation. Further information is presented in Annex Two.

69 Environment Agency and Sir James Bevan, "Crackdown on Waste Crime: Time to Stop Trashing Our Future," accessed December 2, 2022, https://www.gov.uk/government/speeches/crackdown-on-waste-crime-time-to-stop-trashing-our-future.

70 House of Commons Library, *Criminality within and Regulation of the Waste Industry*, 2022, https://researchbriefings.files.parliament.uk/documents/CDP-2022-0023/CDP-2022-0023.pdf.

71 Environment Agency, *National Waste Crime Survey Report 2021 – Findings and Analysis*, 2021, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1023187/National_waste_crime_survey_report_2021_-_report.pdf.

72 Environment Agency, *Regulating for People, the Environment and Growth, 2020*, 2021, https://www.gov.uk/government/publications/regulating-for-people-the-environment-and-growth-2020/regulating-for-people-the-environment-and-growth-2020.

Managing Exposure to Chemicals and Pesticides

Chemicals and mixtures of chemicals can be harmful to human health and the environment if not carefully controlled. Some chemicals are banned from use due to their inherent toxicity. This goal area seeks to ensure the safe use and management of chemicals. One area we focus on is persistent organic compounds which are both toxic and remain in the environment and food-chains for extended periods of time.

Table 9. Managing Exposure to Chemicals and Pesticides: trend assessment and progress against targets.

Indicator	Source of Target	Target Description	Progress Against Target	Indicator Trend
Emissions of mercury and persistent organic pollutants to the environment	No relevant targets identified that meet our selection criteria			
Hazardous waste disposal	No relevant targets identified that meet our selection criteria			

Environmental trends

For this goal area, we use the OIF indicator 'emissions of mercury and persistent organic pollutants to the environment'. We developed our own indicator 'hazardous waste disposal' as a proxy for the amount of hazardous chemicals generated in the economy. While emissions of persistent organic pollutants are decreasing, the amount of hazardous waste generated is increasing.

Persistent organic pollutants are toxic chemicals that do not easily degrade, can travel through the environment, and can accumulate and cause health impacts in humans and wildlife. Our composite indicator shows that emissions to air, land and water have reduced by 4% between 2014 and 2019.

Of the seven persistent organic pollutants we assessed, emissions of five have reduced (Table A13).[73] However, four of these are beginning to stabilise with only pentachlorophenol exhibiting a continued long-term decline. Polychlorinated naphthalenes and hexachlorobenzene emissions increased but remain significantly below historic levels.[74]

There is currently limited monitoring of chemicals, including levels of exposure and impacts on wildlife across the terrestrial, marine and freshwater environments. Some monitoring data are available, but only for a limited number of substances and species. We welcome the experimental OIF indicator 'exposure and adverse effects of chemicals on wildlife in the environment', though this requires further development.

We consider hazardous waste to be a good indicator of the current volume of hazardous chemicals in the economy. It is a measure of the potential existing environmental pressures

73 Dioxins and furans; pentachlorophenol, polychlorinated biphenyl; dioxin-like polychlorinated biphenyl and pentachlorobenzene.

74 National Atmospheric Emissions Inventory, "Pollutant Information: Hexachlorobenzene," accessed December 2, 2022, https://naei.beis.gov.uk/overview/pollutants?pollutant_id=49.

created through release to the environment and disposal. In the short term (2016 to 2020), hazardous waste disposal increased by 460,000 tonnes to an annual total of 5.4 million tonnes, representing a 9% increase. During this period, however, disposal rates peaked at 6 million tonnes in 2019 before falling by 600,000 tonnes to 2020 levels.

Environmental targets

We have not assessed any targets in this goal area but note that the Stockholm Convention bans persistent organic pollutants, while the 25 YEP requires a substantial increase in the destruction of persistent organic chemicals by 2030 to minimise their release into the environment. At present, the trends available for a limited number of persistent organic pollutants suggest that this is unlikely to be the case.

Climate adaptation

As the CCC developed its climate adaptation priorities independently of our headline indicators, the frameworks have not been designed to be complementary and therefore do not fully align. In the case of this goal area, we were unable to identify comparable CCC adaptation priorities to allow a suitable assessment of climate adaptation. Further information is presented in Annex Two.

Enhanced Biosecurity

Native pests and diseases, those introduced from outside Great Britain, and other invasive non-native species present severe challenges to native wildlife and ecosystems, and to farming, forestry and other sectors of the economy. Increasingly globalised trade and climate change are likely to increase the risks associated with such introductions and increase the importance of biosecurity to prevent them. This goal area seeks to enhance biosecurity and tackle invasive non-native species, while increasing the resilience of the environment to novel and introduced hazards.

Table 10. Enhanced Biosecurity: trend assessment and progress against targets.

Indicator	Source of Target	Target Description	Progress Against Target	Indicator Trend
Number of invasive non-native species becoming established	United Nations Strategic Plan for Biodiversity 2011 to 2020	By 2020, invasive alien species and pathways are identified and prioritised, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment		
Number of additional tree pests and diseases becoming established	No relevant targets identified that meet our selection criteria			

Environmental trends

For this goal area, we used OIF indicators 'abatement of the number of invasive non-native species entering and establishing against a baseline' and 'distribution of invasive non-native species and plant pests and diseases'. We simplify the indicator names here.

The number of invasive non-native species (INNS) becoming established in Great Britain continued to increase across freshwater, marine and terrestrial habitats, maintaining a long-term trend from the 1960s. Data from the Joint Nature Conservation Committee[75] show that establishment continues to increase with 22% of INNS reaching more than 50% extent across the country. In the marine environment between 2000 and 2009, five INNS reached 50% spatial extent, and by 2020 there were 13. In the terrestrial environment an additional four species reached 50% spatial extent in the same period, resulting in a total of 30 species by 2020.

While numbers of established tree pests and diseases have shown little or no change recently, their prevalence is concerning. One of the four tree pests and diseases which have become established (between 2012 and 2022) is elm zigzag sawfly *Aproceros leucopoda*.

75 Joint Nature Conservation Committee, "B6. Pressure from Invasive Species," accessed December 2, 2022, https://jncc.gov.uk/our-work/ukbi-b6-invasive-species/.

The elm zigzag sawfly has continued to spread across the south-east of England and East Midlands and is expected to continue spreading across the country.[76] It impacts a species that has yet to recover from the introduction of Dutch elm disease in the 1920s, with most mature English elms having died by the 1980s.[77] The defoliation caused by the sawfly can be detrimental to both the trees' health and other foliage-feeding species that depend on elm trees,[78] further accelerating biodiversity loss.

Environmental targets

The United Kingdom has an Aichi Biodiversity target that 'by 2020, invasive alien species and pathways are identified and prioritised, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment'.[79] The UK Government's assessment, in its submission to the Convention on Biological Diversity in 2019,[80] stated that progress had been made towards the target but at an insufficient rate. Given the lag times in responding to INNS and the scale of the issue, we do not consider it likely this target was met.

There has been progress with tackling some INNS and we note successes such as the Great Britain Ruddy Duck Eradication Scheme. This began in 2005 and is almost complete, with the population reduced from 4,400 to 20–25 in 2019.[81] We also welcome Government's independent review[82] of the Great Britain INNS Strategy and the forthcoming refreshed strategy.

Climate adaptation

Three CCC climate adaptation priorities are relevant to the Enhanced Biosecurity goal area (Figure A1, Table A17). None is considered by the CCC to have a high-quality plan in place. None has seen significant progress in managing risk.

The adaptation scores for this goal area are low, as there is no comprehensive plan or coordinated surveillance in place on biosecurity to monitor the impacts of pests, diseases and INNS on agricultural productivity. The forestry sector is better adapted (scoring five out of nine) and has developed outcome-based actions, but there are no time-bound targets.

76 Forestry Commission, *Forestry Commission Key Performance Indicators*, 2022, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1091565/Forestry-Commission-Key-Performance-Indicators-Report-2021-22-.pdf.

77 Forest Research, "Dutch Elm Disease: Central and Southern Britain.," accessed January 3, 2023, https://www.forestresearch.gov.uk/tools-and-resources/fthr/pest-and-disease-resources/dutch-elm-disease-ophiostoma-novo-ulmi/dutch-elm-disease-central-and-southern-britain/.

78 Forest Research, "Elm Zigzag Sawfly (*Aproceros leucopoda*)," accessed January 3, 2023, https://www.forestresearch.gov.uk/tools-and-resources/fthr/pest-and-disease-resources/elm-zigzag-sawfly-aproceros-leucopoda/.

79 Convention on Biological Diversity, "Strategic Plan for Biodiversity 2011-2020, Including Aichi Biodiversity Targets," accessed January 3, 2023, https://www.cbd.int/sp/.

80 Joint Nature Conservation Committee, *Sixth National Report to the United Nations Convention on Biological Diversity: United Kingdom of Great Britain and Northern Ireland*, 2019, https://data.jncc.gov.uk/data/527ff89f-5f6b-4e06-bde6-b823e0ddcb9a/UK-CBD-6NR-v2-web.pdf.

81 Joint Nature Conservation Committee, *Sixth National Report to the United Nations Convention on Biological Diversity: United Kingdom of Great Britain and Northern Ireland*.

82 Department for Environment, Food and Rural Affairs, *The Great Britain Invasive Non-Native Species Strategy*, 2015, https://www.gov.uk/government/publications/the-great-britain-invasive-non-native-species-strategy.

Chapter 3: Assessing Government's environmental stewardship

Assessing Government's environmental stewardship

In this chapter, we ask why Government plans have not all worked as they should and what could now be done better. The 25 Year Environment Plan (25 YEP) lacked essential foundations. Government has undoubtedly faced exceptional challenges in recent years and these have exacerbated a lack of coherence in environmental strategy and policy.

A revised Environmental Improvement Plan (EIP) will be published in January 2023. This provides the opportunity of a fresh start. We set out the attributes of an effective new EIP, and detail the importance of understanding, ambitious vision, clear and ambitious targets, coherent strategy and policy, effective governance and informative monitoring and evaluation.

Above all, the EIP must be implemented immediately and with commitment and pace if it is to bring about significant improvement to the natural environment.

Overall assessment

Government is due to publish its review and refresh of the EIP at the end of January 2023. The revised EIP must set out how government intends to improve the natural environment significantly, and how it intends to meet its targets. This means setting out the measures needed, doing so in sufficient detail and with supporting evidence, to provide assurance to Parliament and others.

We have assessed the government's environmental stewardship, to understand the barriers to improved performance, to identify the attributes of an effective new EIP, and to support its successful implementation.

In making our assessment we have applied the Building Blocks approach that we developed to structure our analysis in last year's *Taking Stock* report.[83]

Our six Building Blocks are: Understanding environmental states, drivers and pressures; Creating a vision; Setting targets; Coherent strategy and policy; Governance; and Monitoring, evaluation and learning.

Building Block 1 is understanding the relationships between environmental states, drivers and pressures. In developing the 25 YEP, Government acknowledged it had limited understanding of environmental drivers and pressures. It committed to completing an updated, comprehensive state of the environment assessment. There has been little progress since. Better understanding is needed to diagnose the cause of adverse environmental trends, develop effective and timely policy responses, and prioritise areas for enhanced monitoring and research. Greater understanding of the drivers and pressures that undermine species recovery is a key priority.

Building Block 2 is creating a long-term vision in relation to the environment. The 25 YEP vision "to be the first generation to leave the natural environment of England in a better state" is suitably ambitious. Unfortunately, there is a lack of clarity around what the realisation of this vision means for different parts of government. There also appears to be

83 Office for Environmental Protection, *Taking Stock: Protecting, Restoring and Improving the Environment in England*.

little commitment to the 25 YEP vision in the strategies, plans and targets led by Defra, let alone those of wider government departments.

Building Block 3 is setting targets. Long-term targets have recently been set under the Environment Act 2021 (the Act). It is good to see that the species abundance targets now include provision for some net nature recovery by 2042. There are instances where we would have liked to have seen more movement to strengthen targets, such as on air quality. Important gaps remain. Suitably ambitious interim targets are now needed to provide the pathways to reach long-term targets. There must also be clarity in how the Act's targets work alongside wider, existing commitments.

Building Block 4 is coherent strategy and policy. The 25 YEP and Defra's Outcome Delivery Plan (ODP) are the most prominent overarching plans to organise policy activity on protecting and improving the natural environment. Unfortunately, there is limited alignment between the two plans. The stated goals and outcomes broadly overlap, but the specific targets and measures of success are inconsistent, and they present different information on their delivery. The same issues with coherence are apparent at goal-level. We reviewed key strategies and policies for Clean Air and Thriving Plants and Wildlife, identifying an abundance of activities with diverse priorities and stakeholders. These are often presented without context or explanation of how policy measures combine, their relative importance, or how they will deliver the 25 YEP goals.

Building Block 5 is governance and is closely related to the policy context. The governance arrangements associated with delivering the 25 YEP are complex and unclear. There are senior fora for providing accountability and strategic direction on 25 YEP delivery not just within Defra but across government. There is also a plethora of boards for guiding implementation and coordination of partners on the ground. However, evidence of their impact and functions is limited. Simpler arrangements, presented in a more easily understood and standardised way, would support decision making, including around resourcing and responsibilities among delivery partners and in key sectors.

Finally, Building Block 6 relates to activities to monitor, evaluate and learn from efforts to improve the environment. The 25 YEP lacked a purpose-driven monitoring, evaluation, and learning framework. The Outcome Indicator Framework (OIF) is the core environmental monitoring product for assessing progress across the EIP. The Annual Progress Report (APR), meanwhile, assesses progress in policy development and implementation. Both have their strengths and weaknesses. The lack of integration between these two products makes it difficult to assess progress and generate timely insights to help improve delivery. An evaluation framework would help to draw together, and integrate, the environmental monitoring and policy evaluation across the EIP.

A systematic approach to implementing the new EIP would help to address many of the issues identified in our Building Block analysis, and bring greater coherence to government's environmental stewardship. In our view, the overall EIP and each of its environmental goal areas must have its own delivery plan, all adopting a standardised, accessible approach. These should demonstrate government's understanding of drivers and pressures, clarify priority long-term outcomes and targets, set suitably ambitious interim targets, identify the core policies and activities for their achievement, and clarify who is accountable for securing their successful delivery, the resources allocated, and how decisions are made.

Once delivery plans are set out, Government should design a purpose-driven monitoring, evaluation, and learning framework, which is oriented around the core elements of each plan. Government should then also assess, using evidence, the likelihood of achieving targets through predicting the combined contribution of specified policies and activities, and set out how this is assessed and how evidence feeds back into future activities.

An example delivery plan for Clean Air

We illustrate a delivery plan in an area of good practice, the 25 YEP goal area for Clean Air (Figure 5). Despite major air pollution challenges, there are positive trends in this area, as we have observed in Chapter Two. There is also more coherent information available on the targets, policies, and implementation plans which drive improvement, with the draft National Air Pollution Control Programme consultation[84] providing an excellent overview.

We provide this to show a minimal outline of a delivery plan, which defines the core components and brings these together into a coherent whole. It is, however, broad and incomplete. For example, it does not convey the scale of pressures, or their sources. It also does not detail the contribution of policies towards targets or their local delivery plans, nor does it specify how decisions are made.

Setting out this kind of information at a goal level is a useful starting point for improving coherence, and can enable the design of purpose-driven monitoring, evaluation, and learning frameworks, and a holistic assessment of target achievability, based upon all key policies that contribute towards their delivery.

84 Department for Environment, Food and Rural Affairs, *Draft UK National Air Pollution Control Programme*.

Key Impacts
Human Health Air pollution can have a significant impact on human health. The World Health Organization concluded that long-term exposure reduces life expectancy by increasing the incidence of lung, heart and circulatory conditions. In the UK, this is equivalent to 29,000 to 43,000 deaths every year
Environmental Health Air pollution can directly and indirectly damage the environment by slowing growth, damaging leaves, increasing nutrient concentrations (eutrophication) and causing acidification in soils and waters. Some air pollutants are also greenhouse gases, which directly contribute to climate change

Core Strategies and plans
25 Year Environment Plan (2018) Lead Department(s): Defra
Clean Air Strategy (2019) Lead Department(s): Defra Supporting: DLUHC, DfT, DHSC, HMT, BEIS
Air Quality Strategy for England, Scotland, Wales and Northern Ireland (2011) Lead Department(s): Defra Supporting: Scottish Executive, Welsh Assembly, DAERA
Air Quality Plan for NO_2 in the UK (2017) Lead Department(s): Defra, DfT
National Air Pollution Control Programme (2019/2022 draft) Lead Department(s): Defra Supporting: Welsh Gov, Scottish Gov, DAERA

	Core Policies	How they will be implemented	Delivery authorities and their role
DOMESTIC	**Smoke Control Areas (SCAs)** Positive: PM2.5, SO_2, smoke No timeline	Smoke control areas are typically located within densely populated urban areas. Within these areas there are restrictions on smoke emitted from the chimney of any building, for example from domestic solid fuel burning, including domestic heating from wood burners, and commercial cooking Local authorities are responsible for monitoring and enforcing these restrictions and can issue civil financial penalties or prosecute under statutory nuisance	LAs- implementation, regulatory, monitoring/ enforcement
	Domestic solid fuel standards Positive: NMVOCs, PM2.5 Negative: NOx, SO_2 Start: 2022-2030, Finish: beyond 2030	The sale of the most polluting fuels used in domestic burning is restricted and will be phased out by 2023. Restricted fuels currently include manufactured solid fuels, wet wood and bituminous/traditional house coal. Restrictions could also be expanded to commercial properties, and Government will keep fuel restrictions under review Local Authorities are responsible for enforcing the certification schemes. Local Authorities inspect goods and premises, review deliveries within SCAs, assess fuel storage and can issue fines	Defra, DAERA, LAs – regulatory/enforcement
	Domestic stove standards Positive: NMVOCs, PM2.5 Negative: NOx Start: 2022-2030, Finish: beyond 2030	Only Ecodesign compliant stoves are now allowed to enter the market across Europe. Ecodesign stoves are put through independent testing to ensure they meet the new guidelines for emissions and efficiency. The results of the testing are checked by HETAS, after which they are added to their list of approved stove models	Defra, DAERA, LAs – regulatory/enforcement
	Communications Campaign on Domestic Burning Positive: NOx, SO_2, NMVOC, PM2.5 Start: 2022-2030, Finish: beyond 2030	A dedicated communications campaign ('Burn Better') was launched in 2020 in partnership with HETAS and the Solid Fuel Association. The campaign aims to educate people of the health risks associated with burning, and to increase public awareness and change behaviours towards adopting cleaner practices for domestic heating. Government is currently developing a new communications campaign	Defra- education
INDUSTRY	**Best Available Techniques (BATs)** Positive: NOx, SO_2, NMVOCs, PM2.5, NH_3 No timeline	Industry and regulators work collaboratively to raise standards and reduce emissions using Best Available Techniques (BATs). They outline abatement technologies, operating conditions and emissions limits across sectors. BATs are outlined in reference documents for specific industries, published by the European Commission. Environmental permits granted by the Environment Agency show which BATs must be followed	Defra, DAERA, EA, NIEA- regulatory/enforcement, monitoring
TRANSPORT	**Vehicle emissions standards** Positive: NOx, SO_2, NMVOCs, PM2.5, NH_3 Start: 2022-2030, Finish: beyond 2030	New car models have to meet exhaust pollution limits, known as the Euro emissions standards, before they can be put on sale. These standards are also used to determine if vehicles are required to pay charges for Clean Air Zones The European Commission set the vehicle emission standards and producers must undergo vehicle emission tests upon introducing new vehicles to market	DfT, BEIS, LAs – regulatory/enforcement, implementation, education
	Clean Air Zones Positive: NOx, SO_2, NMVOCs, NH_3 and PM2.5 Timeline variable	Clean Air Zones (CAZ) are operating in 5 areas across the UK and further zones are expected to be introduced. Drivers must pay a fee if they enter a Clean Air Zone and their vehicle does not meet the set emissions standards Clean air zones have been introduced with a specific focus on tackling NO_2 concentrations in areas that are breaching legal limits, but clean air zones will also help to reduce public exposure to other pollutants such as particulate matter. Government has published guidance for local authorities, who designate Clean Air Zones. Grants have been made available to implement these measures in the past (for example £883 million through Government's NO_2 plan)	LAs- implementation, regulatory, monitoring/ enforcement
AGRICULTURE	**Farming Grants and Agri-Environment Schemes** Positive: NH_3 Timeline variable	Grants and subsidies are in place to encourage farmers to adopt techniques and technologies to reduce NH_3 emissions across a range of farming practices. These measures include slurry covers, tree shelter belts and air scrubbers Key agri-environment schemes that currently support NH_3 reduction include: Farming Ammonia Reduction Grant, Countryside Stewardship, Environmental Stewardship, Countryside Productivity, and the Farm Equipment and Technology Fund. The Rural Payments Agency administer the grants and subsidies, whilst Natural England provide an advisory role with landowners to help promote uptake	Defra, RPA, NE, DAERA- implementation, monitoring
	Voluntary Farming Initiatives Positive: NH_3 Start: 2023, Finish: ?	Guidance, codes or certification schemes which encourage farmers to voluntarily adopt cleaner practices. These include: the Code of Good Agricultural Practise (COGAP) for reducing NH_3 emissions, and industry-led action to reduce NH_3 emissions from fertilisers containing urea, such as free training, and proposed mandatory standards within the Red Tractor assurance scheme	Defra, Red Tractor, EA- implementation, monitoring
CROSS-CUTTING	**Air Quality Management Areas (AQMA)** Positive: NOx, PM10, SO_2 No timeline	Air Quality Management Areas are designated by local authorities in areas where ambient air pollutant concentration limits are exceeded. Local authorities are required to develop an action plan to identify key emission sources (for example road transport, industry, domestic) and develop proposed measures for tackling air pollution. Measures may include congestion charging, traffic management, planning, financial incentives and public transport Grants are available through Defra's Air Quality Grant Scheme, where local authorities with multiple Air Quality Management Areas are prioritised for projects designed to reduce exceedances in concentration limits. Government published guidance on local air quality management in 2022	LAs- implementation, monitoring, education
	Transition to Net Zero (power, industry, residential) Positive: NOx, SO_2, NMVOCs, PM2.5, NH_3 Start: 2022-2030, Finish: beyond 2030	Many decarbonisation policies introduced to meet Net Zero by 2050 have co-benefits for Clean Air. For example, the reduction of petrol and diesel cars towards green alternatives and the shift away from fossil fuels in transport, heat and power generation. However, many sources of particulate emissions will remain including from tyre, brake, rail and road wear. Some measures may also exacerbate sources of air pollution for example NH_3 from anaerobic digestion, and NOx and PM2.5 from hydrogen and biomass combustion respectively	Cross-Government, LAs- implementation, monitoring, regulatory/ enforcement

Interim target
25 YEP Sub Goal End the sale of new conventional petrol and diesel cars and vans by 2030
Clean Air Strategy Phase out diesel-only trains by 2040
Clean Air Strategy Phasing out power production from unabated coal by 2024

Apex targets
National Emissions Ceilings Regulations 2018 Five key air pollutants: % emissions reduction relative to 2005 baseline from 2030
Air Quality Standards Regulations 2010 Limit, target and long-term objective values for 13 pollutants
Environment Act 2021 Targets (s1/2) PM2.5 concentrations target. PM2.5 population exposure reduction target

Pollutants:
PM - particulate matter; NH_3 - ammonia; NMVOCs - non-methane volatile organic compounds; NOx - oxides of nitrogen; NO_2 - nitrogen dioxide; SO_2 - sulphur dioxide.

