



JNCC Report 762

**Review of the UK Biodiversity Indicators, Part 2:
Responding to the Kunming-Montreal Global Biodiversity Framework
*Research & Review Report***

**Joseph Taylor, Leah R. Farquharson, Ian Mitchell, Clare Betts,
Claire Harris, Karen Thomas and Robert Dyer**

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Joint Nature Conservation Committee, Quay House, 2 East Station Road, Fletton Quays, Peterborough PE2 8YY

<https://jncc.gov.uk/>

Communications@jncc.gov.uk

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Author affiliations:

¹ JNCC

² Department for Environment, Food & Rural Affairs

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Summary

This report covers the second part (Part 2) of a comprehensive review of the UK Biodiversity Indicators (UKBIs), a suite of 24 indicators that consist of 52 measures that were, in general, designed for reporting to the Aichi Targets of the Convention on Biological Diversity (CBD). The review has been prompted by the *Kunming-Montreal Global Biodiversity Framework* (GBF), agreed under CBD, and a desire for improvements to the UK Biodiversity Indicator (UKBI) publication. The GBF is accompanied by a monitoring framework (hereafter referred to as the 'GBF Monitoring Framework'), which sets out the indicators to be used in reporting by Parties to the Convention. The review of UKBIs has been conducted by JNCC and Defra. The aim of this part of the review is to make recommendations on how to adapt the UK Biodiversity Indicators to fit better with the GBF Monitoring Framework.

This stage of the review of UKBIs has been conducted in parallel with the production of the *UK's National Biodiversity Strategy and Action Plan* (UK NBSAP), to be submitted to the CBD in 2024. This process involved the country nature conservation bodies (CNCBs) and devolved administrations and was co-ordinated by JNCC. The UK NBSAP will set out how the four countries of the UK intend to meet the GBF targets and, provisionally, which indicators will be used to track and report progress. The UKBIs (and other UK-scale indicators, such as UK Marine Strategy Indicators, as well as country-scale indicators from the four countries of the UK) were compared or 'mapped' against the required Headline Indicators and other indicators in the GBF Monitoring Framework.

The majority of the UKBIs and their component measures are judged to have high to medium alignment with the GBF goals and targets and the GBF Monitoring Framework. As such, over two-thirds of the UKBI measures are recommended for GBF reporting. However, many of these indicators require some amount of further development to fulfil the needs of the GBF Monitoring framework. The remaining UKBIs are judged to require further detailed review and consultation with stakeholders to assess whether they could be modified for GBF reporting or used for other purposes.

There is a significant gap in the current UK response to the GBF. There are no current UKBIs that align with 12 of the 26 compulsory GBF Headline Indicators. Some of these missing Headline Indicators could be formed from other UK-scale indicators or data sources, but we would recommend, as a priority, that new UKBIs should be developed to fill some of these gaps.

The modification of the UKBIs in line with the recommendations in this report would help to ensure that this indicator suite remains relevant to current CBD goals, targets and reporting requirements. In addition, it would keep these indicators relevant to stakeholders and other UK reporting needs and would make the indicators more accessible to the wider audience that uses them. Following this review, the next stage will be a programme of stakeholder engagement to look at these recommendations and how they could be implemented.

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1 Introduction

The UK Biodiversity Indicators (UKBIs) are a suite of 24 indicators. Each indicator is composed of one or more measures. There are a total of 52 measures. While many indicators have a single measure, where it does not make sense to combine data the indicator will have more than one measure. These indicators and measures provide tools with which to track, report and more widely communicate changes in biodiversity and other aspects of the environment. Around 100 organisations contribute to the UKBIs, with volunteers and citizen scientists having important roles in the monitoring work that underpins them. The UKBIs form a Defra Accredited Official Statistics Compendium, meaning that they have been assessed as meeting the standards set in the Code of Practice for Statistics.

The UKBIs are currently designed to report on progress against the Aichi Targets within the *Strategic Plan for Biodiversity 2011-2020*, negotiated under the Convention on Biological Diversity (CBD). The UKBIs formed a major part of the UK's 6th National Report to the CBD in 2019. The Aichi Targets have since been replaced by the *Kunming-Montreal Global Biodiversity Framework* (GBF) agreed at the Fifteenth (15th) Conference of the Parties of the CBD (COP15) in December 2022. The GBF lays out four goals to be achieved by 2050 and 23 targets to be achieved by 2030, contributing towards the CBD vision for biodiversity in 2050.