Organisations:
BEIS- Department for Business, Energy and Industrial Strategy; DAERA - Department of Agriculture, Environment and Rural Affairs; Defra - Department for Environment, Food and Rural Affairs; DfT - Department for Transport; DHSC - Department of Health and Social Care; HMT - HM Treasury; DLUHC - Department for Levelling Up, Housing and Communities; NIEA - Northern Ireland Environment Agency LAs - Local Authorities; EA - Environment Agency; RPA - Rural Payments Agency

Figure 5. Illustrative delivery plan for the Clean Air goal area of the 25 Year Environment Plan.

Assessment by Building Blocks

Building Block 1: Understanding environmental states, drivers and pressures

In our *Taking Stock* report we highlighted the importance of government gaining a comprehensive understanding of the drivers of change and pressures on the environment.[85] This year we have analysed in greater depth the evidence available for understanding environmental states, drivers and pressures, and identified key knowledge gaps.

The terms 'drivers' and 'pressures' are sometimes used interchangeably. By drivers, we mean social and economic factors that indirectly bring about environmental change. These can be negative or positive. Examples of drivers include demographic change and economic growth. Pressures are more direct in causing environmental change and are the consequences of socio-economic drivers. Examples of pressures include land-use change and pollution.

To meet environmental goals and targets, it is important that there is strong understanding of the underlying causes as well as the symptoms of environmental change. This allows such causes and symptoms to be addressed through effective and timely policy responses.

Relationships between environmental states, drivers of change and pressures can be complex. A systematic approach is needed to review evidence across the EIP, identify knowledge gaps, and set priorities for further research and monitoring.

Seminal assessments

The UK National Ecosystem Assessment, published in 2011, remains the most comprehensive assessment of the drivers and pressures affecting the natural environment in the UK.[86] Key drivers identified in that assessment include demographic change, socio-political change, behaviour change, economic growth, and advances in science and technology. The most significant pressures were land-use conversion, pollution, over-exploitation of natural resources, climate change and invasive species.

More recent studies have examined the drivers and pressures in specific parts of the environment. For example, the State of Nature report[87] focuses on biodiversity, and the Climate Change Committee's (CCC) Independent Assessments look at the causes and impacts of climate change.[88]

To our knowledge, the European Environment Agency's State of the Environment Reports were the only systematic and regular overviews of the key pressures affecting the UK environment, and the sectoral activities that underpin pressures.[89] The European Environment Agency's reports will no longer cover the UK, and there is no equivalent assessment framework to replace them.

85 Office for Environmental Protection, *Taking Stock: Protecting, Restoring and Improving the Environment in England*.

86 United Nations Environment Programme World Conservation Monitoring Centre, *UK National Ecosystem Assessment*, 2011, http://uknea.unep-wcmc.org/Resources/tabid/82/Default.aspx.

87 State of Nature Partnership, *State of Nature*, 2019, https://nbn.org.uk/wp-content/uploads/2019/09/State-of-Nature-2019-UK-full-report.pdf.

88 Climate Change Committee, *Independent Assessment of UK Climate Risk*, 2021, https://www.theccc.org.uk/wp-content/uploads/2021/07/Independent-Assessment-of-UK-Climate-Risk-Advice-to-Govt-for-CCRA3-CCC.pdf.

89 European Environment Agency, *The European Environment — State and Outlook 2020: Knowledge for Transition to a Sustainable Europe*, May 2020, https://www.eea.europa.eu/soer/publications/soer-2020.

Key evidence gaps

In 2018, Government published an evidence annex to the 25 YEP, outlining the context and analysis that underpins the Plan.[90] This identified similar underlying drivers to those identified in the UK National Ecosystem Assessment, including social and economic shifts, but did not review the drivers and pressures related to each environmental goal area. Government acknowledged that its understanding of environmental drivers and pressures, and their relationships with different aspects of the environment, had been limited during development of the 25 YEP. As such, it committed to complete an updated, comprehensive state of the environment assessment, considering interlinkages between environmental pressures, to provide greater understanding. To our knowledge this has not been conducted. Instead, government's research and evidence has generally developed ad hoc (Table A19).

Understanding of drivers and pressures varies considerably across the 25 YEP goal areas. There appears to be more evidence on pressures in areas that are deemed a policy priority, or where there are statutory targets or monitoring duties in place.[91] For example, through River Basin Management Plans, pressures affecting each water body have been identified. This provides both a local and a national picture of pressures affecting water quality.[92]

By contrast, the pressures affecting local marine environments are not as well understood, and there is insufficient monitoring to track changes in pressures and their impact more widely. We also find it particularly concerning that the pressures that may undermine species recovery are so poorly explored and monitored, for example the extent of habitat loss and degradation, urbanisation and the impacts of climate change.[93] We recognise there are projects underway to address some of these knowledge gaps, and hope that the Natural Capital Ecosystem Assessment will provide more insight into the pressures ecosystems face.

There is also a lack of understanding, across all goal areas, of the cumulative impacts of pressures.[94] [95] [96] [97] Drivers and pressures rarely act in isolation, so it is important to understand how they interact now, and how interactions may change over time.

We found there is limited consideration of how current and emerging drivers of change and pressures could lead to different environmental futures, affecting the achievability of long-term targets. There are examples of good practice. For example, updated River Basin Management Plans include projections of the impact of future pressures, including population growth, climate change, and land-use change. Similarly, government produces projections for key air pollutants. In contrast, for some of the Act's targets, the underpinning

90 Department for Environment, Food and Rural Affairs, *25 Year Environment Plan Annex 1: Supplementary Evidence Report*, 2018, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/673492/25-year-environment-plan-annex1.pdf.

91 Department for Environment, Food and Rural Affairs, *25 Year Environment Plan Annex 1: Supplementary Evidence Report*.

92 Climate Change Committee, *Progress in Adapting to Climate Change 2021 Report to Parliament*.

93 Department for Environment, Food and Rural Affairs, *Biodiversity Terrestrial and Freshwater Targets Detailed Evidence Report*, 2022, https://consult.defra.gov.uk/natural-environment-policy/consultation-on-environmental-targets/supporting_documents/Biodiversity%20terrestrial%20and%20freshwater%20targets%20%20Detailed%20evidence%20report.pdf.

94 George Hoppit and Daniela Schmidt, "A Regional View of the Response to Climate Change: A Meta-Analysis of European Benthic Organisms' Responses," *Frontiers in Marine Science* 9 (2022), https://www.frontiersin.org/articles/10.3389/fmars.2022.896157.

95 UK Centre for Ecology & Hydrology, *Evaluation of Biodiversity 2020 (BE0170)*, 2019, https://sciencesearch.defra.gov.uk/ProjectDetails?ProjectId=20409.

96 Department for Environment, Food and Rural Affairs, *Environment Act Targets Summary of Evidence and Approach*, 2022, https://consult.defra.gov.uk/natural-environment-policy/consultation-on-environmental-targets/supporting_documents/Environment%20Act%20targets%20%20Summary%20of%20evidence%20and%20approach.pdf.

97 Climate Change Committee, *Independent Assessment of UK Climate Risk*.

evidence did not fully take into account the effect of key pressures on target delivery, for example the impacts of climate change on species abundance.

In general, we found the future effects of environmental drivers and pressures were not sufficiently explored. Improving understanding in this area would enable government to anticipate the risks and opportunities to achieving its long-term ambitions for the environment.

Building Blocks 2 and 3: Long-term vision and targets

In our *Taking Stock* report we emphasised the important role of a clear vision in aligning goals, targets, strategy and policy towards the single purpose of delivering that vision. We also strongly supported the establishment of long-term targets that drive delivery of the vision, and provide a basis for performance monitoring.

We welcomed the Act's provisions for setting legally binding targets, and set out principles for effective target setting and delivery. This included our position that the government's targets should be ambitious. Ambition can be consistent with achievability, a key requirement in the Act: which provides that the 'Secretary of State must be satisfied that the target can be met'.

For example, Net Zero is a suitably stretching target. It is laudably ambitious, and it is achievable, when combined with coherent policy and delivery arrangements that galvanise action to achieve more than might first be supposed, and push the boundaries of what is possible over the long-term.

This year we have analysed whether the targets set under the Act align with delivery of the 25 YEP vision.

The 25 Year Environment Plan vision

Government's overarching ambition is to be the first generation "to leave our environment in a better state than we found it". This ambition was first published in the Natural Environment white paper (2011),[98] taken forward as a manifesto commitment in 2017,[99] and reiterated in the 25 YEP (2018).[100]

In our Taking Stock report we highlighted the ambition of this vision, with its focus on environmental recovery and enhancement, which is implicit in the phrase 'better condition than when we inherited it'. However, we demonstrated there was limited observable commitment to the 25 YEP vision within the strategies and plans reviewed from across government.[101]

Unfortunately, the consultation on the Act's targets earlier this year also showed limited commitment.[102] Only the proposed species abundance targets explicitly referenced the 25

98 House of Commons Public Accounts Committee, *Achieving Government's Long-Term Environmental Goals*, 2021, https://committees.parliament.uk/publications/4513/documents/45674/default/.

99 Conservative and Unionist Party, *Forward, Together: Our Plan for a Stronger Britain and a Prosperous Future*, 2017, https://general-election-2010.co.uk/2017-general-election-manifestos/conservative-manifesto-2017.pdf.

100 Department for Environment, Food and Rural Affairs, *25 Year Environment Plan*.

101 Office for Environmental Protection, *Taking Stock: Protecting, Restoring and Improving the Environment in England*.

102 Department for Environment, Food and Rural Affairs, "Consultation on Environmental Targets," accessed December 2, 2022, https://consult.defra.gov.uk/natural-environment-policy/consultation-on-environmental-targets/.

YEP vision 'we need to take urgent action to halt biodiversity loss to meet our commitment to leave the environment in a better state than we inherited it'.[103]

Our assessment of the Environment Act targets

On 16 March 2022, Government consulted on proposals for 13 targets. Our review of these proposed targets applied four concepts:

Comprehensiveness: All goal areas in the EIP should have an associated apex target, supported by suitable interim targets. When goal areas do not have associated targets there is reduced accountability, as there is no clear way to assess whether sufficient progress is being made towards desired outcomes.

Coherence: There should be clarity in how multiple targets in individual policy areas relate to each other and to existing commitments in national legislation and internationally, in order that they become mutually supportive and have synergistic effects and impacts.

Ambition: Given the scale of change that is now necessary, Government should set ambitious long-term targets. They should be challenging, in order to set expectations, drive innovation and encourage investment that could deliver the changes that are needed.

Delivery assurance: To ensure that targets are achievable they should be informed by an exploration of plausible delivery pathways, supported by short-term measures that provide direction and stimulus.

What are apex targets?

We define 'apex' targets as those that are most important for driving long-term change. They should crystallise environmental outcomes. They should be set in the areas that matter most, for example, parts of the environment experiencing states of severe deterioration, or facing major or emerging pressures. We distinguish these from interim targets, which provide short-term direction and stimulus, and define optimal pathways towards long-term outcomes.

The Environment Act 2021 does not include any provisions that might inform the scope, scale or typology of long-term targets. Consequently, the finalised targets are an inconsistent mix, set on environmental outcomes, pressures affecting the environment, and government actions, and their importance for improving 'priority areas' of the environment varies significantly.

We provided summary advice on the proposals in each area set out in the consultation, and an assessment of each proposed target (Annex One). We provided our advice in the hope it would lead to strengthening of the proposed targets.

It was deeply regrettable that Government missed the statutory deadline of 31 October 2022. Government published the final targets on 16 December. As an initial reaction, we

103 Department for Environment, Food and Rural Affairs, *Environment Targets Public Consultation*, 2022, https://consult.defra.gov.uk/natural-environment-policy/consultation-on-environmental-targets/supporting_documents/Environment%20Targets%20Public%20Consultation.pdf.

welcome the careful consideration of our advice and are pleased to see it reflected in a number of the final targets.

It is good to see that the final post-2030 species abundance target now includes an element to safeguard nature recovery by 2042, with the baseline brought forward to 2022: 'Ensure that species abundance in 2042 is greater than in 2022, and at least 10% greater than 2030'.[104]

'Species abundance' is an important target for realising the 25 YEP vision, given it is a proxy for the state of the wider environment. Government recognises the close relationship between this target and the vision to leave the environment in a better state.[105]

While the ambition of the final target to ensure that species abundance in 2042 is greater than in 2022 might not be viewed as progress, the final target does now ensure alignment with the 25 YEP vision. It is also stretching to achieve. As observed in Chapter Two, there has been a chronic decline in species abundance. From this perspective, the timeframe to first halt and then reverse the decline is ambitious. It will require significant investment in nature-based actions and sympathetic land management to ensure recovery of habitats. Full engagement with farmers and landowners is indispensable. Action must also address long-standing and diverse pressures, including habitat loss and degradation, climate change, urbanisation, pollution and invasive non-native species.

Government did not follow our advice to increase ambition on areas such as on PM2.5 concentrations (the 'PM2.5 air quality' target), or newly created or restored wildlife-rich habitat, and we note that the ambition on the area of woodlands (the 'Woodland creation' target) was reduced. We would have liked to have seen more ambition on these targets.

Coherence between targets

It is important to ensure that the Act's targets form part of an ambitious, comprehensive and coherent suite that collectively drives the changes needed to achieve the 25 YEP vision and nature's recovery.

The EIP revision must now define interim targets. These help to define optimal pathways towards long-term outcomes, which is important for driving immediate action, and to enable assessment of progress.

It is also an opportunity to clarify relationships between targets, including with existing commitments set under national legislation and international commitments. As advised in our *Taking Stock* report, a clear hierarchy and taxonomy is needed to provide a clear line of sight between relevant complementary interim and longer-term targets, including other, non-Environment Act targets.

We also await the conclusions and details arising from the required Significant Improvement Test. We find it difficult to see how this test can be applied without organising targets, and objectively assessing their cumulative impact.

104 Department for Environment, Food and Rural Affairs, *Environmental Targets Consultation Summary of Responses and Government Response*, 2022, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1125278/Environmental_targets_consultation_summary_of_responses_and_government_response.pdf.

105 Department for Environment, Food and Rural Affairs, *Nature Recovery Green Paper: Protected Sites and Species*, 2022, https://consult.defra.gov.uk/nature-recovery-green-paper/nature-recovery-green-paper/supporting_documents/Nature%20Recovery%20Green%20Paper%20Consultation%20%20Protected%20Sites%20and%20Species.pdf.

There are also important gaps in the targets that may hinder the protection and recovery of the environment. Apex targets are missing for some 25 YEP goal areas. For example, we have not identified any defined targets for Natural Hazards (goal 4) or Beauty, Heritage and Engagement (goal 6). In addition, in our review of the Act's proposed targets, we identified several gaps in which further targets were required. These include: protected sites condition and extent (on land, including water environments); major pressures in the water environment (water pollution from urban areas and transport), and resource use and the associated environmental impacts.[106] Progress in these areas is vital to achieving the government's goals and apex targets for water, biodiversity, resource efficiency and waste reduction.

What is the Significant Improvement Test?

The Environment Act requires that government periodically reviews targets set under the Act to assess whether meeting those targets and other relevant targets would significantly improve the natural environment in England: this is the 'significant improvement test'. Following that review, it must report to Parliament on its findings. This is a critical element of environmental stewardship, as it enables parliamentary scrutiny and requires that government regularly reviews and, if necessary, strengthens the targets. Government must complete its first review by 31 January 2023.

Building Blocks 4 and 5: Strategies, policies and governance

In our *Taking Stock* report, we explored some of the principles for coherent environmental policy and governance.

This year we have assessed some of Government's key environmental plans, strategies, policies and internal governance arrangements, to determine how coherent they are. We have examined whether there are clear accountabilities for implementing these activities, and sufficient assurances they will attain environmental goals and targets.

Environmental plans, strategies and policies

High-level plans for addressing long-term and cross-cutting issues are an essential part of government activity. They set defined outcomes and provide information on how government intends to secure their achievement, including the key policies and milestones.

Two prominent plans support protecting, restoring and improving the environment: the Government's 25 YEP and Defra's ODP. Defra plays a lead role in delivering both plans but depends on contributions from other government departments. It is important to note that the definition of the EIP in the Act refers to "the steps that *HM Government* (our emphasis) intends to take to improve the natural environment". Hence Defra requires and should expect strong support from central government.

An EIP is a plan to significantly improve the natural environment that sets out the relevant steps government intends to take in the period to which the plan relates. The 25 YEP, published in 2018, sets out the Government's intentions for how to improve the environment. It set 10 overarching goal areas and defined 44 commitments (or 'sub-goals'), detailing many supporting policy actions to achieve them, which were

106 Office for Environmental Protection, *OEP Response to Consultation on Environmental Targets*.

grouped into six strategic areas. Furthermore, 47 subsidiary strategies were listed in an accompanying annex.[107]

The 25 YEP was a reasonably comprehensive and ambitious plan for improving the environment. However, it lacked specific and clear delivery plans for its goals. This limited its value in directing policy development and co-ordinating activities across policy areas and sectors.

Departmental ODPs, first published in 2021, ensure greater accountability and value for money from departments. They require greater specificity over how they will deliver stated priority outcomes over a spending period.

The ODPs present useful delivery information. Defra's current ODP includes four priority outcomes ('Improve the environment...', 'Reduce greenhouse gas emissions...', Reduce the likelihood and impact of flooding...', 'Increase the sustainability...'), plus one relevant other ('Reduce UK greenhouse gas emissions to net zero by 2050') that is held by another government department (Business, Energy and Industrial Strategy) that Defra is supporting.[108] Each priority outcome has defined sub-outcomes and metrics of success. The major programmes of work and funding for attaining them are described, as are their associated monitoring and evaluation programmes. Furthermore, the strategic risks and enablers that affect delivery are identified. However, some of this information is only contained in the department's draft internal version.

Unfortunately, however, it is difficult to see how the 25 YEP and Defra's ODP align. Some stated goals and outcomes overlap and are inconsistent, particularly for timelines and priorities. Similarly, the supporting role of other departments mentioned in the 25 YEP is not reflected in all their respective ODPs.

The two plans also present different information on their delivery, and contain different levels of detail about implementation. Neither puts forward a plan-level description of how their objectives will be attained. To do so requires collating and synthesising a large range of government activities, programmes, and plans. Organising and calibrating this information requires careful judgement and depends on the level of granularity needed. At the start of this chapter, we offer an illustration of how to do this for a single EIP goal area.

This delivery mapping is particularly important in goal areas that have under-developed or rapidly changing policy contexts. Internal performance reports and our engagement with Defra identified the lack of such delivery plans is a key strategic risk for the 25 YEP. We understand that Defra is exploring these delivery details as part of efforts to develop an evaluation framework. While we commend this work, we are concerned about the timing, as we understand it is not due to be published until March 2023, after the EIP is updated.

Case study: Thriving Plants and Wildlife

In examining individual goal areas, we found the current policy landscape fragmented and sometimes incoherent. There are diverse strategies and policies that are often presented without showing how they will deliver the 25 YEP goal areas.

107 Department for Environment, Food and Rural Affairs, *25 Year Environment Plan Annex 2: Government Strategies to Protect and Improve the Environment*, 2018, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/673160/25-year-environment-plan-annex2.pdf.

108 Department for Environment, Food and Rural Affairs, *Outcome Delivery Plan: 2021 to 2022*, 2021, https://www.gov.uk/government/publications/department-for-environment-food-and-rural-affairs-outcome-delivery-plan/department-for-environment-food-and-rural-affairs-outcome-delivery-plan-2021-to-2022.

This is particularly apparent in the case of the 25 YEP goal area for Thriving Plants and Wildlife, where Government lacks a current overarching strategy to organise a wide range of relevant activities. This is highly concerning as this goal area, and many of the activities that underpin it, will drive the achievement of government's species abundance target. This target, to 'halt the decline in species abundance by 2030', is less than eight years away. More than a year has elapsed since the requirement to halt a decline in species abundance was established on the face of the Act and, and as shown in Chapter Two, biodiversity trends are adverse and progress towards this target is significantly off track.

An earlier, directly relevant strategy, Biodiversity 2020, ran from 2011-2020 and has not yet been replaced. Government's Nature Recovery Green Paper, published in 2022,[109] contained many proposals for revising biodiversity policy, but provided minimal strategic direction. What remains is a disparate set of issue and sector specific action plans and policies, working alongside each other, but not necessarily together.

Key means of achieving the Thriving Plants and Wildlife goal area, among other 25 YEP goal areas, include making agriculture more sustainable through agri-environment schemes. Getting this right is essential as around two-thirds of land in England is in agricultural use. Despite the relative importance and potential for impact of these cross-cutting policies, their system-wide influence is not fully explained in the 25 YEP or successive APRs, something we hope to see redressed in the next EIP and future APRs. Conversely, government publications on these policies often do not fully explain how they are expected to contribute to reaching the 25 YEP goals.

Specific environmental policies and schemes contain information about which partners and sectors are involved, as well as timelines. However, they often lack a consistent reference point, such as the 25 YEP goals and the Act targets that would help organise this detail, set priorities and guide effective implementation. For instance, there are three separate funds for private-sector biodiversity projects (the Nature for Climate Fund, Green Recovery Challenge Fund and Natural Environment Investment Readiness Fund), each with different administrators (Defra, Natural England, National Lottery Heritage Fund, the Environment Agency) and different criteria for qualifying projects and measures of success. More streamlined policies and delivery mechanisms would help reduce the complexity for local delivery partners and investors.

Case study: Clean Air

In contrast, for the Clean Air goal area, there are four current Defra-led strategies or plans that combine to cover air pollution emissions and ambient concentrations.[110] [111] [112] [113] They reference each other, as well as wider strategies in Defra (for example, the Agricultural Transition Plan[114]) and in other government departments (for example, the Department for

109 Department for Environment, Food and Rural Affairs, "Nature Recovery Green Paper Consultation," accessed December 2, 2022, https://www.gov.uk/government/consultations/nature-recovery-green-paper.

110 Department for Environment, Food and Rural Affairs, *Clean Air Strategy*, 2019, https://www.gov.uk/government/publications/clean-air-strategy-2019.

111 Department for Environment, Food and Rural Affairs, *The Air Quality Strategy for England, Scotland, Wales and Northern Ireland: Volume 1*, 2011, https://www.gov.uk/government/publications/the-air-quality-strategy-for-england-scotland-wales-and-northern-ireland-volume-1.

112 Department for Environment, Food and Rural Affairs, *UK National Air Pollution Control Programme*, 2019, https://www.gov.uk/government/publications/air-quality-uk-national-air-pollution-control-programme.

113 Department for Environment, Food and Rural Affairs and Department for Transport, *Air Quality Plan for Nitrogen Dioxide (NO_2) in UK*.

114 Department for Environment, Food and Rural Affairs, *Agricultural Transition Plan 2021 to 2024*, 2020, https://www.gov.uk/government/publications/agricultural-transition-plan-2021-to-2024.

Transport's Decarbonisation Plan[115]) that are critical to their success. This is important for designing and communicating coherence. An additional step would be to provide a more detailed explanation of the synergies and trade-offs among these strategies and their constituent policies. This is something that future iterations of EIPs and APRs could provide.

The Clean Air Strategy states that its constituent policies will combine to achieve its targets on time. However, it does not give a breakdown of which policies are more or less important, how much they contribute, or why they are the right mix of policies. This is also true of the UK Air Quality Strategy. The National Air Pollution Control Plan gets closer, by including current and projected impacts for all of its various policies and measures (see highlight box for more details).

A coherent policy: The National Air Pollution Control Programme

The current National Air Pollution Control Programme, and its proposed update,[116] provides a breakdown of what each policy will contribute towards reaching specific air pollution targets. It defines the types of policies and considers their coherence as a mix of activities. It sets out which sectors are most affected and who has key delivery responsibilities. It then links this to the achievement of targets. It creates an evidence-based delivery pathway.

Transparency is supported by using a standard format for including certain information in plans, strategies and policies. This would enable the Office for Environmental Protection and other stakeholders to more readily understand how policies align, what their relative contributions are, and how their delivery is managed.

The delivery details for policies often reside in technical documentation or in local delivery institutions. However, this information can be collated and explained. The Air Quality Plan for nitrogen dioxide[117] lists policy leads, partners and timescales. It also delves into the details of which sectors, technologies and behaviours are involved. It provides this detail for a range of policies, such as investment in active travel, retrofitting public transport services and introducing Clean Air Zones, all of which can then be reflected in the local authorities' own context-sensitive delivery plans.[118]

Internal governance to guide delivery

The range of internal governance arrangements related to delivering the EIP and its associated strategies and policies is large. This leads to a complicated and opaque picture, which makes it harder to identify accountabilities and assess efficacy. It risks obscuring overlapping remits or competing priorities that must be addressed to secure progress.[119]

Two main senior fora oversee delivery of the EIP. Defra's Environment Committee tracks implementation of key programmes within the Department, and the Cross-Government 25 YEP Delivery board facilitates collaboration across departments. Both seek to address

115 Department for Transport, *Transport Decarbonisation Plan*, 2021, https://www.gov.uk/government/publications/transport-decarbonisation-plan.

116 Department for Environment, Food and Rural Affairs, *Draft UK National Air Pollution Control Programme*.

117 Department for Environment, Food and Rural Affairs and Department for Transport, *Air Quality Plan for Nitrogen Dioxide (NO_2) in UK*.

118 Department for Environment, Food and Rural Affairs, "Local Air Quality Management (LAQM) Support Website," accessed December 2, 2022, https://laqm.defra.gov.uk/.

119 National Audit Office, *Achieving Government's Long-term Environmental Goals*, 2020, https://www.nao.org.uk/wp-content/uploads/2022/08/Achieving-governments-longterm-environmental-goals.pdf.

any cross-cutting barriers or opportunities and are important for improving coherence and driving implementation.[120] This is true across Defra's remit, but also across government departments whose priorities, plans, and decisions will directly affect the achievement of the EIP and environmental targets.

As well as governance fora, there are formal mechanisms for embedding environmental protection and improvement in decision making. The Environmental Principles Policy Statement is one such mechanism and is long awaited. We are supportive of the draft statement and its ambition. We look forward to its publication and to monitoring implementation. We hope to see this sort of mechanism making environmental improvement a key consideration across government, in much the same way as Net Zero.

We would like to see greater transparency in how these governance fora and mechanisms for integrating environmental priorities work, their efficacy and the outputs they produce. For example, it is not clear to us how or whether they enable the departments and teams leading Government's Major Projects to maximise benefits across the range of 25 YEP goal areas.

Future APRs should include information about objectives, responsibilities, resources and delivery risks for these Major Projects and their contributions towards achieving the EIP. For example, the Flood and Coastal Erosion Risk Management Programme and the Nature for Climate Fund are two large-scale programmes that each offer significant opportunity to support the delivery of several 25 YEP goals. However, there is limited quantitative information available on their actual or potential contributions to each goal, or qualitative information about how these are being marshalled. The same is true of Major Projects and plans led by other government departments.

Governance 'on the ground' for delivering the 10 goal areas is even less clear. There are upwards of 40 decision-making fora for guiding local delivery within Defra Group alone. While this creates important opportunities for collaboration with those close to implementation,[121] it also makes for a complicated, opaque, and potentially inefficient approach to delivery. Government should seek to simplify the governance hierarchy, and ensure it is oriented towards delivery of the EIP.

For the Thriving Plants and Wildlife goal area, many of the strategies and policies we reviewed include information about who is accountable for their success, and who is responsible for delivery. The Tree Action Plan for England 2021-2024 sets out expectations for the roles to be played by stakeholders from the public and private sectors.[122] However, in this example and others, there is limited information about the governance arrangements that bring them together and how important decisions are made.

The Clean Air Strategy explains who will exercise which powers to implement policies. In practice, Clean Air strategies and policies rely on delivery partners that have a clear remit for tackling air pollution. For example, local authorities design and enforce Clean Air Zones or other policies, supported by technical and financial support from cross-sector units such as the Joint Air Quality Unit. The National Air Pollution Control Programme and the Air

120 For example, see Defra's letter to the Public Accounts Committee assessing the effectiveness of the Cross-Government 25 YEP board: https://committees.parliament.uk/publications/28685/documents/172681/default/.

121 Department for Environment, Food and Rural Affairs, *Defra Accounting Officer System Statement (AOSS)*, 2017, https://www.gov.uk/government/publications/defra-accounting-officer-system-statement-aoss.

122 Department for Environment, Food and Rural Affairs, *The England Trees Action Plan 2021 to 2024*, 2021, https://www.gov.uk/government/publications/england-trees-action-plan-2021-to-2024.

Quality Plan for nitrogen dioxide also detail the responsibilities of different delivery partners and sectors, with regards to implementation and monitoring of progress.

Building Block 6: Monitoring, evaluation and learning

We stated in *Taking Stock* that the 25 YEP requires a purpose-driven way of bringing a wide range of environmental data and policy knowledge together, to track whether the EIP goals and targets are going to be met.

This year we have scrutinised government's monitoring data and reporting of policy implementation. We highlight issues with both, and explain how they compromise government's own reporting, and make it difficult for us, and others, to assess progress or provide timely insights to strengthen delivery.

We also highlight that monitoring and evaluation evidence should be considered holistically, as part of a framework that supports, rather than just reports, the progress of the 25 YEP. Currently, there is no overarching framework which translates annual updates from the OIF and the APR into effective learning, or adaptations in delivery.

The Outcome Indicator Framework

The OIF, published in 2019, is the core monitoring product for the 25 YEP. It identified 66 'outcome indicators', spread across the 10 goal areas of the 25 YEP. In our view, this framework represents a useful typology of indicators. As we have highlighted above, there are additional sources of monitoring data that can be used to complement this.

There remain notable gaps relating to measuring 'healthy soils', 'quantity, quality and connectivity of habitats', 'hazardous chemicals', 'the marine environment', 'exposure to transport noise' and 'resource productivity'. For areas with significant gaps, such as the marine environment, this can make it difficult to determine whether progress is on track.

Over the last 12 months, the OIF has filled gaps in five additional indicators,[123] and we understand more will be filled over time by Government's Natural Capital Ecosystem Assessment. We previously highlighted the value of a greater role for the Office for National Statistics in overseeing environmental statistics (*Taking Stock*, Recommendation 15) and we look forward to working on this with them.

Overall, government utilises four overlapping approaches to organise and interpret OIF indicators: natural capital, 25 YEP goal areas, 25 YEP themes and OIF headline groups. Despite the flexibility provided by the OIF, the overlapping approaches, combined with a lack of clear hierarchy and taxonomy do not facilitate the identification of major environmental trends or drivers and pressures. It does state that it was "not designed to establish a causal link between an indicator's observed trend and a specific driver of change",[124] and therefore the gap in the framework is not unexpected. However, this gap must be addressed to understand drivers and pressures and how the system works as a whole.

123 Department for Environment, Food and Rural Affairs, *Outcome Indicator Framework for the 25 Year Environment Plan: 2022 Update*.

124 Department for Environment, Food and Rural Affairs, "Outcome Indicator Framework – Background," accessed December 2, 2022, https://oifdata.defra.gov.uk/assessment/background.

Annual Progress Reports

APRs should describe what has been done in the relevant annual reporting period to implement the EIP and should consider whether the environment, or parts of it, have improved during that period. Thus, APRs should complement environmental monitoring and ought to explore the link between government action and real-world outcomes by drawing on evaluation evidence.[125]

In practice, however, the 2021/2022 APR (and previous non-statutory APRs) provide a compendium of diverse recent activities and associated performance measures, which are presented without sufficient explanation of their context, scale and impact. Our analysis of the 2021/2022 APR is found in Annex Three.

Over time, the statutory and non-statutory APRs have become more objective and more closely linked to environmental monitoring data. For example, the parameters underpinning the Red-Amber-Green assessment of progress are clearer, and there is increased focus on policy activities that have had observable impacts on the environment or its pressures. The 2021/2022 APR was the first to report on actions that were currently having an impact.

We commend this move towards objective assessment and reporting of impact and would like to see wider application of this approach. At present, the types of activities, sectors involved and impacts reported in past APRs are not standardised or contextualised in any way. For example, reporting ranges from broad statements about £11 million of funding for air quality measures that could benefit schools, businesses and communities, through to site-specific updates on conservation projects protecting 6,140 hectares of habitat.[126] Without attempts to quantify the relative contribution of each activity towards the 25 YEP goals it is difficult to appreciate their importance. This is particularly apparent for activities that contribute to multiple goal areas and so merit greater prominence in the report.

The focus on the past 12 months, without linking to the longer time span of implementation, makes it difficult to appreciate time lags and cumulative impacts. As a result, the APR does not appear to be informed by any longer-term evaluation of the effectiveness of the activities or the way they have been implemented.

Furthermore, the APRs do not currently contain any synthesis of findings from which lessons could be learnt to improve implementation. This sort of insight and analysis is needed most for goal areas that show adverse trends. Future APRs should include predictions about delivery rates and goal attainment based on the monitoring and evaluation evidence that is available.

Evaluation evidence for the 25 YEP goal areas

We recognise that developing and delivering an evaluation framework for something as large as the 25 YEP is complex and iterative. The 25 YEP set out the intention to utilise evaluation to answer fundamental questions such as 'how well are interventions working?' and 'has the natural environment improved?'.[127] We are disappointed that this framework is yet to be published or put into practice.

125 Department for Environment, Food and Rural Affairs, *The Government's Response to the Natural Capital Committee's Sixth Annual Report*, 2019, https://www.gov.uk/government/publications/natural-capital-committees-sixth-annual-report-government-response/the-governments-response-to-the-natural-capital-committees-sixth-annual-report.

126 Department for Environment, Food and Rural Affairs, *25 Year Environment Plan Annual Progress Report – April 2021 to March 2022*.

127 Department for Environment, Food and Rural Affairs, *25 Year Environment Plan*.

However, embedding 25 YEP goal considerations into existing evaluation activities across government can continue apace, and many policy areas regularly provide valuable evaluation evidence that we would expect to see included in APRs.

Evaluative activities can be broadly defined to include forward looking activities such as policy appraisals and impact assessments, as well as backward looking activities such as impact evaluations and value for money assessments. Here, we focus on post-implementation evaluations, following the Magenta Book definition of evaluation as 'a systematic assessment of the design, implementation and outcomes of an intervention'.[128]

We reviewed all of Defra Group's published evaluations since 1997 (n = 71) and found there is an uneven distribution across policy areas and notable gaps in the evidence base when mapped against the 10 goal areas of the 25 YEP (Figure 6).[129] For instance, we found just one evaluation focussing on the efficacy of policies aimed at Minimising Waste and five looking at the efficacy of policies for Managing Exposure to Chemicals and Pesticides. These are alarmingly low numbers of evaluations given the timeframes, and when compared to other areas, for example Thriving Plants and Wildlife, which has 35 relevant publications.

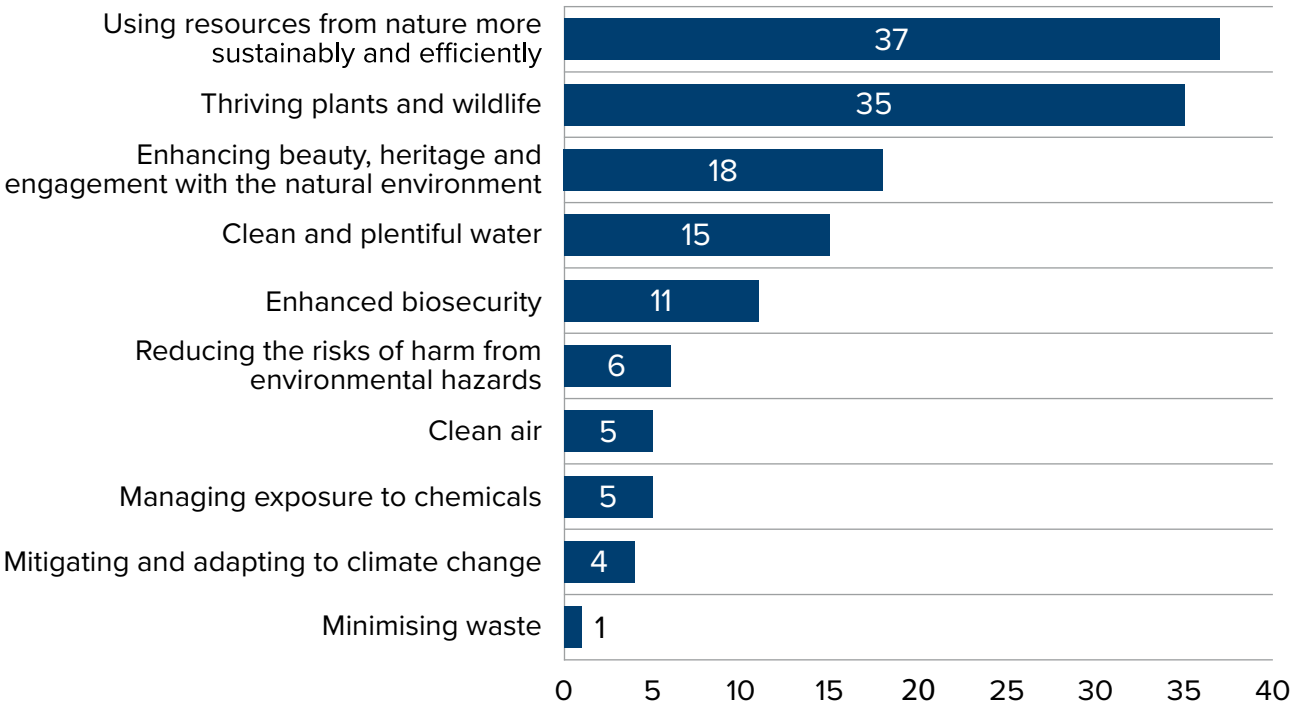

Figure 6. Summary of the number of evaluation studies published by Defra Group since 1997, which contain evidence relating to the 10 goal areas of the 25 Year Environment Plan.

The total number of evaluations is not necessarily an indication of the quality and utility of the evidence. For example, within the large number of evaluations relating to Thriving Plants and Wildlife, most focus on one type of policy, agri-environment schemes. Within these, there is a strong emphasis on their aggregate value for money, with more environmental and social impact evidence tending to be assessed for specific schemes or locations. Despite these gaps and biases, it is important to synthesise evidence or generalise

128 HM Treasury, *The Magenta Book*, 2011, https://www.gov.uk/government/publications/the-magenta-book.

129 The total count for this figure is greater than the total count for the evaluation sources as many contained evidence about multiple goals.

valuable learning for the design of future policies that have the potential to contribute to multiple goals.

It is important that action is taken to address goal areas with a relatively weak history of evaluation. In some areas this is happening. For instance, although we found only one evaluation of previous waste policies, the current Resources and Waste Strategy does have a fully scoped and operational evaluation programme that will analyse the impacts of its flagship policies.[130]

Based on our review of current strategies and policies for Thriving Plants and Wildlife (terrestrial) and for Clean Air, we were able to explore evaluation plans for these two goal areas in more detail.

For Thriving Plants and Wildlife, some of the most important policies, such as Biodiversity Net Gain, Local Nature Recovery Strategies, and Environmental Land Management, have only nascent evaluation programmes or pilot evidence. Evidence has been published for initial rounds of established and ongoing policies such as the Green Recovery Challenge Fund.[131]

For Clean Air, local nitrogen dioxide plans are a key mechanism for tackling air pollution in areas that persistently exceed statutory limits. The efficacy of their design, mix of policies, and implementation is being evaluated and annually reported.[132] Another key policy, outlined in the Clean Air Strategy,[133] is the regulation of domestic solid fuels. The impact of this policy will be evaluated in part based on its contribution to the reduction in emissions of key air pollutants.[134]

Bringing it all together: a Monitoring, Evaluation and Learning framework for the Environmental Improvement Plan

Long-term and large-scale government plans such as the EIP require a monitoring, evaluation and learning framework (Figure 7). This starts with a clear delivery plan (see previous section), then combines monitoring data with evaluation evidence to reflect on progress and generate practical lessons that feed back into policy plans and delivery. Conclusions from monitoring and evaluation activity should be published in a timely fashion, for example to meet existing legal deadlines for Post-Implementation Reviews, as well as via the APRs. This supports good environmental governance and accountability through wider scrutiny of whether policies are delivering the required improvements.

130 Department for Environment, Food and Rural Affairs, *Resources and Waste Strategy: Evaluation Plan*, 2020, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/907161/resources-and-waste-strategy-evaluation-plan.pdf.

131 ICF Consulting Services, *Evaluation of the Green Recovery Challenge Fund (GRCF)*, 2021, https://www.heritagefund.org.uk/sites/default/files/media/attachments/Interim%20evaluation%20report%C2%A0for%20Green%20Recovery%20Challenge%20Fund%20%E2%80%93%20Round%20One.pdf.

132 Ipsos MORI, *2020 Annual Report for the Evaluation of Local NO_2 Plans*, 2021, https://www.ipsos.com/sites/default/files/ct/publication/documents/2021-02/15012_localno2plans-baselineresearchfindings.pdf.

133 Department for Environment, Food and Rural Affairs, *Clean Air Strategy*.

134 Department for Environment, Food and Rural Affairs, *Draft UK National Air Pollution Control Programme*.

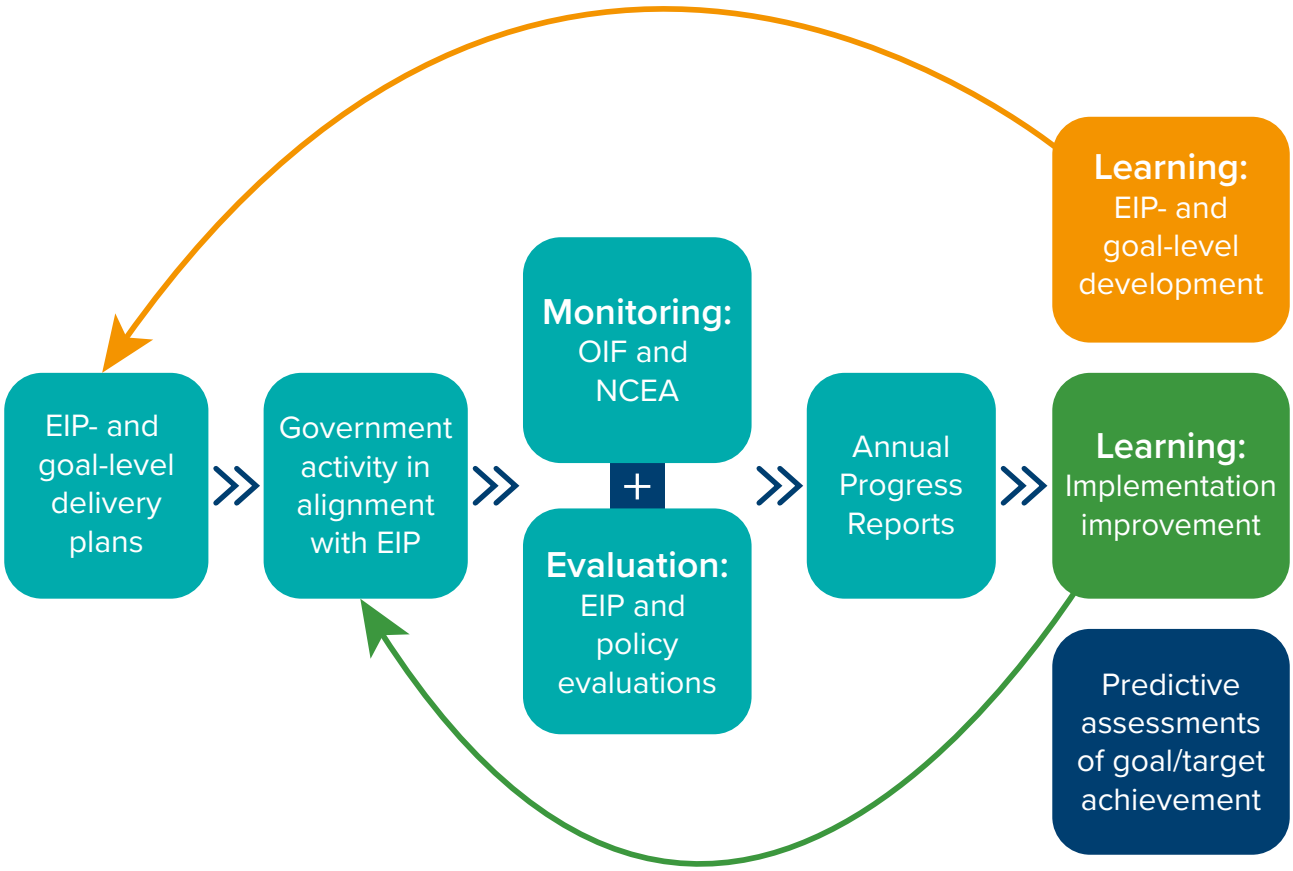

Figure 7. Components of a monitoring, evaluation and learning framework to support delivery of the Environmental Improvement Plan. Figure based on Stabilisation Unit 2020.[135]

The 25 YEP included intentions for developing such a framework. Despite these intentions, many of the activities needed to build the monitoring, evaluation and learning framework are still in development, and this has had a visible impact on the quality of progress reporting of the 25 YEP to date. We urge Government to finalise, publish and begin to apply this framework as soon as possible.

135 HM Government, *Monitoring, Evaluation and Learning (MEL) in Conflict and Stabilisation Settings: A Guidance Note*, 2020, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/858813/Monitoring__Evaluation_and_Learning__MEL__in_Conflict_and_Stabilisation_Settings_A_Guidance_Note_7_Nov_2019_-_Final_-__1_.pdf.

Annex One

Annex One: Summary of previous recommendations from the Office for Environmental Protection

In this Annex, we list the recommendations and conclusions from our previous report *Taking stock: protecting, restoring and improving the environment in England* (Table A1).

In 2022 we responded to six Defra consultations on changes to environmental law, policy and proposals for environmental reforms in England. These were: Biodiversity Net Gain Regulations and Implementation; Draft Joint Fisheries Statement; Habitats Regulations Assessment and Other Matters in Connection with the Nature Recovery Green Paper: Protected Sites and Species; Environment Act 2021 Targets; Principles of Marine Net Gain; Highly Protected Marine Areas. We also summarise our recommendations and advice, as given in these responses (Table A2 to Table A7).