JNCC and Defra have been working in close collaboration to review the UKBIs. The first stage of the review was completed in 2023, with findings and actions summarised within the 2023 Biodiversity Indicators publications for England and the UK. It assessed whether the compliance of the UKBIs with the Code of Practice for Statistics could be further strengthened, with a focus on production processes, user feedback and statistical methods. The work also looked at the linkages between the UKBIs and indicators used in other related policy areas (e.g. marine) and by the devolved administrations and the country nature conservation bodies.

This report details the results of the second part of the review, which compares the UKBIs with those indicators agreed at CBD COP15 in the GBF Monitoring Framework. The aim of the review is to determine if the UKBIs are still fit for purpose to measure progress against the new GBF goals and targets. We consider if any UKBIs may need to be modified to align them more closely with the GBF. We also consider other uses of the UKBIs. For instance, some of the UKBIs are used to report against the Sustainable Development Goals (SDGs), so need to be continued for that purpose. In addition, the first phase of the review sought views from users of the indicators, and those uses, beyond Government, have been considered in the review process.

This second part (Part 2) of the UKBI review has been conducted in parallel with a process to implement the GBF in the UK. The first step of this implementation has focused on the production of the *UK's National Biodiversity Strategy and Action Plan* (UK NBSAP). The UK NBSAP will be published in 2024 and will set out how the UK intends to meet and report on the goals and targets of the GBF. The list of indicators in the UK NBSAP will include the mandatory Headline Indicators with an intention to update and add additional indicators when appropriate.

The main output of Part 2 of the UKBI Review is a set of recommendations for the use, development, and ongoing review of existing individual UKBIs, as well as new UKBIs that could be developed, as required, to measure progress towards the goals and targets of the GBF. The formulation of development plans for existing and new UKBIs, the implementation of changes to existing indicators and the development of new UKBIs are all outside the scope of this review but will be the next steps in the work conducted by JNCC and Defra, in close collaboration with stakeholders and partners.

2 Methodology

2.1 Mapping of UKBIs to the GBF Monitoring Framework

2.1.1 The GBF Monitoring Framework

The agreement of the GBF by CBD Parties was accompanied by an agreement on a Monitoring Framework ([CBD Decision 15/5](#)), setting out how to monitor and report on progress towards the GBF goals and targets (see Appendix 1). The Monitoring Framework includes 26 Headline Indicators, which Parties are urged to use as a minimum set of indicators. The Monitoring Framework also includes lists of Component and Complementary Indicators, which are optional and allow reporting on components of goals and targets that may not be well covered by the Headline Indicators, as well as offering more in-depth and thematic analysis of progress (see Table 1).

Table 1. Description of the sets of Headline, Component and Complementary Indicators that are included in the GBF Monitoring Framework, as well as Other National Indicators, which CBD Parties may select for reporting purposes.

Indicator set/type	Description
Headline Indicators	A mandatory set of high-level indicators which capture the overall scope of the GBF goals and targets. They allow for consistent, standardised, and scalable tracking of global goals and targets.
Component Indicators	Optional indicators for use in monitoring each component of each GBF goal and target at the national level, as well as for tracking regional and global progress.
Complementary Indicators	Optional indicators for thematic or in-depth analysis of each GBF goal and target. These indicators may be less relevant or applicable for many countries. Some of these indicators have significant data collection gaps or are highly specific.
Other National Indicators	Optional indicators selected by CBD Parties to supplement the indicators listed in the GBF Monitoring Framework.

It should be noted that some of the GBF targets do not have a Headline Indicator assigned to them:

- Target 8: Minimize the Impacts of Climate Change on Biodiversity and Build Resilience
- Target 14: Integrate Biodiversity in Decision-Making at Every Level
- Target 16: Enable Sustainable Consumption Choices to Reduce Waste and Overconsumption
- Target 17: Strengthen Biosafety and Distribute the Benefits of Biotechnology
- Target 20: Strengthen Capacity-Building, Technology Transfer, and Scientific and Technical Cooperation for Biodiversity
- Target 22: Ensure Participation in Decision-Making and Access to Justice and Information Related to Biodiversity for all
- Target 23: Ensure Gender Equality and a Gender-Responsive Approach for Biodiversity Action

2.1.2 Mapping of UKBIs to the GBF goals and targets

A comparative ‘mapping’ exercise was conducted to identify alignment of the UKBIs with the goals and targets of the GBF. As part of this process, the goals and targets of the GBF were deconstructed into a set of parameters and their target state (i.e. ‘parameter-targets’); an example of this process is given below for Target 1 (Table 2). This deconstruction of the text for GBF goals and targets was carried out only for the purpose of mapping indicators and does not represent the UK’s interpretation of the goals and targets.

Table 2. Target 1 of the GBF, deconstructed to parameter and parameter-targets.

Target 1	Parameter	Parameter-target
Ensure that all areas are under participatory integrated biodiversity inclusive spatial planning and/or effective management processes addressing land and sea use change, to bring the loss of areas of high biodiversity importance, including ecosystems of high ecological integrity, close to zero by 2030, while respecting the rights of indigenous peoples and local communities.	Areas under participatory, integrated and biodiversity inclusive spatial planning and/or effective management processes addressing land- and sea-use change	Covers all areas
	Loss of areas of high biodiversity importance, including ecosystems of high ecological integrity	Close to zero by 2030
	Rights of indigenous people and local communities	Respected

Relevant Headline, Component and Complementary Indicators from the GBF Monitoring Framework were mapped to the deconstructed goals and targets. The GBF Monitoring Framework includes numerous Component and Complementary Indicators, which are optional in reporting on progress.

This mapping exercise identified a series of Component and Complementary indicators that are relevant to parameters of the deconstructed goals and targets. For some parameters, more than one Component and Complementary indicators were identified as potentially appropriate in a UK context.

UKBIs were then compared to the mapped GBF indicators and to the parameters within each GBF goal and target. The level of alignment between UKBIs and corresponding GBF goals, targets and indicators was assessed as either high, medium, or low, according to the criteria in Table 3. This alignment assessment was carried out using available information on the GBF indicators, noting that for some of these the methodology has not yet been agreed by CBD Parties.

Table 3. Criteria for assessing the alignment of UK Biodiversity Indicators to the indicators of the GBF Monitoring Framework.

Alignment	Description
High	The UKBI or measure is well aligned to one or more components of the GBF goals and targets or GBF indicators, typically requiring minimal to no development
Medium	The UKBI or measure has relevance to the goals and targets of the GBF or has a moderate level of alignment to a GBF indicator
Low	The UKBI or measure has some relevance to the GBF goals and targets or has a low level of alignment to a GBF indicator

2.1.3 Identifying other relevant indicators for the UK response to the GBF

In parallel with the review of UKBIs, and as part of the process to implement the GBF in the UK, a range of other indicator suites were mapped to the GBF Monitoring Framework, along with the UKBIs. These other indicator sets were included with the UKBIs because it was expected that the UK's progress in implementing the GBF could not be assessed with the existing UKBIs alone, and other indicator sets could feed into reporting under the GBF. While the existing UKBIs were the only UK indicators used for reporting against the Aichi Targets and were developed for that purpose, the requirements of the GBF Monitoring Framework may necessitate looking beyond the existing UKBIs. The inclusion of country-scale indicators helps to identify other indicators that could be applied at the UK scale and could potentially be developed into a UKBI. The following suites of existing indicators were included alongside the UKBIs when mapping against the GBF:

- England Biodiversity Indicators
- Outcome Indicator Framework (OIF) for the 25 Year Environment Plan (England)
- Scotland Biodiversity Indicators – State and Engagement Indicators, Ecosystem Health Indicators, Official Statistics
- Wales Wellbeing for Future Generations, State of Natural Resources (SoNaRR) reports
- Northern Ireland Environmental Statistics report
- Sustainable Development Goal (SDG) Indicators
- Data from the Office for National Statistics (ONS)

A series of bilateral meetings with each of the four countries were held to discuss potential opportunities for indicator development and gaps in existing indicator suites and datasets at the country scale. These meetings were chaired by JNCC, with technical input from Defra regarding aspects such as indicator development and production and data suitability. Discussions included consideration of the potential to disaggregate UK-scale indicators to the country scale and aggregate country-scale indicators to the UK scale in response to GBF reporting requirements.

Following the bilateral meetings, a joint workshop was held, with participation from the devolved administrations and country nature conservation bodies from across the four countries. This workshop was facilitated by JNCC and had the following aims to consider a provisional list of UK indicators to measure progress towards the goals and targets of the GBF:

- To discuss how UK indicators can help with reporting against country level commitments under the GBF.
- To discuss priorities for gap-filling.
- To agree on any subsequent process to complete the shortlisting of UK indicators.