Table A1. Recommendations from *Taking stock: protecting, restoring and improving the environment in England* (published 12 May 2022).[136]

Page	Recommendation
17-19	*Building Block 1: Understanding environmental drivers and pressures* 1. **A comprehensive stocktake:** In preparing its next Environmental Improvement Plan government should carry out a comprehensive stocktake of the condition of the environment, environmental pressures and their drivers. This needs to embrace not just current issues but also emerging ones that need to be fast-tracked into delivery. The trajectories of environmental changes should also be assessed. This will enable government to take a systemic and comprehensive approach across the whole environmental agenda, and to include issues that may not previously have received the required focus
17-19	*Building Block 1: Understanding environmental drivers and pressures* 2. **Immediate prioritisation:** Having developed a comprehensive understanding of the environment, government must identify the most important environmental concerns. It should be transparent about what it intends to do across all aspects of the environment. It should take account of environmental tipping points, to ensure actions will be timely
21-24	*Building Block 2: Creating a vision* 3. **Clarity:** The overarching vision of the 25 Year Environment Plan, and for key areas of the environment, should be clear, coherent and evidence based. Where there are competing priorities the vision should support putting the environment first. Once established, statements of vision should be promoted clearly and consistently in successive Environmental Improvement Plans, key strategies and policy documents

136 Office for Environmental Protection, *Taking Stock: Protecting, Restoring and Improving the Environment in England*.

Page	Recommendation
21-24	*Building Block 2: Creating a vision* 4. **Commitment:** The environment and environment strategy should be a responsibility of all Government departments. Government must gain active support for its vision across all departments, to the same level and extent as Net Zero
26-31	*Building Block 3: Setting targets* 5. **Coherence:** Government must clarify how multiple targets in individual policy areas relate to each other and to existing commitments in national legislation and internationally, in order that they become mutually supportive and have synergistic effects and impacts
26-31	*Building Block 3: Setting targets* 6. **Hierarchy:** Government must demonstrate how targets are intended to work together towards the achievement of overarching goals and objectives by ordering them into a clear hierarchy and taxonomy. This should include challenging apex targets for all Environmental Improvement Plan goals and a clear line of sight between relevant complementary interim and longer-term targets, policies, delivery measures, and indicators for monitoring progress
26-31	*Building Block 3: Setting targets* 7. **Ambition:** Given the scale of change now necessary, we press Government to set ambitious long-term statutory targets. Interim targets will benefit from a greater level of specificity and achievability so as to provide short-term direction and stimulus. Government's Annual Progress Reports should include assessment when a target is not achieved
26-31	*Building Block 3: Setting targets* 8. **Legal underpinning:** Government can give a legal underpinning to its targets under the Environment Act 2021. A legal basis compels action and will help Defra gain support across Government departments. We recommend Government take full advantage of this opportunity, prioritising apex targets first
33-37	*Building Block 4: Coherent strategy and policy* 9. **Coherence:** All key Government strategies and policies that affect the environment must be aligned with, and follow from, the ambitions of the 25 Year Environment Plan and future Environmental Improvement Plans
33-37	*Building Block 4: Coherent strategy and policy* 10. **Integration:** Government should ensure the delivery plans for all environmental strategies and policies are designed and implemented in an integrated and effective way, removing silos, and making the most of opportunities for transformational change

Page	Recommendation
33-37	*Building Block 4: Coherent strategy and policy* 11. **Evaluation:** The increasing ambition in environmental strategies and policies must go hand in hand, with timely evaluation of implementation, iteratively building on evidence to find remedies for areas where delivery remains slow
39-42	*Building Block 5: Governance* 12. **Accountability and responsibility:** Government should establish strong Environmental Improvement Plan governance arrangements including the involvement of other Government departments, as well as within Defra and among its delivery partners and local authorities. Defra's Arm's Length Bodies reconfiguration should be designed to ensure greater integration and clearer accountabilities for delivery of Environmental Improvement Plans
39-42	*Building Block 5: Governance* 13. **Applying the environmental principles:** Government should publish the final policy statement on environmental principles as soon as possible and set out how it will support and monitor their due regard
44-47	*Building Block 6: Monitoring, assessing and reporting* 14. **Purpose driven:** Government should identify and fill critical data gaps, focusing firstly on the issues of greatest environmental concern. Government's monitoring, assessment and reporting framework should provide the data, information and knowledge needed to understand if environmental goals and targets are being met, and capture the influence of pressures and their drivers
44-47	*Building Block 6: Monitoring, assessing and reporting* 15. **Authoritative:** Environmental improvement is a cross-departmental responsibility. Given this, we see a greater role for Office of National Statistics in overseeing the environmental statistics in issues of greatest environmental concern, viewing them alongside relevant socio-economic information
44-47	*Building Block 6: Monitoring, assessing and reporting* 16. **Credible:** Defra should develop and publish, ahead of the Environmental Improvement Plan refresh, an assessment methodology to measure and report progress in achieving the objectives of Environmental Improvement Plans. The methodology should be evidence-based, accessible, consistent and transparent

Table A2. Advice on Biodiversity Net Gain Regulations and Implementation (sent 5 April 2022).[137]

High level recommendations:	
Page	**Recommendation**
2	We recommend that the Government considers a higher minimum biodiversity net gain percentage than that stated in the Environment Act 2021, to increase the prospect of true net gain
3	We recommend that the Government considers a single system for terrestrial and marine net gain
3	We recommend that Defra sets out further detail on the status of and plan for the development and implementation of environmental net gain
4	We recommend that Defra and the Government should continue to consider and learn from the experience of others (including the early adopters in England) to increase materially the prospects of success
4, 14 (Annex)	We recommend that Government develops a strong system of governance for biodiversity net gain implementation, monitoring, reporting and enforcement, including publicly available information and regular review
5, 14 (Annex)	The success of biodiversity net gain will require adequate resourcing and expertise, covering both the initial assessment of proposed activities and planning applications, and long-term monitoring, reporting, compliance and enforcement activities of local authorities, Defra, and Natural England
6	We recommend that, to address risks that increase the uncertainty of success, the scheme must be designed so that only realistic and deliverable biodiversity net gain proposals are accepted and there is effective, ongoing monitoring of its implementation
6, 5 (Annex)	We recommend that exemptions are revisited, and safeguards are strengthened, to avoid loopholes. We recommend that all National Significant Infrastructure Projects deliver at least 10% biodiversity net gain
7	We recommend strengthening Biodiversity Metric 3.0 to require that the area of habitat created should be, at a minimum, the same size as that which will be impacted. The weighting presented by landscape value (for example, as part of Local Nature Recovery Strategies or the Nature Recovery Network) should also be improved to enable greater strategic outcomes for nature
7, 9 (Annex)	We recommend that, given the time scales involved, the new regime needs to account for the challenges of ensuring net gain obligations are maintained and remain enforceable over the long-term. This must include the transfer of the responsibilities and accountabilities for biodiversity net gain when land is sold or transferred to different owners
8, 18 (Annex)	We recommend that the Government commit to a review of the implementation and enforcement of biodiversity net gain plans across England every five years as a minimum

137 Office for Environmental Protection, *OEP Advice in Response to Biodiversity Net Gain Consultation*, 2022, https://www.theoep.org.uk/report/oep-advice-response-biodiversity-net-gain-consultation.

Page	Recommendation
Annex: Response to specific consultation questions	
5	We recommend that Defra requires local planning authorities and the Planning Inspectorate to publish information demonstrating use of the mitigation hierarchy to illustrate why a proposal cannot avoid or minimise impact (question 29)
6	We recommend that Defra develop detailed guidance that offers safeguards against the negative impact to irreplaceable habitat, including the methods that will be used to calculate the bespoke compensation mechanism, and requires publication of the application of the mitigation hierarchy (question 29)
7	We recommend the development of an appropriately flexible definition of irreplaceable habitat that covers the wide breadth of habitats and features that are irreplaceable (question 29)
7	We recommend that limitations and assumptions should be a compulsory inclusion in the biodiversity gain information and the biodiversity gain plan (question 29)
8, 15	We recommend that the biodiversity gain site register includes both on-site and off-site biodiversity net gain activity, as well as use of the "bespoke compensation mechanism" (question 38)
10	We recommend the inclusion of additional information on the biodiversity gain site register. Specifically, we recommend that the register include additional details of gain site custodians, any planning obligations or conservation covenants, and the biodiversity gain plan submitted to the planning authority (question 40)
10-11	We recommend that Defra amend the definition of additionality to be more appropriate to the context of biodiversity net gain through specific reference to biodiversity and/or the environment, moving beyond the Green Book definition of providing, simply, additional social value (question 44)
11	We recommend that the proposed approach to combining payments does not start until guidance has been produced which explains how payments are to be credibly differentiated for creation, monitoring, evaluation, and enforcement purposes (question 47)
12-13	We recommend that proposals for the use of statutory biodiversity units be developed in greater detail to address risks which could undermine the credit market for the biodiversity net gain scheme (question 48)
13	We recommend that any such trading mechanism for biodiversity units must be accompanied by detailed regulatory oversight of the operation of a private market (question 48)
15	We recommend consideration of the creation of panels of independent assessors of biodiversity net gain proposals to review that the proposals do represent a realistic path to achieve biodiversity net gain and include appropriate monitoring and reporting schedules (question 52)
16	We recommend that the Government consider the need for across-the-board, project-level verification of the developer's monitoring reports by local planning authorities and responsible bodies to ensure that the contents of the report accurately reflects the on-the-ground picture (question 52)

16	We recommend that the minimum content of monitoring reports should go further than proposed. In particular, we advise that every report should include a comparison against the expected condition proposed in the relevant net gain plan (question 52)
17-18	We recommend further, detailed development of the legislative framework and arrangements for enforcement of delivery of project-level commitments, including through review of and updates to existing guidance on planning enforcement activities. This needs to address several points including the adequacy of enforcement resources and expertise for planning authorities, and specific issues around the enforceability of biodiversity net gain commitments which may be reflected in obligations passed to private householders or conservation covenants (question 52)

Table A3. Response to Consultation on the Draft Joint Fisheries Statement (sent 11 April 2022).[138]

Page	Recommendation
2, 5	To deliver reforms on the scale necessary to achieve the fisheries objectives, the draft Joint Fisheries Statement must combine focuses on fish stock health, the wider marine ecosystem, and a resilient fishing industry into a more coherent approach which explains how fisheries fit into a wider regulatory framework aimed at managing all external drivers of marine ecosystem degradation (for example, climate change, pollution, development). In doing so, it will ensure that fisheries management is integrated with Government's broader target to achieve Good Environmental Status
2	We recommend the inclusion of clear, achievable and timebound commitments throughout the draft. This would give the Joint Fisheries Statement teeth, whilst providing the certainty that the sector needs to effectively plan for future regulation
3, 6, 8	We strongly advise that the Joint Fisheries Statement is amended to support policies which pursue a marine planning system that encompasses all major uses of the seas. Although the draft states that marine plans should include policies that consider fisheries, it misses an opportunity to take steps to fully integrate commercial fishing The draft Joint Fisheries Statement should set out a clear ambition to incorporate fisheries into Environmental Impact Assessment and Strategic Environmental Assessment regimes. At present, commercial fishing is one of the only economic activities that does not need to undergo screening for an Environmental Impact Assessment before a license is granted, meaning that impacts are often not described or mitigated. Requiring new and existing fishing operations to demonstrate that they would not have a significant effect on the marine environment would bring fishing into line with the regulation governing other extractive processes, where environmental costs must be internalised and not passed on to the rest of society

138 Office for Environmental Protection, *OEP Response to Joint Fisheries Statement Consultation*, 2022, https://www.theoep.org.uk/report/oep-response-joint-fisheries-statement-consultation.

Page	Recommendation
3	We strongly recommend that section 4.2.10 [Marine Protected Areas] is strengthened with clearly defined framework policies for how the network should be administered. Included within these policies should also be an explanation of the monitoring and enforcement methods that will be used to safeguard against non-compliance. In this way, the Joint Fisheries Statement can reset expectations and begin to drive home compliance
3	In the absence of a published UK Bycatch Mitigation Initiative, we advise that the Joint Fisheries Statement be amended to outline the policies that fisheries administrations should implement to deliver on the commitments being made. The threat that bycatch poses to the achievement of the fisheries objectives justifies a more clearly defined approach to mitigation at a national level

Table A4. Advice on Habitats Regulations Assessment and Other Matters in Connection with the Nature Recovery Green Paper: Protected Sites and Species (sent 11 May 2022).[139]

Page	Recommendation
4	Government should develop a specific action plan for measures to protect and improve nature under the current legislative framework
4	Alongside any future legislative proposals, Government should develop and publish analyses and evidence on how proposed reforms will maintain and improve on current protection and contribute to nature's recovery at scale and at pace
5	When developing detailed proposals for any future legislation, Government should apply the environmental principles in the Environment Act 2021
5	Before introducing any new measures for managing protected sites, Government should: i) identify why existing tools have not been used more widely for nature recovery ii) consider whether existing provision for the adoption of Protected Site Strategies could offer a basis for delivering site improvements
6	Government should promptly resolve the practical issues to improve the existing Habitats Regulations Assessment process identified by the Habitats Regulations Assessment stakeholders (page 2 of the Habitats Regulations Assessment Review Working Group summary of findings[140]). This would bring immediate benefits and could be undertaken in parallel to developing any new legislation

139 Office for Environmental Protection, *OEP Response to Government on Nature Recovery Green Paper and Advice on Proposals to Reform the Habitats Regulations Assessment*, 2022, https://www.theoep.org.uk/report/oep-response-government-nature-recovery-green-paper-and-advice-proposals-reform-habitats.

140 Department for Environment, Food and Rural Affairs, *Habitat's Regulations Assessment Review Working Group Summary of Findings*, 2022, https://consult.defra.gov.uk/nature-recovery-green-paper/nature-recovery-green-paper/supporting_documents/Background%20Doc%201%20%20HRA%20Review%20Working%20Group%20%20Summary%20of%20Findings.pdf.

Page	Recommendation
7	Government should consider how data collection can be standardised and shared so it is accessible to future project proponents and others making decisions which may affect protected sites and species. Data should be 'collected once, used many times'. As part of better data use, we recommend that Government should consider whether to make Evidence Plans mandatory
8	In accordance with the mitigation hierarchy, before any environmental compensation is considered, the requirement should be to first avoid any impacts as a priority, then to minimise, then to mitigate so that compensation remains a last resort
11	Any new process for selecting and designating protected sites should be clear, transparent, evidence-led and based on scientific factors. Any process should retain the primary responsibility for designating sites with the statutory nature conservation body
13	Any provision for individual judgements by individual case officers should only be made within a clearly defined, consistent and objective decision-making framework that reflects effective governance processes
15	We recommend that any future legislation includes provisions to enshrine 30 by 30 in law as a key supporting target to halt species decline. Those provisions should set an ambition to protect at least 30% of land and seas by 2030, recognising international commitments and ongoing requirements after that date
16	Any Other Effective area-based Conservation Measures, or other area-based conservation tools, should meet International Union for Conservation of Nature and other accepted criteria and definitions to ensure that they can credibly contribute to nature's recovery and the goal of 30 by 30
16	Government should retain the coherent vision set by a high-level compound target which recognises the inter-dependence between all drivers of marine degradation. We advise against splitting the fifteen descriptors of Good Ecological Status into individual targets
16	Any reform of Defra's Arm's Length Bodies should be aligned around delivery of the Environmental Improvement Plan goals and associated targets

Table A5. Advice on Environment Act 2021 Targets (sent 27 June 2022).[141]

Page	Recommendations and conclusions
2	Targets must be comprehensive and cover the full range of priorities. In our view, all goals in the Environmental Improvement Plan should have an associated apex target, supported by a range of interim targets. Apex targets are most meaningful if they address the environmental outcomes that matter most, rather than areas that are easy to measure and improve
2	We highlight the need for Government to map the targets and commitments that are important to achieve the 25 Year Environment Plan goals, and to order them into a clear hierarchy and taxonomy. Government will need to develop a suite of targets over the next Environmental Improvement Plan cycle, with priorities informed by the Significant Improvement Test
4	*Species abundance target: Halt the decline in species abundance by 2030* We commend the species abundance target. It is an ambitious apex target, and it should provide the strong and immediate stimulus so much needed. It addresses an important area – species abundance, which is not easy to measure and improve, and could lead to synergies in improving other environmental goals We also recommend that Government expands their monitoring programme over the next Environmental Improvement Plan so that the species abundance target is sufficiently representative
5	*Post-2030 species abundance target: Increase species abundance by at least 10% by 2042, compared to 2030 levels* We advise Government to amend this target so that the ambition to drive recovery of species abundance from the baseline aligns with the 25 Year Environment Plan vision From a legal perspective, the baseline should be a known level. We recommend that the baseline is set from the target introduction (2022), or from when the 25 Year Environment Plan was published (2018), and that it should accommodate for natural variability We also recommend that Government undertakes further research on the scale of improvement that is achievable, so that the level of ambition can be reviewed and potentially increased in the 2028 Environmental Improvement Plan refresh
6	*Species extinction target: Improve the England-level GB Red List Index for species extinction risk by 2042, compared to 2022 levels* We recommend this target is amended to include more specificity on the level of improvement sought in the England-level GB Red List Index, and for more specificity on the species most at risk of extinction, for example, those falling within endangered or critically endangered categories

141 Office for Environmental Protection, *OEP Response to Consultation on Environmental Targets*.

Page	Recommendations and conclusions
6	*Wildlife-rich habitats target: Create or restore in excess of 500,000 hectares of a range of wildlife-rich habitats outside protected sites by 2042, compared to 2022 levels* We recommend this target is amended to clearly specify the areas of different habitat types that will be created or restored, that the target area is made net, and is increased to 750,000 hectares to better complement the ambition of the woodland cover target We also advise that Government adds further targets to strengthen the extent, condition and connectivity of habitats (for example Lawton's Principles), which is essential to improving species abundance and reducing species extinction risk. These should include a protected sites condition target, and a protected sites extent target, strengthening Government's ambition to protect 30% of land by 2030
7	*Marine protected sites condition target: 70% of the designated features in the MPA network to be in favourable condition by 2042, with the remainder in recovering condition, and additional reporting on changes in individual feature condition* We recommend that to strengthen the proposed target for Marine Protected Areas, Government adds a refreshed target deadline to achieve Good Environmental Status in all seas by 2042. This addition would bring coherence with the pre-existing UK Marine Strategy and the marine goals of the 25 Year Environment Plan, as well as ensure there is sufficient and continued attention on recovering marine environments outside of protected sites. This will further support Government's suggestion in the Nature Recovery Green Paper to develop clear, timebound commitments across each individual component of Good Environmental Status We also press Government to amend the target to be consistent in terminology to other targets: Halt damaging activities by 2024 and the decline in the condition of designated features in the Marine Protected Area network, and actively drive full recovery across all features, with 70% at good status by 2042
9	*Agricultural nutrients target: Reduce nitrogen, phosphorus and sediment pollution from agriculture to the water environment by at least 40% by 2037 against a 2018 baseline* We commend this target for mitigating a key pressure to the water environment
10	*Wastewater nutrients target: Reduce phosphorus loadings from treated wastewater by 80% by 2037 against a 2020 baseline* We support this target for mitigating a key pressure to the water environment and agree that nature-based and catchment-based solutions should be a supporting component. We therefore recommend Government amends the scope of the target, but this should be broadened further to manage other phosphorous sources, such as from food additives and detergents. This would tackle the problem at source rather than at end-of pipe

Page	Recommendations and conclusions
10-11	*Abandoned metal mines target: Reduce the length of rivers and estuaries polluted by target substances from abandoned mines by 50% by 2037 against a baseline of around 1,500 km* We recognise that pollution from abandoned metal mines is an acute problem in a small number of areas. However, we would expect targets to be set in areas representing major pressures to the water environment across the country. We therefore strongly urge Government to add further targets to tackle major pressures in the water environment for example, water pollution from urban areas and transport is the third largest polluter of the water environment after agriculture/rural land management and wastewater but does not have a dedicated target
11	*Water demand target: Reduce the use of public water supply in England per head of population by 20% by 2037 against a 2019/20 baseline* This target focuses on public water supply and demand, a major pressure on the water environment. We press Government to amend this target so it focuses on unsustainable water abstraction. This may require an absolute metric, for example, total water abstraction, rather than a relative metric (for example, per capita)
13	*Woodland creation target: Increase tree canopy and woodland cover from 14.5% to 17.5% of total land area in England by 2050* We commend this woodland creation target. It is welcome for its ambition and it is well aligned with the Net Zero target. Focusing on tree canopy, rather than trees planted, helps strengthen its ability to contribute to many of the goals within the 25 Year Environment Plan, including improving biodiversity We also urge Government to review the voluntary status and application of the UK Forestry Standard to ensure this is adequate for driving delivery of woodland cover which supports the vision of the 25 Year Environment Plan
15	*Residual waste target: Reduce residual waste (excluding major mineral wastes) kg per capita by 50% by 2042 from 2019 levels. It is proposed that this will be measured as a reduction from the 2019 level, which is estimated to be approximately 560 kg per capita* We commend the residual waste target for its ambition, and we agree that mineral waste should not be included in this particular target. However, a single target which focuses on downstream waste management may not be sufficient to deliver the Government's goal of a circular economy We therefore advise Government to add a target which addresses resource use and the associated environmental impacts of consumption, including embodied carbon. This new target should include materials such as mineral waste

Page	Recommendations and conclusions
18	*PM2.5 air quality target: A target of 10 micrograms per cubic metre (µg/m^3) to be met across England by 2040* Whilst we acknowledge a concentration limit of 10 µg/m^3 is ambitious, we recommend this target be set at least by 2030 to ensure immediate implementation of policies. We recommend the target is amended to bring the deadline forward to 2030. We accept that localised hotspots may require special measures to deliver against the 2030 target date We also recommend that as part of the Environmental Improvement Plan refresh in 2028, Government adds a further PM2.5 concentrations target beyond 2030, which is closer in line with the World Health Organization guidelines. This will require further research, innovation and engagement with key stakeholders, including between Devolved Administrations and neighbouring European Union countries
18	*Population exposure reduction target (PERT): a 35% reduction in population exposure by 2040 (compared to a base year of 2018)* We commend this target for its ambition and specific focus on harmful exposure to PM2.5, providing the greatest overall public health benefit

Table A6. Response to Consultation on the Principles of Marine Net Gain (sent 26 August 2022).[142]

Page	Recommendation
1	Many of the overarching points we made in our advice on the recent consultation on Biodiversity Net Gain Regulations and Implementation will also apply to marine net gain. We highlighted the importance of ensuring good governance, including effective arrangements for the implementation, monitoring, reporting and enforcement of the scheme. The same points will also hold true for marine net gain
2	The success of the scheme will depend on the availability of sufficient resources both to set it up well and to ensure its long-term success. This will require investment in education and training, as well as the provision of resources to the appropriate authorities
2-3	We understand the challenge of delivering marine net gain in fisheries management. However, the absence of a clear consenting process that assesses the environmental impacts of fishing activity serves to demonstrate the case for Environmental Impact Assessments within the sector. We referred to this in our recent response to the Joint Fisheries Statement consultation and believe this to be a key enabler for marine net gain to drive recovery in the marine environment

142 Office for Environmental Protection, *OEP Response to Principles of Marine Net Gain Consultation*, 2022, https://www.theoep.org.uk/report/oep-response-principles-marine-net-gain-consultation.