2.2 Review of changes needed to the UKBIs in response to the GBF

The process of mapping UKBIs to GBF indicators and the deconstructed GBF goals and targets enables us to assess the level of alignment of each UKBI to the GBF requirements. Alignment of individual UKBIs and their measures to the corresponding parameters of GBF goals and targets and to GBF indicators was characterised as high, medium, or low, using a set of criteria (see Table 3). The maximum level of GBF alignment was identified for each of the UKBIs and their measures (see Table 4, Section 3) to guide recommendations on the use and development of each one. Some measures within a single UKBI can be better aligned to the GBF than others. Therefore, separate recommendations were made for each of the 52 UKBI measures. Other reporting functions relevant to each of the UKBIs and measures were identified and summarised to inform recommendations (see Table 5, Section 3).

Recommendations for the use, development, or further review of each UKBI measure (see Tables 6 to 8, Section 3) were based on the level of alignment to the GBF, detailed development needs and other relevant reporting functions. Recommendations were made using five categories:

- Use for GBF following minimal/no development.
- Use for GBF following moderate development.
- Further review/consultation required.
- Consider for future GBF reporting.
- Consider for other reporting functions.

These recommendations are accompanied by notes to provide further detail of the development requirements of the UKBI measures (see Tables 6 and 7).

2.3 Review of individual UKBIs to identify opportunities for improvements

2.3.1 User feedback

A user feedback survey was designed to assess users' satisfaction with current indicators within the UKBI suite and the England Biodiversity Indicators (EBIs) (including content, timing, coverage, quality, and accessibility), and to gather more information on how the indicators are used. The UKBIs and EBIs are produced in parallel, with the same Defra team leading on the production of both indicator suites. The survey was launched on 22 September 2022 and closed on 20 October 2022. In addition, Google Analytics was used to examine how users interacted with the [England Biodiversity Indicators](#) GOV.UK web pages, and the [UK Biodiversity Indicators](#) JNCC webpages.

2.3.2 Individual Indicator review

Each indicator was reviewed in detail against a checklist. This checklist was developed from the Code of Practice for Statistics, and included checks for accessibility, clarity, value, and quality. The statistical methods used to produce each indicator were reviewed to check for consistency and suitable justification of inconsistencies.

2.3.3 Review of official statistics in development

The UK and England Biodiversity Indicator publications are both Accredited Official Statistics (National Statistics) compendiums and, as such, are fully compliant with the Code of Practice for Statistics. New indicators with novel methodologies are introduced into our indicator publications as official statistics in development (formerly experimental statistics) but there has not always been a clear strategy for deciding when to remove the 'in development' status. We reviewed the available guidance from the Office for Statistics Regulation and the Government Statistical Service, and produced a strategy for dealing with official statistics in development in the [UK](#) and [England Biodiversity Indicators](#).

3 Results

3.1 Alignment of existing UKBIs with the GBF

Based on the alignment of the measures, 13 of the 24 UKBIs are judged to be highly aligned to the GBF, with 8 having medium alignment and 3 showing low alignment (Table 4, Figure 1). Of the 52 UKBI measures, 31 were highly aligned to GBF indicators and components of the GBF goals and targets, with 17 showing medium alignment and 4 showing low alignment (Table 4, Figure 1).