Page	Recommendation
3	The consultation suggests prioritising the contributions-based approach, in part because of the technical difficulty in establishing a comprehensive assessment framework and adaptation of the existing biodiversity metric. Regardless of the approach chosen, Defra will need to develop a rigorous method of assessment to quantify the proposed impact and assign net gain obligations
3	We consider it important that Defra establishes a minimum requirement for net gain for the purposes of implementation, evaluation and enforcement
4	As recommended in our advice on the Biodiversity Net Gain Regulations and Implementation, we consider that Government should ensure that all projects are subject to the same minimum net gain requirements, including Nationally Significant Infrastructure Projects
4	Specifying the minimum length of time that marine net gain interventions will require maintenance, management and monitoring is critical
4	As the policy progresses, Defra will need to develop a clear approach to ensure that marine net gain passes the tests of additionality (for example, 'Financing Nature Re-covery UK' propose potential tests for determining if the net gain activity can be con-sidered additional). A coherent delivery plan will help to demonstrate how this policy fits with wider commitments to the recovery of the marine environment, such as those within the 25 Year Environment Plan, legally binding targets and as part of the OSPAR Convention

Table A7. Response to Consultation on Highly Protected Marine Areas (sent 23 September 2022).[143]

Page	Recommendation
2	Highly Protected Marine Areas must be based on a rigorous scientific design to be sufficiently effective
2	Highly Protected Marine Areas will need to be part of a coherent plan to support marine recovery which reflects the drive, ambition and timetable set out in the 25 Year Environment Plan
2	We encourage Defra to develop and set out a clearer timeline and objectives for monitoring, reviewing, and reporting on the implementation of the pilot Highly Protected Marine Areas
2	We advocate the development of a more ambitious plan and time scale to implement Highly Protected Marine Areas more widely beyond the pilot. This should provide for increasing the scale of protection needed to deliver the Government's vision of securing clean, healthy, productive and biologically diverse seas and oceans on a larger scale once the pilot has concluded

143 Office for Environmental Protection, *OEP Response to Consultation on HPMAs*, 2022, https://www.theoep.org.uk/report/oep-response-consultation-hpmas.

Page	Recommendation
2-3	Highly Protected Marine Areas should be supported by well-developed governance and sufficient long-term resourcing of public authorities. For Highly Protected Marine Areas, this will require sustained investment in the bodies responsible for discharging these functions. This will include the provision of sufficient technical capacity, alongside formulating byelaws and updating guidance to support implementation, developing survey programmes to monitor and review success over time, and ensuring effective compliance and enforcement
3	We note existing concerns relating to the pace with which effective management has been introduced to the rest of the Marine Protected Area network, particularly in the offshore region. We strongly encourage Government to ensure resources are front-loaded and made available for the future Highly Protected Marine Area programme to be delivered at the pace required
3	To support future Highly Protected Marine Area designations at the necessary scale we suggest that assessment of the suitability of the Marine and Coastal Access Act 2009 should include consideration of the extent to which it gives appropriate weighting to environmental factors against social or economic ones
3	We note that the Marine Management Organisation guidance will need to be updated to ensure strict protection for Highly Protected Marine Areas. We further suggest that the effectiveness of guidance as a regulatory tool for sites that have been selected to provide full protection and recovery should form part of the monitoring and review of the pilot
3-4	Highly Protected Marine Areas should be informed by evidence on the value of marine protection and recovery. It is therefore essential that environmental considerations be given sufficient weight to achieve this outcome. We strongly encourage the Government to ensure evidence gathering is targeted to allow for that

Annex Two

Annex Two: Our assessment methods

Methods for assessing environmental trends and targets

Our trend assessment is consistent with Government's approach, where we have used the latest publicly available data to identify 12-month trends over the annual reporting period wherever possible. We have also assessed short-term trends, using the last five years of available data. While we have taken a basic statistical approach to assessing each trend, we have elaborated on any variation in the trend over time. We have also undertaken an assessment of Environment Act 2021 (the Act) and other targets to understand any high-level implications for future progress and delivery against government aims.

Introduction

In our *Taking Stock* report[144], we welcomed the Outcome Indicator Framework (OIF)[145] as "a platform for bringing together a range of current and developing monitoring programmes in England for the first time".

The OIF considers four overlapping frameworks (natural capital, 25 Year Environment Plan (25 YEP) goal areas, 25 YEP themes, and headline groups) which provides flexibility but also creates complexity. Government has aimed to provide greater clarity by identifying headline groups and indicators that relate to key aspects of the environment.

The intention of the OIF headlines is to "provide a high-level overview of progress and to simplify the presentation of a large amount of information". We agree with the broad definition provided. However, our view is that the headline groups developed by Government through this definition do not strike an appropriate balance between complexity and ease of use and interpretation. Currently, the headline groups are not sufficiently comprehensive to allow a detailed picture of environmental change to be developed or to allow for a full assessment of progress.

In accordance with the Act, we have undertaken an independent assessment of progress in improving the natural environment over the period of Government's 2021/2022 Annual Progress Report (APR), in accordance with the 25 YEP. In doing so we have considered the APR and government data published under the Act, which relates to the relevant period, as well as other reports, documents and information as appropriate.

In future years, we must also consider progress towards meeting long-term and interim targets under the Act. This is not a requirement for this report, as these targets were not in place over the relevant period. However, as part of our analysis we have considered how trends in environmental indicators relate to progress towards meeting the long-term targets recently established under the Act, and other relevant targets. We have also analysed progress in environmental improvement and towards meeting targets over a longer timeframe, particularly where up-to-date data are lacking.

We have sought to develop our headline indicators that align with the OIF indicators as far as possible, while focussing on the most important 'apex' indicators for each goal area, that is those where the outcomes matter most. We use the OIF as a starting point and where gaps are present, and where possible, we have used other government information.

144 Office for Environmental Protection, *Taking Stock: Protecting, Restoring and Improving the Environment in England*.

145 Department for Environment, Food and Rural Affairs, *Outcome Indicator Framework for the 25 Year Environment Plan: 2022 Update*.

In some cases, we have developed indicators from existing assessments of progress, for example, the Centre for Environment, Fisheries and Aquaculture Science's progress with Good Environmental Status in the marine environment.[146]

We used a four-stage approach to assess changes in the state of the environment. First, we identified headline indicators using expert judgement guided by objective criteria. Second, we assessed the short-term performance trends of those headline indicators. Third, we identified relevant targets for the headline indicators and, where available, we have assessed whether they are likely to be, or have been achieved. Finally, we have used Climate Change Committee (CCC) climate adaptation assessments, where available, to determine the current state of adaptation for each goal area.

Headline Indicators

The selection of headline indicators requires careful consideration. To develop our framework, we have used selection criteria (Table A8) that are as objective as possible. These criteria broadly reflect Government's own definition of headline indicators, which is to provide a high-level overview of progress and to simplify the presentation of a large amount of information.

Our selection provides clearer line of sight to apex environmental targets essential to the delivery of the Environmental Improvement Plan (EIP). They include environmental pressures and states and are consistent with the OIF headline indicators, to allow us to make our independent assessment of changes in the state of the environment, while retaining relevance to the 25 YEP goal areas. Some represent proxy indicators where direct monitoring data are unavailable.

Table A8. Selection criteria for Office for Environmental Protection headline indicators.

Environment
Defines significant environmental outcomes or contributions to targets for individual goals
Measures areas of the environment that matter most, rather than areas that are easy to measure and improve. This means parts of the environment experiencing states of severe deterioration or major or emerging pressures that negatively impact the environment
Monitoring
Minimal overlap with other headline indicators
Translates complex information and allows the state of the environment to be determined and communicated effectively
Uses easily accessible data, produced by Government or associated bodies, that are based on a sound methodology, regularly updated and can provide short-term trends

In total, 32 headline indicators were selected for our monitoring. This compares to the 66 indicators and 44 headline indicators currently developed and used in the OIF. All OIF indicators were screened, irrespective of whether they had been identified as OIF headline indicators, or the goal area assigned to them.

146 Centre for Environment, Fisheries and Aquaculture Science, *Summary of Progress towards Good Environmental Status – Marine Online Assessment Tool*.

The indicators we excluded were those that had no suitable data, had overlap with other more suitable indicators, or were not directly indicative of major pressures, outcomes or apex targets. For example, OIF indicator E9 'Percentage of seafood coming from sustainable sources' was rejected in favour of C10a 'Marine fish stocks of UK interest harvested sustainably'. Data availability supported our decision and, while C10a examines wild fish stocks, E9 introduces elements of aquaculture.

Twenty-two OIF indicators met our selection criteria. However, these did not fully address all 10 goal areas of the 25 YEP. By applying the criteria, we identified a further 10 headline indicators. For example, 'number of fires affecting grassland, woodland and crops', being representative of pressures relating to climate change, including rising temperatures and changing rainfall patterns, in addition to the resulting physical damage to habitats and wildlife. Table A9 shows the distribution of our selected headline indicators across the 10 goal areas.

In consultation with stakeholders, we identified the fact that some of the data for the additional 10 headline indicators did not match our monitoring criteria and trends were no longer considered for these in our assessment. These were 'condition of offshore Marine Protected Areas', 'healthy soils', 'exposure to transport noise' and 'resource productivity'. We did however retain them in our assessment process to highlight major gaps in monitoring. We discuss this further in Chapter Two.

Table A9. Summary of the sources of headline indicators by goal areas of the 25 Year Environment Plan. Indicators were either from the Outcome Indicator Framework or developed by us.

Goal area	OIF indicators	OEP developed headline indicators	Total
Clean air	1	2	3
Clean and plentiful water	3	1	4
Thriving plants and wildlife	3	2	5
Reduced risk of harm from environmental hazards	2	2	4
Enhanced beauty, heritage and engagement with the natural environment	1	0	1
Mitigating and adapting to climate change	2	0	2
Using resources from nature more sustainably and efficiently	5	2	7
Minimising waste	2	0	1
Managing exposure to chemicals and pesticides	1	1	2
Enhanced biosecurity	2	0	2
Total	**22**	**10**	**32**

Table A10 presents our headline indicators, their source, selection criteria and the date range considered. We have simplified the names of some indicators in order to better

communicate the objective. In these cases, our names and those from the OIF may vary slightly.

Table A10. Headline indicators selected, their source and selection criteria. The current annual reporting period is April 2021 to March 2022.

Goal area	OEP Headline indicator	Source	Selection criteria			Short-term trend date range	Data availability in current annual reporting period
			Outcome-focused	Major pressure	Progress of target		
Clean air	Percentage of monitoring stations above 10 µg/m^3 of PM2.5	OEP	✓	✓	✓	2016-2021	✓
	Emissions for five key air pollutants	OIF Indicator A1	✓	✓	✓	2015-2020	
	Air quality zone compliance	OEP	✓	✓		2016-2021	✓
Clean and plentiful water	Serious pollution incidents to water	OIF Indicator B2	✓	✓		2017-2021	✓
	State of the water environment	OIF Indicator B3	✓		✓	2015-2019	
	Condition of bathing waters	OIF Indicator B4	✓		✓	2016-2021	✓
	Achievement of marine 'good environmental status'	OEP	✓		✓	2012-2018	
Thriving plants and wildlife	Condition of Sites of Special Scientific Interest	OIF Indicator D2b	✓		✓	2016-2021	✓
	Condition of offshore marine protected areas	OEP	✓		✓	n/a	
	Abundance of priority species	OIF Indicator D6ai	✓		✓	2013-2018	
	Threat of extinction to UK species	OIF Indicator D5	✓		✓	2017-2022	
	Extent of land-use change	OEP	✓	✓	✓	2018-2022	

Goal area	OEP Headline indicator	Source	Selection criteria			Short-term trend date range	Data availability in current annual reporting period
			Outcome-focused	Major pressure	Progress of target		
Reducing the Risk of harm from environmental hazards	Properties at high risk of flooding	OIF Indicator F1	✓			2016-2021	✓
	Water company security of supply performance	OEP	✓	✓		2016-2021	✓
	Number of fires affecting grassland, woodland and crops	OEP	✓			2017-2022	✓
Enhancing beauty, heritage and engagement with the natural environment	Visits to the natural environment	OIF Indicator G4a	✓			2015-2019	
	Exposure to transport noise	OIF Indicator H5		✓		n/a	
Mitigating and adapting to climate change	Emissions of greenhouse gases from natural resources	OIF Indicator A2	✓	✓	✓	2014-2019	
	Carbon footprint and consumer buying choices	OIF Indicator J1		✓		2013-2018	

Goal area	OEP Headline indicator	Source	Selection criteria			Short-term trend date range	Data availability in current annual reporting period
			Outcome-focused	Major pressure	Progress of target		
Using resources from nature more sustainably and efficiently	Percentage of woodland that is sustainably managed	OEP	✓		✓	2016-2021	✓
	Fish stocks that are sustainably harvested	OIF Indicator C10a	✓		✓	2014-2019	
	Water bodies that are sustainably abstracted for human use	OIF Indicator B5	✓		✓	2017-2019	
	Per capita drinking water consumption in England	OIF Indicator E8b		✓	✓	2016-2021	✓
	Healthy soils	OIF Indicator E7	✓		✓	n/a	
	Amount of raw material consumed	OIF Indicator J2		✓		2013-2018	
	Resource productivity	OEP	✓	✓		n/a	
Minimising waste	Residual waste	OIF Indicator J4		✓	✓	2014-2019	
	Number of fly-tipping Incidents	OIF Indicator J6b		✓		2016-2021	✓
Managing exposure to chemicals and pesticides	Hazardous waste disposal	OEP		✓		2016-2020	
	Emissions of persistent organic pollutants	OIF Indicator H3b		✓		2014-2019	
Enhanced biosecurity	Number of invasive non-native species becoming established	OIF Indicator H1		✓	✓	1970-1979 to 2020	
	Number of additional tree pests and diseases becoming established	OIF Indicator H2		✓		2007-2016 to 2011-2020	

In two cases, while we have selected an existing OIF indicator, we have referenced alternative data that we consider provide a more effective understanding of the environment.

In three cases we have presented a composite indicator that uses component information. This approach is consistent with that taken within the OIF for indicators such as D6 'Relative abundance and distribution of priority species in England',[147] where an aggregate of species data is provided in the trend and overall progress assessed, with species-level progress being discussed in the text. Our approach to such indicators is outlined in Table A11.

Table A11. Alternative approaches taken to existing OIF Indicators.

OEP Headline Indicator	OIF Indicator	Approach Taken
Emissions for five air pollutants	A1 Emissions for five key air pollutants	We have updated the trends using government data and a consistent approach, assessing 2015 to 2020, rather than 2013 to 2018. To present an overall picture of progress, we have created a composite trend using the median of pollutant indices for each year from which we determine the latest overall trend We differ from the OIF Indicator A1 which presents data for England by using UK data which is more relevant to the statutory target
Serious pollution incidents to water	B2 Serious pollution incidents to water	We have used OIF indicator B2 'serious pollution incidents to water' but have used Environmental Performance Assessment data instead of the data used in the OIF The Environment Agency information measures incidents where investigations and response have been completed and as such are resource dependent. We therefore consider the Environmental Performance Assessment data to be a more effective measure in this context
Properties at high risk of flooding	F1 Disruption or unwanted impacts from flooding or coastal erosion	To present an overall picture of progress, we have used government data[148] to create a composite trend based on the total properties at risk from (a) the number of properties in areas at risk of flooding from surface waters and (b) the total number of properties at risk of flooding from seas and rivers

147 Department for Environment, Food and Rural Affairs, "Indicator: D6 – Relative Abundance and Distribution of Priority Species in England – Outcome Indicator Framework for the 25 Year Environment Plan," accessed December 2, 2022, https://oifdata.defra.gov.uk/4-6-1/.

148 Environment Agency, *Flood and Coastal Erosion Risk Management Report: 1 April 2020 to 31 March 2021.*

OEP Headline Indicator	OIF Indicator	Approach Taken
Emissions of persistent organic pollutants	H3b Emissions of mercury and persistent organic pollutants to the environment	To present an overall picture of progress, we have created a composite trend using the median of pollutant indices for each year from which we determine the latest overall trend
Threat of extinction to UK species	D5 Conservation status of our native species	We have used the UK Red List as a proxy for England which is referenced by the OIF. Natural England states that there is an 80 to 92% correlation with the England level index. This is considered a good approximation of extinction risk in England[149]

A degree of expert judgement is required to accompany the selection criteria, to determine whether an indicator matches Government's definition of headline indicators. While this provides a high-level overview of progress and simplifies the presentation of a large amount of information, we expect to undertake further development, in future monitoring years to refine our approach.

Indicator Trend Assessment

Having established our headline indicators, we assessed progress against those indicators. We have sought consistency with Government's approach, in that we have used the latest publicly available data to identify 12-month trends over the reporting period wherever possible. To calculate short-term trends, we adopted a simple approach. We used the last five years of data (six data points, for example, 2015 to 2020) and calculated the percentage increase or decrease between the first and most recent measured data points. We have also elaborated qualitatively on any significant variation in the trend over time within the report narrative, particularly where available data do not cover the annual reporting period.

Our trend analysis differs from Government's approach, in that we do not use smoothing techniques in our trend calculations. Government applies a Loess smoother to long-term datasets (for example, 2001 to 2018). It calculates long-, medium- and short-term trends from the modelled dataset by assessing the percentage increase or decrease between the first and most recent but one data point on the smoothed trend. This methodology reduces the influence of natural interannual variability in measured data.

However, the most recent smoothed data point is generally removed from trend analysis because there are no subsequent data points with which to calculate the smoothed value, meaning the last data point tends to be associated with higher errors. For example, OIF indicator J2 has data published to 2018, but points smoothed by trends only extend to 2017.[150] This is consistent with the Joint Nature Conservation Committee's approach to the UK Biodiversity Indicators.[151]

149 Natural England, *Outcome Indicator Framework for England's 25 Year Environment Plan: D5 Conservation Status of Our Native Species*.

150 Department for Environment, Food and Rural Affairs, *Outcome Indicator Framework for the 25 Year Environment Plan: 2022 Update*.

151 Mark Eaton and David Noble, *Technical Background Document: The Wild Bird Indicator for the UK and England*, 2015, https://hub.jncc.gov.uk/assets/7162735c-9fa7-4962-aee7-709d242173f1.

We have not applied a Loess smoother. This is for several reasons. First, this avoids removing the most recent data point and we must consider the most recent observations where available. Second, the Loess smoother provides limited benefits for our datasets, as we have only assessed trends over the short-term, so the difference between the smoothed and observed data was not significant for the indicators we tested. Third, while Loess smoothing can avoid issues associated with natural variability, it can also moderate real and intended environmental shifts associated with the introduction or cessation of important policy interventions.

As we have not omitted the most recent data point, the date ranges presented for our selected indicators shown in Table A10 differ from those published in the most recent OIF update and APR.[152] [153]

We have assessed the percentage increases or decreases using a 3% threshold, consistent with Government's approach, which also represents the Joint Nature Conservation Committee's standard threshold for assessing trends (Table A12). We have presented the trend of each headline indicator using a red-amber-green (RAG) system, combined with a three-direction arrow system (up, down, neutral) to indicate the direction of the trend.

Using a combination of the red-amber-green colour coding and directional arrows clearly distinguishes between headline indicators for which an improvement may be a reduction (for example, a decrease in the emission of air pollutants) or an increase (for example, increased tree cover) in the absolute value. If no assessment has been possible, we have marked the headline indicator as grey.

152 Department for Environment, Food and Rural Affairs, *Outcome Indicator Framework for the 25 Year Environment Plan: 2022 Update*.
153 Department for Environment, Food and Rural Affairs, *25 Year Environment Plan Annual Progress Report – April 2021 to March 2022*.

Table A12. Indicator trend assessment categories.

Icon	Assessment	Trend Direction	Magnitude of Change
	Improvement	Increasing	>3% improvement
	Improvement	Decreasing	>3% improvement
	Little or No Change	No change	-3% to +3% change
	Deterioration	Increasing	>-3% deterioration
	Deterioration	Decreasing	>-3% deterioration
	No Assessment Made	Major gap with no appropriate data to inform progress	

Table A11 shows that in limited cases we have created composite indicators. While we present an overall trend in Chapter Two for all the indicators assessed, we also refer to and assess the components which form the overall indicator. These assessments are provided in Table A13.

Table A13. Trend assessment for composite indicator components.

Goal, area	Headline Indicator	Component	Component Trend
Clean air	Emissions for five key air pollutants	NO_2	
		SO_2	
		NMVOC	
		PM2.5	
		NH_3	

Goal, area	Headline Indicator	Component	Component Trend
Clean air	Air quality zone compliance	NO_2	
		PM10	
		PM2.5	
		O_3	
		Arsenic	
		Cadmium	
		Nickel	
		Benzo(a)Pyrene	
		SO_2	
		CO	
		Benzene	
		Lead	
Reduced risk of harm from environmental hazards	Properties at high risk of flooding	Rivers and Sea Erosion	
		Surface Water	

Goal, area	Headline Indicator	Component	Component Trend
Managing exposure to chemicals and pesticides	Emissions of persistent organic pollutants	Dioxin-like Polychlorinated biphenyl	
		Dioxins and Furans	
		Hexachlorobenzene	
		Pentachlorobenzene	
		Pentachlorophenol	
		Polychlorinated biphenyl	
		Polychlorinated naphthalenes	

Target criteria, scoping and assessment

Our first two steps involved the identification of our headline indicators and the assessment of short-term trends. This allows us to establish a 'present' state of the environment, together with recent progress. We have also assessed relevant targets to understand any high-level implications for future progress and delivery of government's aims.

Our *Taking Stock*[154] report defined targets as statements that commit to achieving a desired level of performance, based on measurable indicators. An example of a target is 'to reduce PM2.5 concentrations across the UK, so that the number of people living in locations above the World Health Organisation guideline level of 10 µg/m^3 is reduced by 50% by 2025'.

In the absence of government having an approach to assessing targets, we have developed our own methodology to identify and assess delivery (or the likelihood of delivery).

We have identified those legally binding and non-legally-binding targets, which: (i) relate to the selected headline indicators, (ii) agree with our definition of a target, and (iii) are objectively measurable. Targets considered for the analysis are presented in Table A14.

We have considered all the legally binding Act targets. Where we assess non-Environment Act targets, we only assess apex targets. First, because there is a lack of clear hierarchy and taxonomy of targets from which to select. Second, many targets overlap, and we have looked to assess progress against apex targets.

Government is still developing the monitoring programmes in order to assess progress against some targets. In these cases, our headline indicators provide a proxy for progress.

154 Office for Environmental Protection, *Taking Stock: Protecting, Restoring and Improving the Environment in England*.

This enables an initial assessment of risks to achieve the targets while Government establishes its monitoring programme.

It has not been possible to assign a target to each headline indicator. This is due to there being no target (or SMART target)[155] available that allows us to make an assessment, or where the indicator contributes to wide-ranging actions or commitments which themselves are not SMART. Where this is the case and where relevant to the narrative, we comment within our main report to highlight progress qualitatively against actions and commitments. The main exception is for targets set under the Act, which we have always assigned to a headline indicator and considered.

Table A14. Target scoping 'long-list'.