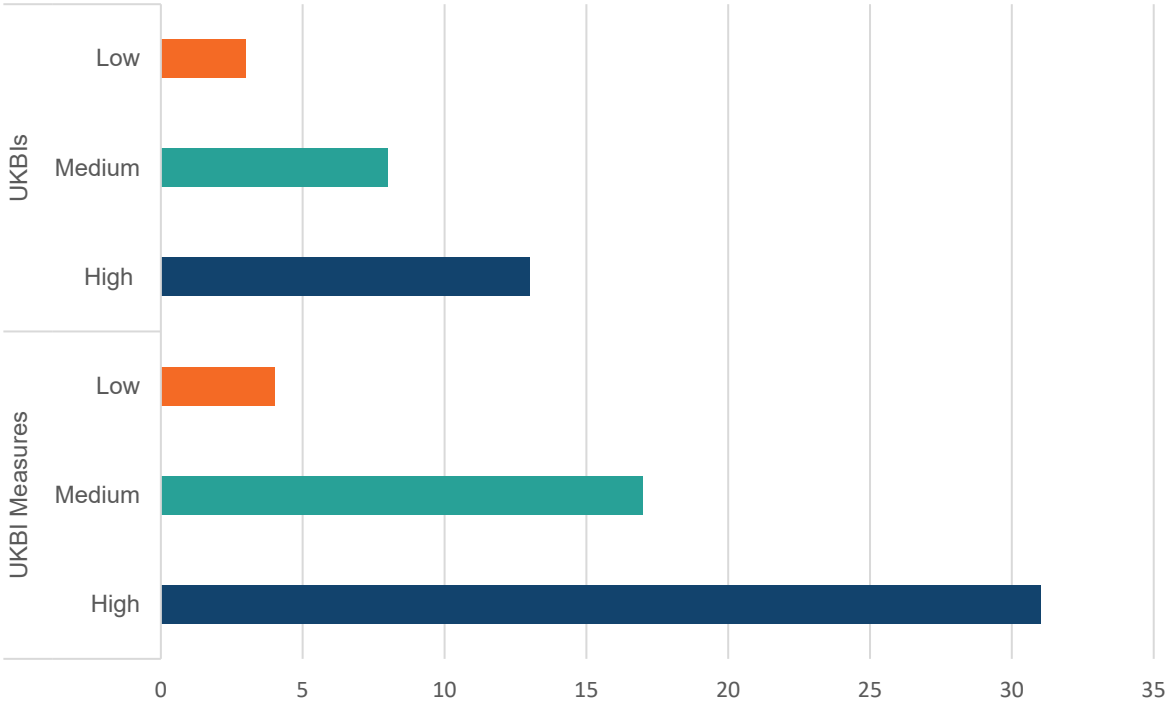


Figure 1. Numbers of UKBIs (total = 24) and UKBI measures (total = 52) that are judged as showing high, medium, or low alignment with the GBF. The alignment of the UKBIs is based on the highest level of alignment of the measures within each UKBI.

Table 4. Alignment of UK Biodiversity Indicators to the GBF goals and targets and GBF indicators. GBF Indicators in parentheses do not have a methodology agreed at the time of writing; all methodologies are planned to be agreed by CBD Parties at COP16 in 2024, following the provision of recommendations by the AHTEG, and so alignment will need to be reviewed after this point. The nomenclature of the Headline Indicators of the GBF Monitoring Framework align with the GBF goals or targets that they report to; however, some Headline Indicators align with one or more goal and/or target as is captured in Table 4. The nomenclature of each Headline Indicator corresponds to the first GBF goal or target it aligns with. Note that some goals and targets do not have associated Headline Indicators. Further details are available in the GBF Monitoring Framework under [CBD Decision 15/5](#).

UK Biodiversity Indicator (UKBI)	UKBI Measure(s)	GBF Goals/ Targets for which there is alignment to one or more components (see Appendix 1)	Alignment of UKBI to GBF Goals/ Targets	GBF Headline Indicator(s)	Alignment of UKBI to GBF Headline Indicator(s)	GBF Component or Complementary Indicator(s)	Alignment of UKBI to GBF Component or Complementary Indicator(s)	Maximum level of alignment of UKBI to a GBF indicator
A1. Awareness, understanding and support for conservation	-	Target 23	Low	-	-	-	-	Low
A2. Taking action for nature: volunteer time spent in conservation	-	Target 21	Low	-	-	-	-	Low
A3. Value of biodiversity integrated into decision making	-	Target 14	Medium	-	-	-	-	Medium

UK Biodiversity Indicator (UKBI)	UKBI Measure(s)	GBF Goals/ Targets for which there is alignment to one or more components (see Appendix 1)	Alignment of UKBI to GBF Goals/ Targets	GBF Headline Indicator(s)	Alignment of UKBI to GBF Headline Indicator(s)	GBF Component or Complementary Indicator(s)	Alignment of UKBI to GBF Component or Complementary Indicator(s)	Maximum level of alignment of UKBI to a GBF indicator
A4. Global biodiversity impacts of UK economic activity / sustainable consumption	-	Target 15, Target 16	High-Medium	(15.1 Number of companies reporting on disclosures of risks, dependencies and impacts on biodiversity)	Low	Global environmental impacts of consumption – Component Material Footprint per capita – Component	High Medium	High
A5. Integration of biodiversity considerations into business activity	-	Target 14, Target 15	Medium	(15.1 Number of companies reporting on disclosures of risks, dependencies and impacts on biodiversity)	Medium	Number of companies publishing sustainability reports – Complementary	Medium	Medium
B1. Agricultural and forest area under environmental management schemes	B1a. Area of land in agri-environment schemes	Goal A, Target 10	Medium	10.1 Proportion of agricultural area under productive and sustainable agriculture	High	-	-	High

UK Biodiversity Indicator (UKBI)	UKBI Measure(s)	GBF Goals/ Targets for which there is alignment to one or more components (see Appendix 1)	Alignment of UKBI to GBF Goals/ Targets	GBF Headline Indicator(s)	Alignment of UKBI to GBF Headline Indicator(s)	GBF Component or Complementary Indicator(s)	Alignment of UKBI to GBF Component or Complementary Indicator(s)	Maximum level of alignment of UKBI to a GBF indicator
B1. Agricultural and forest area under environmental management schemes	B1b. Area of forestry land certified as sustainably managed	Target 10	Medium	10.2 Progress towards sustainable forest management	High	-	-	High
B2. Sustainable fisheries	B2a. Percentage of marine fish stocks harvested sustainably	Target 5, Target 9	High	5.1 Proportion of fish stocks within biologically sustainable levels	High	-	-	High
B2. Sustainable fisheries	B2b. Biomass of marine fish stocks at full reproductive capacity	Target 5, Target 9	High	5.1 Proportion of fish stocks within biologically sustainable levels	High	-	-	High
B3. Climate change adaptation	-	Target 8	Low	-	-	-	-	Low
B4. Pressure from climate change (Spring Index)	-	Target 8	Medium	-	-	-	-	Medium

UK Biodiversity Indicator (UKBI)	UKBI Measure(s)	GBF Goals/ Targets for which there is alignment to one or more components (see Appendix 1)	Alignment of UKBI to GBF Goals/ Targets	GBF Headline Indicator(s)	Alignment of UKBI to GBF Headline Indicator(s)	GBF Component or Complementary Indicator(s)	Alignment of UKBI to GBF Component or Complementary Indicator(s)	Maximum level of alignment of UKBI to a GBF indicator
B5. Pressure from pollution	B5a(i). Area affected by acidity	Target 7	Medium	-	-	-	-	Medium
B5. Pressure from pollution	B5a(ii). Area affected by nitrogen	Target 7	Medium	7.1 Index of coastal eutrophication potential	Medium-Low	Hazardous waste generation – Complementary	Low	Medium
B5. Pressure from pollution	B5b. Marine pollution	Target 7	Medium	7.2 Pesticide environment concentration	Low	Hazardous waste generation – Complementary	Medium	Medium
B6. Pressure from invasive species	B6a. Freshwater invasive species	Target 6	High-Medium	(6.1 Rate of invasive alien species establishment)	High	Rate of invasive alien species spread – Component	Medium-Low	High
B6. Pressure from invasive species	B6b. Marine (coastal) invasive species	Target 6	High-Medium	(6.1 Rate of invasive alien species establishment)	High	Rate of invasive alien species spread – Component	Medium-Low	High
B6. Pressure from invasive species	B6c. Terrestrial invasive species	Target 6	High-Medium	(6.1 Rate of invasive alien species establishment)	High	Rate of invasive alien species spread – Component	Medium-Low	High

UK Biodiversity Indicator (UKBI)	UKBI Measure(s)	GBF Goals/ Targets for which there is alignment to one or more components (see Appendix 1)	Alignment of UKBI to GBF Goals/ Targets	GBF Headline Indicator(s)	Alignment of UKBI to GBF Headline Indicator(s)	GBF Component or Complementary Indicator(s)	Alignment of UKBI to GBF Component or Complementary Indicator(s)	Maximum level of alignment of UKBI to a GBF indicator
B7. Surface water status	-	Target 11	High	-		Proportions of bodies of water with good ambient water quality – Component	High	High
C1. Protected areas	C1a. Total extent of protected areas: on land	Target 3	Medium	2.2 Area under restoration 3.1 Coverage of protected areas and OECMs	Medium Medium	-	-	Medium
C1. Protected areas	C1b. Total extent of protected areas: at sea	Target 3	Medium	2.2 Area under restoration 3.1 Coverage of protected areas and OECMs	Medium Medium	-	-	Medium
C1. Protected areas	C1c. Condition of Areas/Sites of Special Scientific Interest	Target 2, Target 3	Medium	2.2 Area under restoration 3.1 Coverage of protected areas and OECMs	Medium Medium	Protected Area and OECM management effectiveness indicator (MEPCA) – Complementary	Medium	Medium
C2. Habitat connectivity	-	Goal A, Target 2, Target 3	Medium-Low	-	-	(PARC-Connectedness) – Component	Low	Medium