Goal Area	Target Description	Target Source	Reason for Selection or Exclusion from Assessment
Clean air	An Annual Mean Concentration Target for PM2.5 levels in England to be 10 µg/m^3 or below by 2040	Environment Act 2021	Major pressure on the environment
	A Population Exposure Reduction Target for a reduction in PM2.5 population exposure of 35% compared to 2018 to be achieved by 2040	Environment Act 2021	Major pressure on the environment
	The Secretary of State must ensure that, in 2030 and in each subsequent year, the total anthropogenic emissions occurring within the United Kingdom of each relevant pollutant do not exceed the percentage of base year emissions specified	National Emissions Ceiling Regulations 2018	Major pressure on the environment
	The Secretary of State must ensure that levels of sulphur dioxide, nitrogen dioxide, benzene, carbon monoxide, lead and particulate matter do not exceed the limit values set out in Schedule 2	The Air Quality Standards Regulations 2010	Major pressure on the environment

155 Specific, Measurable, Attainable, Relevant, Time-based.

Goal Area	Target Description	Target Source	Reason for Selection or Exclusion from Assessment
Clean and plentiful water	Certain waterbodies should achieve or maintain 'good' ecological status by 2021	Water Environment (Water Framework Directive) (England and Wales) Regulations 2017	Comprehensive target focussing on the natural environment
	Ensure that, by the end of the bathing season in 2015, all bathing waters are classified at least as 'sufficient'	Bathing Water Regulations 2013	Comprehensive target focussing on public health
	Achieve or maintain good environmental status by 31 December 2020	Marine Strategy Regulations 2010	Comprehensive environment target
	Reduce nitrogen (N), phosphorus (P) and sediment pollution from agriculture into the water environment by at least 40% by 2038, compared to a 2018 baseline	Environment Act 2021	Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 provide an overarching outcome-based target and considers these pressures
	Reduce phosphorus loadings from treated wastewater by 80% by 2038 against a 2020 baseline	Environment Act 2021	
	Halve the length of rivers polluted by harmful metals from abandoned mines by 2038, against a baseline of around 1,500 km	Environment Act 2021	

Goal Area	Target Description	Target Source	Reason for Selection or Exclusion from Assessment
Thriving plants and wildlife	Halt the decline in species abundance by 2030	Environment Act 2021	Government's main apex target
	70% of the designated features in the MPA network to be in favourable condition by 2042, with the remainder in recovering condition	Environment Act 2021	Major contributor for environmental improvement
	Ensure that species abundance in 2042 is greater than in 2022, and at least 10% greater than 2030	Environment Act 2021	Major contributor for environmental improvement
	By 2020, at least 50% of English Sites of Special Scientific Interest (SSSIs) are in favourable condition	Biodiversity 2020	Major contributor for environmental improvement
	Improve the Red List Index for England for species extinction risk by 2042, compared to 2022 levels	Environment Act 2021	Major component supporting Government's apex target
	Restore or create in excess of 500,000 hectares of a range of wildlife-rich habitat outside protected sites by 2042, compared to 2022 levels	Environment Act 2021	Major contributor for environmental improvement
Mitigating and adapting to climate change	Reaching Net Zero emissions by 2050	Climate Change Act 2008	Main climate change mitigation objective

Goal Area	Target Description	Target Source	Reason for Selection or Exclusion from Assessment
Using resources from nature more sustainably and efficiently	Increase total tree and woodland cover from 14.5% of land area now to 16.5% by 2050	Environment Act 2021	Major contributor for environmental improvement
	By 2021 ensure that 90% of surface water and 77% of groundwater have enough water to support environmental standards	25 YEP	Major pressure on the environment
	By 31 December 2020 populations of all commercially exploited fish and shellfish are within safe biological limits	Marine Strategy Regulations 2010	Major pressure on the environment
	Reduce the use of public water supply in England per head of population by 20% from the 2019/2020 baseline reporting year figures, by the end of the reporting year 2037/2038	Environment Act 2021	Major pressure on the environment
Minimising waste	Reduce residual waste (excluding major mineral wastes) kg per capita by 50% by 2042 from 2019 levels This will be measured as a reduction from the 2019 level, which has been revised to 574 kg per capita following updated evidence post-consultation	Environment Act 2021	Major pressure on the environment
Enhanced biosecurity	By 2020, invasive alien species and pathways are identified and prioritised, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment	Strategic Plan for Biodiversity 2011-2020	Major pressure on the environment

Table A15 provides the assessment criteria against which we have assessed targets. We have taken an approach that is consistent with our identification of headline indicators and have selected objective criteria to guide our expert judgement in assessing target achievability.

We have considered whether existing targets have been achieved or where trends indicate short-term achievement. The level of uncertainty introduced by timescales for delivery and the lack of interim targets has meant that some targets cannot be assessed with confidence. Each target is given a red-amber-green rating based on progress, either on track, off track or significantly off track. Those where uncertainty prevents a determination are coloured grey.

Our assessment is qualitative. The approach has been consulted on and is largely consistent with the European Environment Agency's approach to assessing targets.[156] We did not conduct any quantitative analysis or forecasting.

To determine a confidence rating for whether a target would be met, we considered the gap between recent levels of performance and the defined standard, as well as the timeframe available to meet the target. We also considered long- and short-term trends including the current situation (last 12 months), short-term (the period since adoption of the EIP) and where available or practicable, the long-term (any period before adoption of the EIP).

Due to a general lack of sufficiently detailed delivery plans across many targets, we did not develop criteria which considered pathways for achieving targets, the impacts of current or future policies, or the specific risks and opportunities that could affect success. We did consider this information where it was available through our achievement and trend criteria.

Table A15. Target assessment criteria.

Status		Achievement	Trend
●	On track	Target attained or we have high confidence the target will be achieved Target date has been passed and there is insufficient available data to determine achievement, but we have high confidence it was met We have high confidence in assessment as delivery of interim or final targets, is in the short-term	Trend going in the right direction at an appropriate rate (that is, trend assessment is green)

156 European Environment Agency, *The European Environment — State and Outlook 2020: Knowledge for Transition to a Sustainable Europe*.

Status		Achievement	Trend
	Off track	Target date is in the future, it has not yet been achieved or we have medium confidence it will be Target date has been passed and there is insufficient available data to determine achievement, but we have medium confidence it was met Target date has passed and data are available which shows a minor gap between the attained level and the target Delivery of interim or final targets is medium-term so an assessment is not possible without sufficiently detailed delivery plans	Trend is not going in the right direction or a previously improving trend has started to deteriorate
	Significantly off track	Target not achieved or we have low confidence the target will be achieved Target date has been passed and there is insufficient available data to determine achievement, but we have low confidence it was met The gap between the latest available data and target date will likely prohibit real world evidence of target achievement by the deadline	Trend going in the wrong direction
	Unable to assess	Delivery of interim or final targets is long-term or there are no sufficient interim targets. An assessment is not possible Limited data availability or no suitable, comparable data Baseline date is after our assessment period	Limited data availability and/or no comparable data

Table A16 provides a summary of the assessment. The target assessment process was made particularly challenging through a lack of publicly available, sufficiently clear delivery plans on the achievability of many targets. In future years, we look to government to make these more accessible.

Table A16. Target assessment.

Goal Area	Headline Indicator	Target Description	Qualitative Assessment of Achievability	RAG Status
Clean air	Percentage of monitoring stations above 10 µg/m^3 of PM2.5	An Annual Mean Concentration Target for PM2.5 levels in England to be 10 µg/m^3 or below by 2040	PM2.5 trends are improving although there is some increase in the proportion of stations exceeding the limit in 2021 The targets may require significant new regulation, financial incentives or other measures to change behaviour, raise awareness and drive investment in technology	
		A Population Exposure Reduction Target for a Reduction in PM2.5 population exposure of 35% compared to 2018 to be achieved by 2040		
	Emissions for five key air pollutants	The Secretary of State [for Environment, Food and Rural Affairs] must ensure that, in 2030 and in each subsequent year, the total anthropogenic emissions occurring within the United Kingdom of each relevant pollutant do not exceed the percentage of base year emissions specified	Improvements have reduced since 2016 with limited change in the overall trend. Ammonia has increased over short-term (2014 to 2019) Government modelling shows that four of five pollutants will miss the individual 2030 targets under current plans. Only non-methane volatile organic compounds are predicted to achieve their emissions ceiling A draft updated National Air Pollution Control Programme has been consulted on but has yet to be adopted and contained measures to achieve the 2030 target	

Goal Area	Headline Indicator	Target Description	Qualitative Assessment of Achievability	RAG Status
Clean air	Air quality zone compliance	The Secretary of State [for Environment, Food and Rural Affairs] must ensure that levels of sulphur dioxide, nitrogen dioxide, benzene, carbon monoxide, lead and particulate matter do not exceed the limit values set out in Schedule 2 of The Air Quality Regulations 2010	Despite improvements in quality zones, non-compliance for nitrogen dioxide limit values and Nickel and Benzo(a)Pyrene target values remain In 2019, 25 of 31 zones did not achieve the annual average concentration limit value for nitrogen dioxide set out in the Air Quality Standard Regulations 2010. During 2020 this fell to four of 31 zones but then increased to eight in 2021	
Clean and Plentiful water	State of the water environment	Certain waterbodies should achieve or maintain "good" ecological status by 2021[157]	The latest available data are from 2019, with the latest figures and target attainment due in the updated River Basin Management Plans Status of surface waters has remained at a low level (16%) between 2015 and 2019. There is insufficient indication that an improvement will be made at the scale necessary Government states that England will see a decline 'from 14% of waters at 'good ecological status' to 6% by 2027 unless current interventions are maintained and new interventions introduced'[158]	

157 We are aware that Government has a 25 YEP commitment to improve at least three quarters of our waters to be close to their natural state as soon as is practicable, which is consistent with the updated River Basin Management Plans which sets a 2027 objective to achieve or maintain good ecological status: Objectives data for England | Catchment Data Explorer

158 Environment Agency, "River Basin Management Plans: Updated 2022."

Goal Area	Headline Indicator	Target Description	Qualitative Assessment of Achievability	RAG Status
Clean and Plentiful water	State of the water environment	Reduce nitrogen (N), phosphorus (P) and sediment pollution from agriculture into the water environment by at least 40% by 2038, compared to a 2018 baseline	Overall nitrogen and phosphate inputs to rivers have fallen when compared to a 2008 baseline. However, this is much reduced in the past five years[159] The target is ambitious and is reliant on changes across the landscape linking 100% uptake of agri-environment schemes and 20% of productive agricultural land being turned over to semi-natural habitats There is uncertainty over Environment Land Management schemes, a key delivery mechanism	
		Reduce phosphorus loadings from treated wastewater by 80% by 2038 against a 2020 baseline	Overall phosphate inputs to rivers have fallen by 49% compared to the 2008 baseline. Improvements have been decreasing in the short-term[160] Water companies have targets and investment plans with Ofwat through the Asset Management Plan process. Long-term target provides opportunity to enhance plans and delivery by 2038	

159 Department for Environment, Food and Rural Affairs, "Indicator: B1 – Pollution Loads Entering Waters – Outcome Indicator Framework for the 25 Year Environment Plan," accessed December 2, 2022, https://oifdata.defra.gov.uk/2-1-1/.

160 Department for Environment, Food and Rural Affairs, "Indicator: B1 – Pollution Loads Entering Waters – Outcome Indicator Framework for the 25 Year Environment Plan."

Goal Area	Headline Indicator	Target Description	Qualitative Assessment of Achievability	RAG Status
Clean and plentiful water	State of the water environment	Halve the length of rivers polluted by harmful metals from abandoned mines by 2038, against a baseline of around 1,500 km	Remediation of metal mines is feasible There is uncertainty over target delivery but the long-term target provides opportunity to enhance plans and delivery by 2038	
	Condition of bathing waters	Ensure that, by the end of the bathing season in 2015, all bathing waters are classified at least as 'sufficient'	In 2015, 97% of bathing waters were at least sufficient Available data shows that Government was within 3% of attaining its 100% target	
	Achievement of marine 'good environmental status'	Achieve or maintain 'good environmental status' by 31 December 2020	The latest available data are from 2018. Only 40% of features have attained good environmental status, 33% have partially achieved and 40 have not. Only 40% of features have improved since 2012 Birds have not achieved good environmental status and have been in a declining situation since 2012 There is insufficient indication that an improvement will be made at the scale necessary	
Thriving plants and wildlife	Condition of sites of special scientific interest (SSSIs)	By 2020, at least 50% of English SSSIs to be in favourable condition	There is little or no change to the area classified as favourable and unfavourable recovering condition. Government missed its 2020 target of having 50% in favourable condition by 2020 by 12%. The area that is unfavourable or destroyed is increasing	

Goal Area	Headline Indicator	Target Description	Qualitative Assessment of Achievability	RAG Status
Thriving plants and wildlife	Condition of offshore marine protected areas	70% of the designated features in the MPA network to be in favourable condition by 2042, with the remainder in recovering condition	There is little, easily accessible monitoring data for Marine Protected Areas Without adequate condition monitoring, there can be limited confidence in the successful design of policy interventions Other indicators, such as fish stocks that are sustainably harvested, suggest that general progress towards improving the marine environment is slow (49% of fish stocks are either unsustainably fished or there is no data) Marine Protected Area protection focusses on the condition of designated features. Wider measures across the marine environment from the UK Marine Strategy may be needed to address wider ecosystems and the pressures they face There are opportunities to rectify the situation given the long-term nature of the target. However, lag times will be significant both in policy changes and the nature of the environment, so attainment of the target, even at this range is uncertain	

Goal Area	Headline Indicator	Target Description	Qualitative Assessment of Achievability	RAG Status
Thriving plants and wildlife	Abundance of priority species	Ensure that species abundance in 2042 is greater than in 2022, and at least 10% greater than 2030	Abundance levels continue to fall with only limited signs that the decline is starting to level There is little further detail on plausible delivery pathways since Government's consultation on environmental targets, which only provided illustrative pathways There is uncertainty over Environmental Land Management schemes, a key delivery mechanism. Other indicators, such as the condition of protected habitats and contributing measures such as sustainable management of woodland show little progress There are opportunities to rectify the situation given the long-term nature of the target. However, lag times will be significant both in policy changes and the nature of the environment, so attainment of the target, even at this range is uncertain	

Goal Area	Headline Indicator	Target Description	Qualitative Assessment of Achievability	RAG Status
Thriving plants and wildlife	Abundance of priority species	Halt the decline in species abundance by 2030	Abundance levels continue to fall with only limited signs that the decline is starting to level There is little further detail on plausible delivery pathways since Government's consultation on environmental targets, which only provided illustrative pathways There is uncertainty over Environmental Land Management schemes, a key delivery mechanism. Other indicators, such as the condition of protected habitats and contributing measures such as sustainable management of woodland show little progress	
	Threat of extinction to UK species	Improve the England-level GB Red List Index for species extinction risk by 2042, compared to 2022 levels	It is not quantified what measure of improvement is necessary. However, there has been no change in the index in 22 years Our other indicators show there are significant challenges ahead including climate change and invasive non-native species which have the potential to significantly impact the target Limited progress with the condition of protected habitats or delivery mechanisms for species abundance which will directly influence progress towards this target is also concerning	

Goal Area	Headline Indicator	Target Description	Qualitative Assessment of Achievability	RAG Status
Thriving plants and wildlife	Extent of land use change	Restore or create in excess of 500,000 hectares of a range of wildlife-rich habitat outside protected sites by 2042, compared to 2022 levels	Trend data shows there has been limited change in land-use likely to support wildlife-rich habitats between 2018 and 2022. Increased urbanisation is offsetting the area of new woodland for example A net increase of approximately 25,000 hectares per annum is needed to deliver the target Uncertainty over Environmental Land Management Schemes, the limited increase in sustainably managed woodland and species abundance is concerning	
Mitigating and adapting to climate change	Emissions of greenhouse gases from natural resources	Reaching Net Zero emissions by 2050	Previous significant gains have started to slow. Main progress is in the waste industry. There is limited progress in agriculture, fluorinated gases and land use change. Net removals by the forestry sink have also not increased Diminishing returns may be contributing to a slowing trend. Significant uncertainty remains Net carbon removal from forestry also fell by 1 million tonnes of carbon equivalent from 2015 to 2019	

Goal Area	Headline Indicator	Target Description	Qualitative Assessment of Achievability	RAG Status
Using resources from nature more sustainably and Efficiently	Percentage of woodland that is sustainably managed	Increase total tree and woodland cover from 14.5% of land area now to 16.5% by 2050	Sustainably managed woodland can make a significant contribution to the target. The trend has shown little or no change OIF indicator 'area of woodland in England' shows a corresponding lack of progress with increasing woodland cover with an increase of only 1% between 2016 and 2021 There is a lack of certainty about how it will be delivered through future land management schemes	
	Water bodies that are sustainably abstracted for human use	By 2021 ensure that 90% or surface water and 77% of groundwater have enough water to support environmental standards	Latest available data are from 2019 It is uncertain whether the target will have been achieved as data for 2020 and 2021 are unavailable By 2019, 85% of surface waters and 73% of groundwaters had achieved sustainable abstraction. This is an increase of 3% and 1% over the previous three years Available data are not sufficiently recent to fully determine achievement. Given progress has been made in this area and government is close to its targets, we have medium confidence the target will have been achieved	

Goal Area	Headline Indicator	Target Description	Qualitative Assessment of Achievability	RAG Status
Using resources from nature more sustainably and efficiently	Fish stocks that are sustainably harvested	By 31 December 2020 populations of all commercially exploited fish and shellfish are within safe biological limits	Although progress is being made, the 49% of fish stocks that are unsustainably fished or with no monitoring data are concerning Available data are not sufficiently recent to fully determine achievement. Given the lack of progress in this area and lag times associated with our knowledge of fisheries and in industry, we have low confidence the target will have been achieved	
	Assessment of change in per capita water consumption in England	Reduce the use of public water supply in England per head of population by 20% from the 2019/2020 baseline reporting year figures, by the end of the reporting year 2037/2038	Long-term and medium-term reductions in water consumption have been replaced with a short-term increase Water companies have targets and investment plans with Ofwat through the Asset Management Plan Long-term target provides opportunity to enhance plans and delivery by 2038	

Goal Area	Headline Indicator	Target Description	Qualitative Assessment of Achievability	RAG Status
Minimising waste	Residual Waste	Reduce residual waste (excluding major mineral wastes) kg per capita by 50% by 2042 from 2019 levels This will be measured as a reduction from the 2019 level, which has been revised to 574 kg per capita following updated evidence post-consultation	Progress is deteriorating for total residual waste. There is limited detail on plausible pathways to achieve the target, including the relative effort through upstream and downstream measures, across different material streams Landfill has stalled at 13% for three years and incineration has increased. Residual waste levels have increased annually for five years The current Resources and Waste Strategy contains initiatives and interim targets. While the interim targets range from 2030 to 2035, the initiatives are limited to implementation between 2019 and 2023. The strategy is scheduled for revision in 2023/2024 Target attainment without new initiatives in an updated strategy remains uncertain. Implementation of a circular economy will be the most effective means of delivery and support other indicators relating to resource use and carbon emissions	

Goal Area	Headline Indicator	Target Description	Qualitative Assessment of Achievability	RAG Status
Enhanced biosecurity	Number of invasive non-native species becoming established	By 2020, invasive alien species and pathways are identified and prioritised, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment	Some priority species are being controlled and eradicated (notably, Ruddy Duck and Lundy Island rats) and measures are in place within the Great Britain Invasive Non-native Species Strategy Government in its report to the United Nations in 2019 states that progress towards the target has been made but at an insufficient rate Due to lag times and the extent of invasive non-native species across the country, we have low confidence the target will have been achieved	

Climate Adaptation

Climate change has its own goal area under the 25 YEP, Mitigating and Adapting to Climate Change.

Climate adaptation is distinct from climate mitigation, which focuses on reduction of greenhouse gas emissions to support achievement of Net Zero. Adaptation to climate change is the process of adjustment to actual or expected climate and its effects, in order to moderate harm or exploit beneficial opportunities.[161] The CCC states that 'without action on adaptation we will struggle to deliver key government and societal goals, including Net Zero itself. We cannot rely on nature to sequester carbon unless we ensure that our peat, our trees and our wetlands are healthy, not only today but under the climatic conditions we will experience in the future'.[162]

Given the relevance to many of the 25 YEP goal areas, we have therefore assessed climate adaptation within goal areas where appropriate assessments from the CCC are available.

Without climate adaptation, government is unlikely to achieve its 25 YEP goals, deliver a healthy environment that is resilient to future climate change or carbon sequestration at levels necessary to achieve Net Zero. The opposite is also the case; without a healthy and resilient environment, government is unlikely to achieve Net Zero. Climate change represents an increasing pressure on the environment, so mitigation and adaptation pathways must be considered as part of long-term environmental management.

161 Intergovernmental Panel on Climate Change, *Climate Change 2022: Impacts, Adaptation and Vulnerability Glossary*, 2022, https://www.ipcc.ch/report/ar6/wg2/downloads/report/IPCC_AR6_WGII_Annex-II.pdf.

162 Climate Change Committee, *Independent Assessment of UK Climate Risk*.

Climate adaptation offers opportunities for the environment. Nature-based solutions can deliver multiple ecosystem services that benefit the environment, the economy, wellbeing and support adaptation to climate change. Natural flood management for example can reduce flood risk by storing or slowing runoff while creating habitats and improving river water quality. In catchments that supply drinking water, this can also reduce water company resource use and cost in the treatment process.

Actions laid out in the Second National Adaptation Programme[163] aim to address climate risks and opportunities across multiple sectors, including the natural environment, infrastructure, health and the built environment and business. The cross-sectoral and context-specific nature of adaptation means it cannot be captured by a single indicator.

Many of the OIF indicators relevant to climate adaptation are still in development, or there are not enough data published to create a temporal trend. We have worked with the CCC and drawn on its biennial progress reports to develop a methodology to assess progress.

The CCC's methodology includes two assessment criteria: management of the risk and the quality of plan(s) in place. The first criterion is underpinned by quantitative indicators that evidence risk magnitude over time (vulnerability and exposure indicators). The second (plan score), considers whether effective monitoring is in place, whether climate change is considered in plans and if there are clearly defined timebound targets or outcomes. Both criteria are given an assessment of low, medium or high and are used to place the given adaptation priority on a nine-box scoring grid (Figure A1). The CCC assesses Government's progress in adapting to climate change biennially for 34 adaptation priorities (Table A17).

There is significant overlap between the 34 adaptation priorities and the 10 goal areas of the 25 YEP, so we provide an assessment of adaptation for each goal area where possible, alongside our assessment of the state of the environment.