UK Biodiversity Indicator (UKBI)	UKBI Measure(s)	GBF Goals/ Targets for which there is alignment to one or more components (see Appendix 1)	Alignment of UKBI to GBF Goals/ Targets	GBF Headline Indicator(s)	Alignment of UKBI to GBF Headline Indicator(s)	GBF Component or Complementary Indicator(s)	Alignment of UKBI to GBF Component or Complementary Indicator(s)	Maximum level of alignment of UKBI to a GBF indicator
C3. Status of European habitats and species	C3a. Status of UK habitats of European importance	Goal A, Target 1, Target 2	Medium-Low	A.2 Extent of natural ecosystems 2.2 Area under restoration	Medium-Low Medium-Low	-	-	Medium
C3. Status of European habitats and species	C3b. Status of UK species of European importance	Goal A	Medium-Low	-	-	Mean species abundance – Complementary	Medium	Medium
C4. Status of UK priority species	C4a. Relative abundance	Goal A	High	-	-	Mean species abundance – Complementary	High	High
C4. Status of UK priority species	C4b. Distribution	Goal A	Medium	-	-	Mean species abundance – Complementary	Medium	Medium
C5. Birds of the wider countryside and at sea	C5a. Farmland birds	Goal A	High	-	-	Mean species abundance – Complementary	High	High
C5. Birds of the wider countryside and at sea	C5b. Woodland birds	Goal A	High	-	-	Mean species abundance – Complementary	High	High

UK Biodiversity Indicator (UKBI)	UKBI Measure(s)	GBF Goals/ Targets for which there is alignment to one or more components (see Appendix 1)	Alignment of UKBI to GBF Goals/ Targets	GBF Headline Indicator(s)	Alignment of UKBI to GBF Headline Indicator(s)	GBF Component or Complementary Indicator(s)	Alignment of UKBI to GBF Component or Complementary Indicator(s)	Maximum level of alignment of UKBI to a GBF indicator
C5. Birds of the wider countryside and at sea	C5c. Wetland birds	Goal A	High	-	-	Mean species abundance – Complementary	High	High
C5. Birds of the wider countryside and at sea	C5d. Seabirds	Goal A	High	-	-	Mean species abundance – Complementary	High	High
C5. Birds of the wider countryside and at sea	C5e. Wintering waterbirds	Goal A	High	-	-	Mean species abundance – Complementary	High	High
C6. Insects of the wider countryside (butterflies)	C6a. Habitat specialists	Goal A	High	-	-	Mean species abundance – Complementary	High	High
C6. Insects of the wider countryside (butterflies)	C6b. Species of the wider countryside	Goal A	High	-	-	Mean species abundance – Complementary	High	High
C7. Plants of the wider countryside	C7a. Arable field margins	Goal A	High	-	-	Mean species abundance – Complementary	High	High
C7. Plants of the wider countryside	C7b. Bog & wet heath	Goal A	High	-	-	Mean species abundance – Complementary	High	High

UK Biodiversity Indicator (UKBI)	UKBI Measure(s)	GBF Goals/ Targets for which there is alignment to one or more components (see Appendix 1)	Alignment of UKBI to GBF Goals/ Targets	GBF Headline Indicator(s)	Alignment of UKBI to GBF Headline Indicator(s)	GBF Component or Complementary Indicator(s)	Alignment of UKBI to GBF Component or Complementary Indicator(s)	Maximum level of alignment of UKBI to a GBF indicator
C7. Plants of the wider countryside	C7c. Broadleaved woodland & hedges	Goal A	High	-	-	Mean species abundance – Complementary	High	High
C7. Plants of the wider countryside	C7d. Lowland Grassland	Goal A	High	-	-	Mean species abundance – Complementary	High	High
C8. Mammals of the wider countryside (bats)	-	Goal A	High	-	-	Mean species abundance – Complementary	High	High
C9. Genetic resources for food and agriculture	C9a. Animal genetic resources – effective population size of Native Breeds at Risk C9a(i). Goat breeds	Goal A, Target 4	High-Medium	A.4 The proportion of populations within species with an effective population size > 500	Medium	Proportion of local breeds classified as being at risk of extinction – Complementary	High	High
C9. Genetic resources for food and agriculture	C9a(ii). Pig breeds	Goal A, Target 4	High-Medium	-	Medium	Proportion of local breeds classified as being at risk of extinction – Complementary	High	High