163 Department for Environment, Food and Rural Affairs, *Climate Change*.

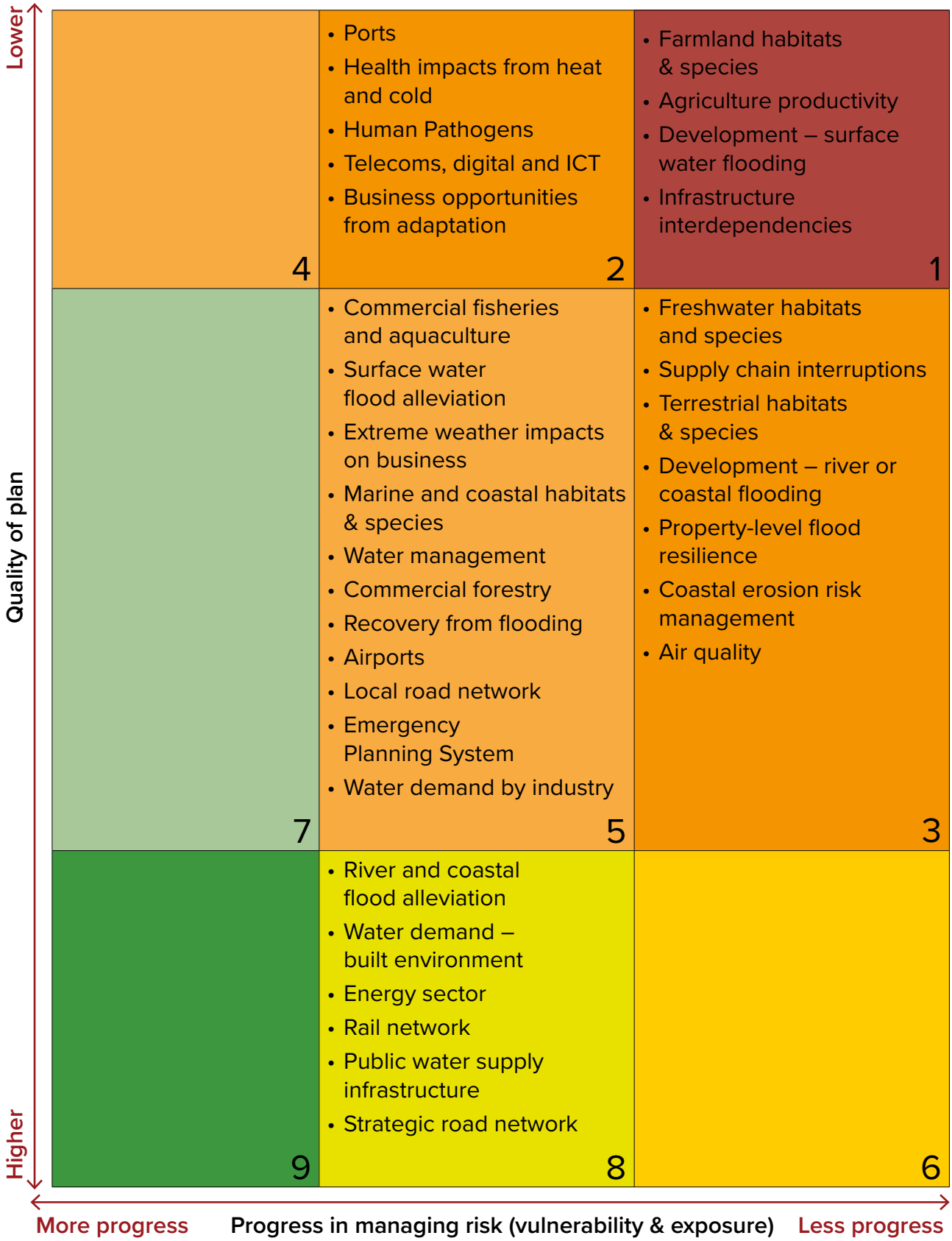

Figure A1. The Climate Change Committee Adaptation Committee's nine-box grid scoring matrix, with scores from the 2021 Progress Report to Parliament.

To map the CCC's 34 adaptation priorities to the 10 goal areas of the 25 YEP, we developed simple assessment criteria where:

- The scope of the CCC priority corresponded to one of the 10 goal areas of the 25 YEP. For example, the CCC priority 'terrestrial habitats and species' corresponded with Thriving Plants and Wildlife in the 25 YEP.
- Indicators that underpin the CCC progress scores (that is, the assessment of the magnitude of risk) corresponded to similar OIF indicators, or our other headline indicators. For example, the CCC priority 'river and coastal flood alleviation' corresponded with OIF indicator F2 'communities resilient to flooding and coastal erosion'.
- CCC adaptation priorities provided direct or proxy scoring across more than one goal area or indicator, so that progress scores could be read across.

Having developed these assessment criteria, we noted the CCC's adaptation progress scores over the previous two biennial progress reports (2019 and 2021). We used the CCC's nine-box grid scores (Figure A1) to develop 2021 to 2022 adaptation scores relevant to each 25 YEP goal area. Due to only having access to two data points for each adaptation score, we have limited this assessment to a qualitative commentary only. Furthermore, due to insufficient overlap between the CCC sectors, 25 YEP goal areas and our headline indicators, we have not been able to develop scores for two goal areas: Minimising Waste and Managing Exposure to Chemicals and Pesticides. Table A17 presents the breakdown and scoring by goal area.

Table A17. Mapping CCC adaptation priorities to 25 YEP goal areas. Priorities are ordered by CCC adaptation sector.

CCC adaptation priority	25 YEP goal area	2019 score	2021 score	Key indicators used by CCC to assess risk management[164]
Natural Environment				
Terrestrial habitats and species (1)	TPW	3	3	• Terrestrial SSSIs in England, by condition • Peatland SSSIs in England, by condition • Measure of woodland resilience to climate change • Woodland species indices: breeding birds in woodland in England • Number of wildfire incidents
Farmland habitats and species (2)	TPW	1	1	• SSSIs in the farmed countryside, by condition • Changes in abundance of species (birds, butterflies) in the farmed landscapes (England) • Changes in abundance of plant species in arable farmland habitat types (UK) – Experimental

164 Climate Change Committee, *Progress in Adapting to Climate Change 2021 Report to Parliament*.

CCC adaptation priority	25 YEP goal area	2019 score	2021 score	Key indicators used by CCC to assess risk management[164]
Freshwater habitats and species (3)	TPW/ CPW	5	3	• Protected freshwater sites in England, by condition • Proportion of water bodies in England meeting good status • Breeding wetland birds in England • England water temperature index – annual variance from long-term mean
Coastal and marine habitats and species (4)	TPW	5	5	• Marine Climate Change Impacts Partnership report cards • Coastal SSSIs in England, by condition • Extent of marine protected areas • Breeding seabirds in England • Combined input of hazardous substances to the UK marine environment

CCC adaptation priority	25 YEP goal area	2019 score	2021 score	Key indicators used by CCC to assess risk management[164]
Commercial forestry (5)	Res/ Biosec	5	5	• Percentage of woodland in England under active management • Percentage of conifer and broadleaf species planted on the nation's forests • Total number of wildfire incidents in woodlands in England • Number of high-priority forest pests in the UK Plant Health Risk Register
Agricultural productivity (6)	Res/ Biosec	1	1	• Wine Production – Area planted (ha) per year in England
Water management (7)	CPW/Res	5	5	• Progress made by Restoring Sustainable Abstraction Programme
Commercial fisheries and aquaculture (8)	Res	2	5	• Marine fish (quota) stocks of UK interest harvested sustainably • Marine fish (quota) stocks with biomass at levels that maintain reproductive capacity

CCC adaptation priority	25 YEP goal area	2019 score	2021 score	Key indicators used by CCC to assess risk management[164]
People and the Built Environment				
River and coastal flood alleviation (9)	Haz	5	8	• Flood defence asset condition • Investment in flood defences • Annual damages from river and coastal flooding • Change in property risk bands (not yet available) • Nationally consistent future flood risk maps (not yet available)
Development in areas at risk of river or coastal flooding (10)	Haz	3	3	• Planning permissions not in line with Environment Agency advice • Development in Flood Zone 3 • Nationally consistent future flood risk maps (not yet available)

CCC adaptation priority	25 YEP goal area	2019 score	2021 score	Key indicators used by CCC to assess risk management[164]
Surface water flood alleviation (11)	Haz	2	5	• Area of permeable and impermeable land within all urban areas in England • Number of people and properties at risk of surface water flooding (for return period of 1 in 30 or 1.33% per year) • Number, type and location of Sustainable Drainage Systems installations in new builds and retrofits (not yet available) • Metrics of sewer network capacity and spills as outlined in Water UK's Capacity Assessment Framework (not yet available) • Water company investment in retrofitting Sustainable Drainage Systems (not yet available) • Number of people or properties benefitting from Sustainable Drainage Systems (inc. green infrastructure) (not yet available) • Number and cost of surface water flooding events (not yet available)

CCC adaptation priority	25 YEP goal area	2019 score	2021 score	Key indicators used by CCC to assess risk management[164]
Development and surface water flood risk (12)	Haz	1	1	• Area of permeable and impermeable land within all urban areas in England • The number of properties built in areas of surface water flood risk (not yet available) • Number, type and location of Sustainable Drainage Systems installations in new builds and retrofits (not yet available)
Property-level flood resilience (PFR) (13)	Haz	3	3	• Number of homes that would benefit from PFR • Number of homes installing PFR per year

CCC adaptation priority	25 YEP goal area	2019 score	2021 score	Key indicators used by CCC to assess risk management[164]
Capacity of people and communities to recover from flooding (14)	Haz	5	5	• Number of flood warnings by type • Flood warning registrations • Mental health impacts from flooding • Number of homes installing PFR per year • Properties that have flood insurance (not yet available) • Number of successful insurance claims within x time of flooding (not yet available) • Uptake of/spending on flood recovery grants (not yet available) • Length of time people are out of their homes following flooding (not yet available)
Coastal erosion risk management (15)	Haz	3	3	• Grants for demolition and removal due to coastal erosion
Water demand in the built environment (16)	CPW/Res	8	8	• Per capita consumption (l/h/d) – no major change • Percentage of households with water meters
Health impacts from heat and cold (17)	N/A	N/A	N/A	N/A

CCC adaptation priority	25 YEP goal area	2019 score	2021 score	Key indicators used by CCC to assess risk management[164]
Risks to people from pathogens (18)	Biosec	2	2	• The distribution of ticks in the UK • The distribution of the Asian Tiger Mosquito in Europe • Geographical spread of other climate-sensitive pests and pathogens (not yet available) • Funding for national surveillance mechanisms (not yet available)
Air quality (19)	Air	3	3	• Number of people with chronic respiratory conditions • Instances of poor air quality in homes (not yet available) • Number of installations of functional mechanical ventilation systems in buildings (not yet available)
Effectiveness of the emergency planning system (20)	N/A	N/A	N/A	N/A
Infrastructure				
Infrastructure interdependencies (21)	N/A	N/A	N/A	N/A
Design and location of new infrastructure (22)	N/A	N/A	N/A	N/A
Energy generation, transmission and distribution (23)	N/A	N/A	N/A	N/A
Public water supply infrastructure (24)	CPW/Res	8	8	• Total actual and forecast leakage for all water companies • Interruptions to supply
Ports (25)	N/A	N/A	N/A	N/A

CCC adaptation priority	25 YEP goal area	2019 score	2021 score	Key indicators used by CCC to assess risk management[164]
Airports (26)	N/A	N/A	N/A	N/A
Rail network (27)	N/A	N/A	N/A	N/A
Strategic road network (28)	N/A	N/A	N/A	N/A
Local road network (29)	N/A	N/A	N/A	N/A
Telecoms, digital and ICT infrastructure (30)	N/A	N/A	N/A	N/A
Business				
Impact on business from extreme weather events (31)	N/A	N/A	N/A	N/A
Supply chain interruptions (32)	N/A	N/A	N/A	N/A
Water demand by industry (33)	CPW/Res	5	5	• Abstraction by industry (million L/d) • Non-household consumption of the public water supply (million L/d) • Businesses reporting water use per unit of production
Business opportunities from climate change adaptation (34)	N/A	N/A	N/A	N/A

CCC adaptation priorities and 25 YEP goal areas	
25 YEP goal areas	**Relevant CCC adaptation priorities**
Clean Air (Air)	19
Clean and Plentiful Water (CPW)	3, 7, 16, 24, 33
Thriving Plants and Wildlife (TPW)	1, 2, 3, 4
Reduced Risk of Harm from Environmental Hazards (Haz)	9, 10, 11, 12, 13, 14, 15
Enhancing Beauty and Engagement	We could not identify comparable CCC climate adaptation priorities
Mitigation and Adaptation to Climate Change	Not applicable in this analysis. CCC adaptation priorities have been mapped to their corresponding 25 YEP goal areas
Using Resources from Nature More Sustainably and Efficiently (Res)	5, 6, 7, 8, 16, 24, 33

CCC adaptation priority	25 YEP goal area	2019 score	2021 score	Key indicators used by CCC to assess risk management[164]
Minimising Waste	We could not identify comparable CCC climate adaptation priorities			
Managing Exposure to Chemicals and Pesticides	We could not identify comparable CCC climate adaptation priorities			
Enhanced Biosecurity (Biosec)	5, 6, 18			

Limitations of our assessment approach

We acknowledge that our assessment methodology is bound by limitations similar to those of Government's own annual assessment, and we aim to improve the assessment approach in future monitoring periods. To help mitigate this risk we have consulted on our method with stakeholders, which has allowed us to make improvements.

Our ability to assess progress over the annual reporting period, as required by the Act, has been hampered by a lack of government or other data and, where data exist, by lags in their availability and analysis. Few of the headline indicators have sufficient data for that period. In many cases we have assessed progress over a longer period to smooth out short-term fluctuations.

We made qualitative assessments where data were available in the annual reporting period. Where no data are available, we attempted to use alternative sources of information or qualitative assessments.

The use of composite indicators has limitations. While effective at showing an overall picture, there are challenges in defining areas of change. We have therefore followed examples within the OIF to provide an assessment of contributing parameters to draw out specific conclusions.

We have used government's 3% threshold of change when assessing trends. This is in line with the approach adopted by the Joint Nature Conservation Committee and the OIF. However, the approach has limited flexibility and a 3% change for individual indicators may range from minor to major. A stronger evidence base would allow more variable or calibrated thresholds to be adopted.

We have deviated from government's use of smoothing of trend data but have otherwise replicated its method of assessment. There may be other, more statistically robust methods of assessing trends while accounting for intended, unintended or natural variance. All will be limited by the availability of data and short time spans. We aim to improve our analysis in future monitoring periods wherever possible.

Data limitations have proved a challenge. We have provided a national picture of headline trends with limited spatial context provided, in part due to most of the data not being in a readily available form. Significant regional or local impacts are not likely to have been identified.

When assessing air quality zone compliance, we have used pollutant compliance against standards rather than a more detailed assessment of pollutant concentrations.

The lack of targets or SMART targets relating to some headline indicators leaves gaps within goal areas.

The target assessment process was made challenging through a lack of publicly available and sufficiently clear delivery plans on the achievability of many targets. We look to Government to make these more accessible.

The climate adaptation assessment is limited as the two systems (CCC and OIF) have been designed independently. The CCC sectors and OIF indicators have not been designed to be complementary and do not therefore all align. CCC assesses climate adaptation biennially. The latest data are for 2019 and 2021, meaning data covering the annual reporting period will only be published following the 2023 review.

Many of the OIF indicators relevant to climate adaptation are still in development, or there are not enough data published to create a temporal trend. We have worked with the CCC and drawn on its biennial progress reports to develop a methodology to assess progress.

Methods for assessing Government's environmental stewardship

The activities that contribute towards delivery of the 25 YEP are numerous and multidisciplinary. They can span different areas of policy, including different 25 YEP goal areas. They can also feature at different hierarchies within government, for example at a departmental level, EIP level, or constituent 25 YEP goal area, or major programme level.

Our focus this year has been to understand the barriers and enablers involved in successfully delivering the overall 25 YEP. We have not examined the barriers and enablers that affect delivery in individual goal areas or reaching environmental targets.

To analyse activities and examine Government's performance in this context, we applied the Building Block structure developed in our *Taking Stock* report (Table A18). Under each Building Block we used research questions to guide our evidence gathering and analysis. This approach is intentionally broad, enabling us to cover a large range of activities and develop strategic insights.

Table A18. The Building Block framework and associated questions.

Building Block 1: Understanding environmental states, drivers and pressures
Does Government's evidence reporting demonstrate a comprehensive understanding of the environment, and prioritise the most important environmental concerns?
Building Block 2: Long-term vision
Is a vision for the environment in place?
Is the vision informing target proposals and policy direction?
Building Block 3: Setting targets
Are there apex and interim targets associated with the EIP goal area(s)?
Are long-term targets sufficiently ambitious to set expectations, drive innovation and encourage investment that could deliver the changes that are needed?
Is there clarity in how targets in policy areas relate, for example, is there a clear hierarchy and taxonomy?
Building Block 4: Coherent strategy and policy
Do strategies and policies contain delivery pathways to secure the achievement of 25 YEP goal areas and environmental targets?
Has Government clearly established how individual policies relate to the targets and to each other?
Building Block 5: Governance
Are there clear accountabilities for developing and implementing strategies and policies, including the role of local delivery partners?
Building Block 6: Monitoring, evaluation and learning
Do monitoring frameworks provide data and information on progress towards meeting environmental goals and targets, and capture the influence of pressures and their drivers?
Do assessments provide information on Government's programme implementation, and identify associated risks?
Is there evaluation evidence of the effectiveness of policies and other factors which influence delivery and impact?

We prioritised our analysis in favour of the most significant and relevant activities for each Building Block. For instance, we focussed on large scale activities that sit within Government's Major Projects portfolio. We also focussed on activities linked to the Act's target priority areas, for example air quality and biodiversity.

While we assessed progress made in the annual reporting period, we have not confined ourselves to activities that had taken place in that period. This avoids presenting a narrow picture, especially in areas where developments are slow or there are considerable time lags.

To answer each analytical question, we gathered information primarily from three sources: government publications and internal documents, independent reports and scrutiny, and engagement with government and other public bodies. Consequently, our analysis draws on multiple sources and uses additional evidence to corroborate or challenge our findings.

The process of gathering evidence was iterative. We started by reviewing published information from government and other sources, we then requested additional information from Government that would help us fill gaps in knowledge and understanding. We then engaged directly with Government, other public bodies and non-government stakeholders to test our interpretation and lines of enquiry. Finally, we reviewed wider written evidence sources, following suggestions and new sources that had been shared. This cycle then repeated. A list of the sources we considered is presented in Table A19.

The Building Blocks framework can be applied to the EIP or to any of its constituent goal areas. We focus primarily on the 25 YEP as a whole, but for some Building Blocks (mostly Building Blocks 4 to 6) it was necessary to also explore activities at a goal area level. This is because many of the strategies, policies, governance arrangements, and monitoring and evaluation activities are linked to specific policy areas and not to the 25 YEP in general. Where this occurred, we undertook our analysis ensuring a clear link back to issues at the EIP level.

We selected the goal area Clean Air as an example of where there are major environmental challenges, but where some positive progress is observed, and policy measures are relatively mature and coherent. The goal area, Thriving Plants and Wildlife, is an example of where trends are adverse and key policy measures are under development and appear more incoherent. Both these areas are priority areas for targets under the Act.

The below section describes our assessment approach for each Building Block in more detail.

Table A19. Examples of the key sources of evidence considered by analysis for Chapter 3.

Title	Author	Publication date
Government publications and internal documents		
25 YEP and supporting annexes	Defra	2018
25 YEP Annual Progress Reports	Defra	Multiple
Outcome Indicator Framework updates	Defra	Multiple
Consultation on environmental targets	Defra	2022

Title	Author	Publication date
Outcome Delivery Plan: 2021 to 2022	Defra	2021
Natural England Summaries of Evidence	Natural England	Multiple
State of the Environment	Environment Agency	Multiple
Marine Strategy Part One: UK updated assessment and good ecological status	Defra	2019
Agricultural Transition Plan 2021-2024	Defra	2020
Net Zero Strategy: Build Back Greener	BEIS[165]	2021
National Framework for Water Resources	Environment Agency	2020
Land Use Futures	GoScience[166]	2010
Working with Nature	Environment Agency	2022
Biodiversity: challenges for the water environment	Environment Agency	2022
[Internal] Global Megatrends	Natural England	Multiple
[Internal] Draft Outcome Delivery Plan: 2022 to 2025	Defra	-
[Internal] Defra Environment Committee Terms of Reference and meeting minutes	Defra	Multiple
[Internal] Environment Committee portfolio management performance reports	Defra	Multiple
[Internal] Defra Environment, Rural and Marine Governance structure summary	Defra	2022
[Internal] List of key environmental monitoring resources	Defra	2022
[Internal] List of evidence reports and monitoring programmes for the state of the environment, and drivers/pressures that influence it	Defra	2022
Clean Air		
National Air Pollution Control Programme	Defra, Welsh Government, Scottish Government, and DAERA	2019
Draft National Air Pollution Control Programme	Defra	2022
The Air Quality Strategy for England, Scotland, Wales and Northern Ireland: volume 1	Defra	2011
Clean Air Strategy	Defra, DLUHC, DfT, DHSC, HMT, BEIS[167]	2019
Decarbonising Transport	DfT	2021
Air Pollution in the UK	Defra	2022

165 Department for Business, Energy and Industrial Strategy

166 Government Office for Science

167 Department for Environment, Food and Rural Affairs; Department for Levelling Up, Housing and Communities; Department for Transport; Department of Health and Social Care; HM Treasury, Department for Business, Energy and Industrial Strategy

Title	Author	Publication date
UK Informative Inventory Report (1990-2020)	Ricardo PLC and National Atmospheric Emissions Inventory	2022
[Internal] List of local delivery partners across the EIP	Defra	2022
Thriving Plants and Wildlife		
Biodiversity 2020: A strategy for England's wildlife and ecosystem services	Defra	2011
Nature Recovery Green Paper: Protected Sites and Species	Defra	2022
Nature Recovery Network	Defra, Natural England	2022
Natural Capital and Ecosystem Assessment Programme	Defra	2022
Working with Nature	Environment Agency	2022
Meeting our Future Water Needs: a national framework for water resources	Environment Agency	2020
Biodiversity: challenges for the water environment	Environment Agency	2021
Draft River Basin Management Plan 2021	Environment Agency	2021
Evaluation of Biodiversity 2020 (BE0170)	Defra, UK Centre for Ecology and Hydrology	2019
Biodiversity in the UK: Bloom or Bust?	Environmental Audit Committee	2021
[Internal] List of local delivery partners across the EIP	Defra	2022
[Internal] Natural Capital and Ecosystem Assessment Programme update	Defra	2022
Independent reports and scrutiny		
UK National Ecosystem Assessment	Living with Environmental Change	2011
UK CEH Natural Capital Metrics	UK Centre for Ecology and Hydrology	2017
Independent Assessment of UK Climate Risk	Climate Change Committee	Multiple
The State of Nature	Royal Society for the Protection of Birds	Multiple
Millennium Ecosystem Assessment	United Nations	2005
Baseline Evidence Reviews	Environmental Standards Scotland	2022
National Food Strategy for England	Henry Dimbleby	2020
The Economics of Biodiversity	Sir Partha Dasgupta	2021
Review into Highly Protected Marine Areas	Lord Benyon	2019

Title	Author	Publication date
Making Space for Nature: a review of England's wildlife sites and ecological network	Sir John Lawton	2010
The European Environment – Sate and Outlook 2020	European Environment Agency	Multiple
NCC State of Natural Capital Annual Reports	Natural Capital Committee	Multiple
Evidence statements to accompany the ecological biodiversity indicators (BE0112)	UK Centre for Ecology and Hydrology/Royal Society for the Protection of Birds	2016
Protected Areas and Nature Recovery Report	British Ecological Society	2022
Natural Capital Metrics Reports	UK Centre for Ecology and Hydrology	2017
IPBES regional assessment of ecosystem services	Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services	Multiple
Environmental Performance Reviews	Organisation for Economic Cooperation and Development	Multiple
Formal engagement with Government		
Engaged with multiple evidence and policy teams in central Defra and ALBs, as well as technical experts		

Building Block 1: Understanding environmental states, drivers and pressures

Government's 25 YEP evidence annex[168] reflects the knowledge base on environmental pressures and their underlying drivers as of 2018, when the 25 YEP was published.

We used a combination of database searches and stakeholder engagement to assess Government's progress in addressing the knowledge gaps that were outlined in the 25 YEP evidence annex. We undertook a database search of GOV.UK and of Defra's science page. We used key terms to identify reports published by Government and Arm's Length Bodies since 2018, which could contribute towards resolving the knowledge gaps outlined in the 25 YEP evidence annex.

We also undertook an expanded search to identify publications by external bodies. This included publications by environmental non-governmental organisations (for example, State of Nature Partnership) and international agencies (for example, European Environment Agency, United Nations, Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, Organisation for Economic Co-operation and Development). We also requested information from Defra, which provided a list of evidence reports on the state of the environment and drivers or pressures that influence it.

168 Department for Environment, Food and Rural Affairs, *25 Year Environment Plan Annex 1: Supplementary Evidence Report*, 1.

We also met with the Environment Agency and Natural England to discuss the state of the evidence base on drivers and pressures within their respective remits, identify outstanding knowledge gaps, explore our initial hypotheses, and consider how evidence informs the EIP refresh. This engagement did not represent a comprehensive review of the state of the evidence base, but informed our identification of common challenges in major environmental areas that should be addressed.

Building Block 2 and 3: Long-term vision and setting targets

The focus of this analysis is the Government's 25 YEP vision and long-term environmental targets, which typically have a duration spanning decades. As such, there are fewer annual developments to evaluate progress against. A key development in 2022 has been the setting of the Act's targets.

Following the Environment Act 2021 targets consultation, published in March 2022, we previously analysed the proposed targets (and their supporting evidence packs and impact assessments) applying four concepts: **comprehensiveness, coherence, ambition** and **delivery assurance**:

- **Comprehensiveness:** All goal areas in the EIP should have an associated apex target, supported by suitable interim targets. When goal areas do not have associated targets there is reduced accountability, as there is no clear way to assess whether sufficient progress is being made towards desired outcomes.
- **Coherence:** There should be clarity in how multiple targets in individual policy areas relate to each other and to existing commitments in national legislation and internationally, in order that they become mutually supportive and have synergistic effects and impacts.
- **Ambition:** Given the scale of change that is now necessary, Government should set ambitious long-term statutory targets. They should be challenging, in order to set expectations, drive innovation and encourage investment that could deliver the changes that are needed.
- **Delivery Assurance:** To ensure that targets are achievable they should be informed by an exploration of plausible delivery pathways, supported by short-term measures that provide direction and stimulus.

We provided summary advice to Defra on the proposals in each area set out in the consultation, together with an assessment of each proposed target using these concepts.

For each target we made a recommendation: either commending it or suggesting it should be amended or have something added. **Commend** indicates that a proposed target will drive improvement in environmental condition. **Amend** has been applied to strengthen a proposed target based on its existing terms. We use **Add** where we have found important omissions in the proposals.

Regrettably, Government was slow to set targets under the Act, missing the 31 October 2022 statutory deadline to do so, and only announcing the final targets on 16 December 2022. Government has not yet set out how it intends to approach its assessment of the targets, due by 31 January 2023, to determine whether meeting them, plus other relevant

targets, would significantly improve the natural environment in England. This has hampered aspects of our analysis for this report.

We have only provided an initial reaction to the finalised targets, which, apart from the post-2030 species abundance target and woodland creation target, appear to only entail minor revisions to the target proposals on which Government consulted.

Building Block 4 and 5: Coherent strategy, policy and governance

The strategies and policies – and their associated governance arrangements – in any of the 10 goal areas of the 25 YEP are numerous and complex.

We began analysis of these two Building Blocks by cataloguing the updates provided in this year's APR (see Annex Three). Defra also provided us with valuable information about governance arrangements and policies included in the Department's Major Project portfolio. Additionally, Defra's internal project management outputs such as quarterly performance reporting helped identify key policies and their linkages to 25 YEP goal areas.

We identified current relevant strategies and policies for the two case study goal areas (Table A20). Within these, we focused on those most important for achieving the goal and that helped address the research questions. Our analysis informed subsequent engagement with the relevant policy and evidence teams in Defra, Arm's Length Bodies and non-government stakeholders.

Table A20. Strategies and policies reviewed for the two goal areas.

Clean Air	Thriving Plants and Wildlife (Terrestrial)
The Clean Air Strategy	Biodiversity 2020: A strategy for England's Wildlife and Ecosystem Services
National Air Pollution Control Programme	National Pollinator Strategy
Air Quality Strategy for England, Scotland, Wales and Northern Ireland	GB Invasive Non-native Species Strategy
Domestic Solid Fuels Standards	National Parks – eight point plan
Smoke Control Areas	Safeguarding our Soils
Environment Act 2021 mechanisms for local authorities to tackle smoke emission	Protecting Plant Health
Standards for solid fuel local space heating appliances	England Trees and Peat Action Plans
Communications campaign targeted at domestic burners	Countryside Stewardship scheme
Best Available Technologies (BATs) on industry permits	Environmental Stewardship scheme
Clean Air Zones and Ultra Low Emissions Zones	Nature for Climate Fund
Countryside Stewardship	Green Recovery Challenge Fund
Environmental Stewardship	Natural Environment Investment Readiness Fund

Clean Air	Thriving Plants and Wildlife (Terrestrial)
Farming Ammonia Reduction Grant	Local Nature Recovery Strategies
Countryside Productivity and the Farm Equipment and Technology Fund	Biodiversity Net Gain

Building Block 6: Monitoring, evaluation, and learning

To support analysis of Government's monitoring and evaluation activities, we engaged directly with government teams responsible for strategic evaluation work as well as more policy-specific and implementation-focussed teams in Defra Group.

We reviewed descriptions of monitoring and evaluation programmes included in Defra's draft Outcome Delivery Plan. We also reviewed published, and unpublished, information about current and forthcoming monitoring and evaluation programmes.

To further strengthen this analysis, we commissioned a Quick Scoping Review to assess the volume and characteristics of government's published evaluations. Further outputs and information about the methodology of this work will be published in due course.

Annex Three

Annex Three: Our assessment of the Annual Progress Report 2021/2022

Under section nine of the Environment Act 2021, government must lay before Parliament annual progress reports on its implementation of the Environmental Improvement Plan (EIP). This annex provides a descriptive summary of how we have analysed the content of Government's Annual Progress Report (APR) for this year.[169]

As discussed in chapter three, Building Block 6, there are significant limitations to using the APR on its own to analyse progress in improving the natural environment in accordance with the 25 Year Environment Plan (25 YEP).[170] We have, however, also considered government data relating to the relevant period and other reports, documents or information as appropriate. This is covered elsewhere in this report.

We intend to develop our assessment approach further in future reports. Providing Parliament and the public with a credible annual assessment of implementation of the EIP is an important responsibility of government. We will expect government to strengthen its data collection and its approach to future APRs, and will provide advice accordingly

Methodology

We extracted information from the APR about activities mentioned in the goal areas, either in the summaries of key progress by goal area or within the more detailed sections. We also gathered any information in the APR concerning input of resources and any outcomes or results that were reported. This was not, however, possible for all activities.

Once all the activities were listed, we classified them into eight types: delivery, strategy, evaluation, target, consultation, funding, regulation and collaboration.

We collated the total number of activities mentioned for each type of activity, both by goal area and overall. Where activities could be classified into multiple types of activities, only the primary type was counted. This gives an indication of where in the policy cycle each goal area's activities are focused, for example, on policy development compared to delivery.

Some activities were reported in the APR across multiple goal areas. We collated these activities and listed the associated goal areas in which they were mentioned.

It is important to note that the number of reported activities in the APR is a selection and may not reflect the full range of work undertaken within the different goal areas over the relevant period (no information about the selection process and methodology for the compiling of APRs is available). Therefore, any direct comparison of total number of activities within each goal area may not be an accurate reflection of the totality of activity.

169 Department for Environment, Food and Rural Affairs, *25 Year Environment Plan Annual Progress Report – April 2021 to March 2022*.
170 Department for Environment, Food and Rural Affairs, *25 Year Environment Plan*.

Summary of APR content

Funding was the type of activity mentioned the most times across the APR. Second was policy strategy, followed by consultations (see Figure A2).

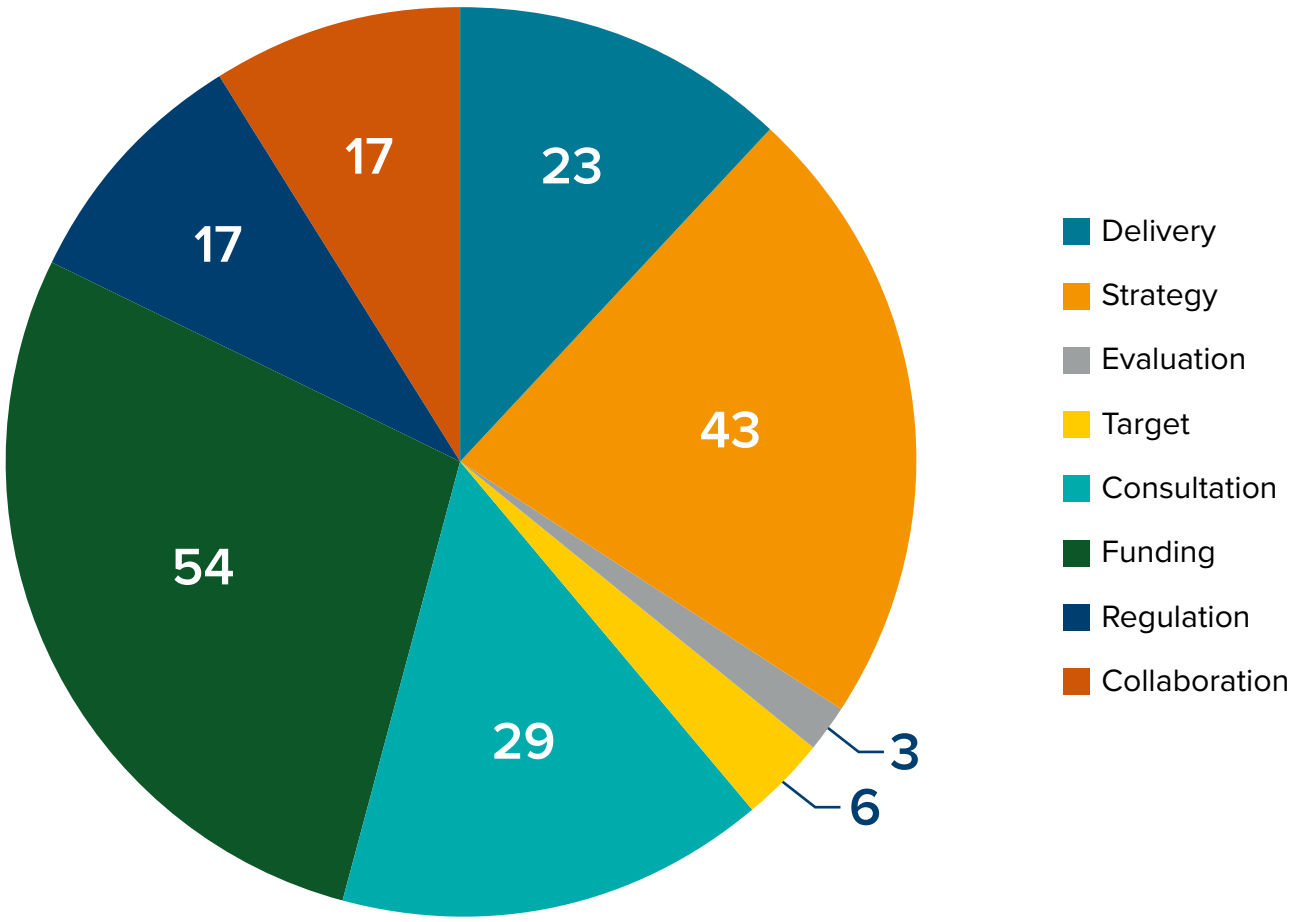

Figure A2. Relative frequency of different types of government activities reported in the Annual Progress Report 2021/2022.

The number and range of activities varied significantly among and within goal areas (Table A21). This can be illustrated by comparing Clean Air, Thriving Plants and Wildlife, and Minimising Waste.

Within the initial analysis of progress reported towards the Clean Air goal area, there appeared to be a wide range of activities, balanced across the different activity categories. Within the initial analysis of progress reported towards the Thriving Plants and Wildlife (Terrestrial) goal area, there was a stronger emphasis towards policy delivery, funding and collaboration within the activities reported. In contrast, initial analysis of progress reported towards the Minimising Waste goal area, suggested that activity in the last year has been heavily focused towards seeking perspectives through consultations.

Table A21. The range of different activities reported within each 25 Year Environment Plan goal area within the Annual Progress Report 2021/2022.

25 YEP goal area	Type of Activity								
	Delivery	Strategy	Evaluation	Target	Consultation	Funding	Regulation	Collaboration	Total
Clean Air	2	1	0	1	3	3	2	2	14
Clean and Plentiful Water	3	2	0	1	4	5	4	1	20
Thriving Plants and Wildlife (Terrestrial)	6	5	0	2	2	9	1	5	30
Thriving Plants and Wildlife (Marine)	3	4	0	0	5	2	1	1	16
Reduced Risk of Harm from Environmental Hazards	0	5	0	0	1	6	0	0	12
Using Resources from Nature more Sustainably and Efficiently	0	7	0	1	1	7	2	1	19
Enhanced Beauty, Heritage, and Engagement with the Natural Environment	5	5	1	0	0	6	0	3	20
Mitigating and Adapting to Climate Change	0	6	0	0	0	10	1	2	19
Minimising Waste	0	1	2	1	10	3	2	1	20
Managing Exposure to Chemicals and Pesticides	0	4	0	0	2	0	1	0	7
Enhanced Biosecurity	4	3	0	0	1	3	3	1	15
Total	23	43	3	6	29	54	17	17	

Activities across multiple goal areas

Overall progress towards meeting 25 YEP goals is reported in the APR individually, showing no links from one goal area to another. However, it was observed that several activities were mentioned across multiple goal areas.

Six examples of policies and activities and the multiple goal areas they are mentioned in are:

1. **Fisheries Management Plans** – Thriving Plants and Wildlife (Marine); Using Resources from Nature More Sustainably and Efficiently.

2. **Environmental Land Management including Sustainable Farming Incentive** – Using Resources from Nature More Sustainably and Efficiently; Enhanced Beauty, Heritage, and Engagement with the Natural Environment; Mitigating and Adapting to Climate Change; Managing Exposure to Chemicals and Pesticides.

3. **Nature Recovery Strategy (for example, 30 by 30, Local Nature Recovery Strategies, Nature Recovery Network, Landscape Recovery Schemes and National Nature Reserves)** – Thriving Plants and Wildlife (Terrestrial); Thriving Plants and Wildlife (Marine); Using Resources from Nature More Sustainably and Efficiently; Mitigating and Adapting to Climate Change.

4. **England Trees and Peat Action Plans** – Thriving Plants and Wildlife (Terrestrial); Using Resources from Nature More Sustainably and Efficiently; Enhanced Beauty, Heritage, and Engagement with the Natural Environment; Mitigating and Adapting to Climate Change; Enhanced Biosecurity.

5. **Nature for Climate Fund** – Thriving Plants and Wildlife (Terrestrial); Enhanced Beauty, Heritage, and Engagement with the Natural Environment; Mitigating and Adapting to Climate Change.

6. **Green Recovery Challenge Fund** – Thriving Plants and Wildlife (Terrestrial); Enhanced Beauty, Heritage, and Engagement with the Natural Environment; Mitigating and Adapting to Climate Change.

This represents an opportunity to identify strategic points of intervention such as: the delivery of multiple goals through single policies, the current and/or potential impact of activities across the environmental systems, and any synergies or trade-offs.

Glossary of terms and acronyms

Glossary of terms and acronyms

Term	Description
25 YEP	The 25 Year Environment Plan is a prominent government plan to protect, restore and enhance the environment. The 25 YEP was designated as the first statutory Environmental Improvement Plan
The Act	The Environment Act 2021 – provided a new governance framework for the environment, with four key provisions: a new oversight body; long-term Environmental Improvement Plans (EIP) to be reviewed and refreshed by government every five years; statutory targets; and an Environmental Principles Policy Statement applicable across government
APR	The Annual Progress Report (APR) is a statutory government report which assesses progress made in implementing the current Environmental Improvement Plan
Assessment	Assessment is the process of considering all the information about a situation and making a judgement. Assessment is used in its broadest definition here, encompassing evaluation, appraisal, monitoring, and analysis
Baseline	Baseline data is a set of information used to compare data acquired afterwards to determine changes from the baseline position. In an environmental context, the baseline determines the condition or health of the environment prior to an intervention
Barrier	An element of government activity which inhibits delivery, in this context of EIP goals and outcomes
CCC	The Climate Change Committee (CCC) is an independent, statutory body established under the Climate Change Act 2008. The CCC advises the UK and devolved governments on emissions targets and reports to Parliament on progress made in reducing greenhouse gas emissions and preparing for and adapting to the impacts of climate change
Climate adaptation	The process of adjustment to actual or expected climate and its effects, in order to moderate harm or exploit beneficial opportunities[171]
Climate mitigation	Interventions to reduce emissions or enhance the sinks of greenhouse gases[172]
Coherence	The situation when the parts of something fit together in a natural or reasonable way. In the policy context, this means multiple areas or activities aligning towards the achievement of government's goals
Commitments	Statements that commit to do something but do not define a desired level of performance or include a measurable indicator
Consultation	Act of external organisations exchanging information/opinions to increase understanding or give advice to government
DAERA	Department of Agriculture, Environment and Rural Affairs

171 Intergovernmental Panel on Climate Change, *Climate Change 2022: Impacts, Adaptation and Vulnerability Glossary*.

172 Intergovernmental Panel on Climate Change, *Climate Change 2022: Impacts, Adaptation and Vulnerability Glossary*.

Term	Description
Defra	Department for Environment, Food and Rural Affairs
Delivery (Plan)	Details of how goals, targets and/or policies are implemented, including the changes that are expected within sectors, who is involved and in what role, and the processes that shape decision-making
Delivery Authorities	Authorities who have assigned responsibilities for implementing delivery plans
Drivers	The social and economic factors that indirectly bring about environmental change. These can be negative or positive. Examples of drivers include demographic change, economic growth and technological developments
Ecosystem services	The benefits people obtain from ecosystems. Ecosystem services can be divided into supporting, regulating, provisioning and cultural, although many services can sit under more than one category
Enabler	An element of government activity which helps improve delivery of EIP goals and outcomes
Environmental monitoring	Environmental monitoring is the process of detecting, observing and measuring environmental conditions and trends. Consistent observations over time help to ensure accurate determination of environmental change This provides information to support policy development and its implementation, and make assessments of progress
Environmental Improvement Plan (EIP)	A statutory plan for improving the natural environment in the period to which the plan relates. The Environment Act 2021 included provisions to make the 25 Year Environment Plan the first statutory Environmental Improvement Plan
Environmental stewardship	The policy process for protecting, restoring and improving the environment, from defining desired outcomes, to developing the means to deliver them. This is the responsibility of government, led by Defra
Evaluation	Evaluation is a systematic assessment of the design, implementation and outcomes of an intervention. It involves understanding how an intervention is being, or has been, implemented and what effects it has, for whom and why. It identifies what can be improved and estimates its overall impacts and cost-effectiveness
Goals	These are statements that describe fundamental, broad aspirations that an organisation is aiming to achieve through its activities. They describe components of a vision and can be grouped into distinct areas The 25 YEP has 10 goal area. Each area may have a set of associated goals, targets, and commitments

Term	Description
Governance	The system by which entities are directed and controlled. It is concerned with structure and processes for decision making, accountability, control and behaviour and with influencing how an organisation's objectives are set and achieved, how risk is monitored and addressed and how performance is optimised
Indicators	Indicators are statistics used to measure current conditions or trends over time. The 25 YEP Outcome Indicator Framework includes a set of 66 indicators. These measure environmental changes that relate to the 10 goal areas within the 25 Year Environment Plan
INNS	Invasive Non-Native Species (INNS) are species that are introduced, intentionally or unintentionally, outside of their natural geographic range, causing environmental, social and/or economic impacts
Lag time	The time it takes between an event and an attributable environmental change. For example, the time it takes for species to respond to conservation measures or environmental pressures
Major Projects	Projects/programmes with whole-life costs over £100 million or that are novel or contentious
Metrics	A set of numbers that give information about a particular process or activity. Metrics underpin the indicators found in the OIF
MPA	Marine Protected Areas (MPAs) are defined geographical areas of the marine environment established and managed to achieve long-term nature conservation and sustainable use The UK has many different types of Protected Area; some are established solely for nature conservation, while others serve a range of purposes including nature, landscape and amenity values
Objectives	Statements of specific, tangible outcomes that an organisation is aiming to achieve within one of the goal areas. For example, in Clean Air, an objective is to cut public exposure to particulate matter pollution
ODP	Outcome Delivery Plans set out each government department's priority outcomes and its plan for achieving them
The OEP	The Office for Environmental Protection. A statutory body established by Parliament under the Environment Act 2021. We protect and improve the environment by holding government and other public authorities to account
OIF	The 25 YEP Outcome Indicator Framework (OIF) includes a set of 66 indicators, these measure environmental changes that relate to the 10 goal areas within the 25 Year Environment Plan
PM2.5	Particulate Matter (in this context with a size of less than or equal to 2.5 µm)

Term	Description
Policies	The core measures that government takes that affect environmental change, either directly or through influencing the actions of the public and private sector. These vary in scale and type (for example, regulation, standards, information campaigns, grants/subsidies)
Pressures	Pressures directly cause environmental change and are the consequences of socio-economic drivers. Examples of pressures include land use change and pollution
Priority outcome	Priority outcomes are defined in each Outcome Delivery Plan. Similar to goals, they define governments aspirations and help to organise activities that are crucial to the successful delivery of outcomes
Regulation	A rule made and maintained by a relevant authority and often having the force of law
Significant Improvement Test	The Significant Improvement Test requires the Secretary of State to review the binding targets under the Environment Act 2021, along with any other legally binding target they consider appropriate, and determine whether meeting them will bring about a significant improvement in England's natural environment
SMART	Targets that are Specific, Measurable, Attainable, Relevant, Time-Bound (SMART)
SSSI	A Site of Special Scientific Interest (SSSI) is a protected area of land which is of special interest by reason of any of its flora, fauna, geological, geomorphological or physiographical features The UK has many different types of Protected Area; some are established solely for nature conservation, while others serve a range of purposes including nature, landscape and amenity values
State	A measure of the condition or health of the environment. This may include the abiotic condition of soil, air and water, or the biotic condition of ecosystems, habitats and species
Strategies	Provide an overarching rationale and approach to reaching specific targets. Typically, they define the problems and solutions, using principles and/or a vision of the future to propose a set of actions. They should consider, and ideally incorporate, multiple priorities within and across government departments
Targets	Statements that generally quantify the desired level of performance expected, based on measurable indicators, by a specified time and against a specified baseline. Targets are best if they are SMART
Targets (Apex targets)	Targets that address the environmental outcomes that matter most, rather than areas that are easy to measure and improve. For example, parts of the environment experiencing states of severe deterioration, of facing major or emerging pressures

Term	Description
Targets (Interim targets)	Targets that provide short-term direction and stimulus, and define optimal pathways towards long-term outcomes
Vision	A short statement that embodies the future which government aspires to achieve

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