UK Biodiversity Indicator (UKBI)	UKBI Measure(s)	GBF Goals/ Targets for which there is alignment to one or more components (see Appendix 1)	Alignment of UKBI to GBF Goals/ Targets	GBF Headline Indicator(s)	Alignment of UKBI to GBF Headline Indicator(s)	GBF Component or Complementary Indicator(s)	Alignment of UKBI to GBF Component or Complementary Indicator(s)	Maximum level of alignment of UKBI to a GBF indicator
C9. Genetic resources for food and agriculture	C9a(iii). Horse breeds	Goal A, Target 4	High-Medium	-	Medium	Proportion of local breeds classified as being at risk of extinction – Complementary	High	High
C9. Genetic resources for food and agriculture	C9a(iv). Sheep breeds	Goal A, Target 4	High-Medium	-	Medium	Proportion of local breeds classified as being at risk of extinction – Complementary	High	High
C9. Genetic resources for food and agriculture	C9a(v). Cattle breeds	Goal A, Target 4	High-Medium	-	Medium	Proportion of local breeds classified as being at risk of extinction – Complementary	High	High
C9. Genetic resources for food and agriculture	C9b. Plant genetic resources – Enrichment Index	Goal A, Target 4, Target 9	Medium	A.4 The proportion of populations within species with an effective population size > 500	Medium-Low	Genetic scorecard for wild species – Complementary	Medium-Low	Medium

UK Biodiversity Indicator (UKBI)	UKBI Measure(s)	GBF Goals/ Targets for which there is alignment to one or more components (see Appendix 1)	Alignment of UKBI to GBF Goals/ Targets	GBF Headline Indicator(s)	Alignment of UKBI to GBF Headline Indicator(s)	GBF Component or Complementary Indicator(s)	Alignment of UKBI to GBF Component or Complementary Indicator(s)	Maximum level of alignment of UKBI to a GBF indicator
D1. Biodiversity and ecosystem services	D1a. Fish size classes in the North Sea	Goal B, Target 5, Target 9, Target 10, Target 11	Medium	B.1 Services provided by ecosystems 5.1 Proportion of fish stocks within biologically sustainable levels	Medium-Low Medium-Low	-	-	Medium
D1. Biodiversity and ecosystem services	D1b. Removal of greenhouse gases by UK forests	Goal B, Target 11	Medium	B.1 Services provided by ecosystems	Medium	-	-	Medium
D1. Biodiversity and ecosystem services	D1c. Status of pollinating insects	Goal A, Goal B, Target 11	Medium-Low	B.1 Services provided by ecosystems	Low	-	-	Medium
E1. Biodiversity data for decision making	E1a. Cumulative number of records added to the National Biodiversity Network	Target 21	High	(21.1 Indicator on biodiversity information for the monitoring of the GBF)	High-Medium	Growth in records from the Global Biodiversity Information Facility – Complementary	High-Medium	High

UK Biodiversity Indicator (UKBI)	UKBI Measure(s)	GBF Goals/ Targets for which there is alignment to one or more components (see Appendix 1)	Alignment of UKBI to GBF Goals/ Targets	GBF Headline Indicator(s)	Alignment of UKBI to GBF Headline Indicator(s)	GBF Component or Complementary Indicator(s)	Alignment of UKBI to GBF Component or Complementary Indicator(s)	Maximum level of alignment of UKBI to a GBF indicator
E1. Biodiversity data for decision making	E1b. Number of publicly accessible records at 1 km ² resolution or better	Target 21	High	(21.1 Indicator on biodiversity information for the monitoring of the GBF)	High-Medium	Growth in records from the Global Biodiversity Information Facility – Complementary	High-Medium	High
E2. Expenditure on UK and international biodiversity	E2a. Public sector expenditure on UK biodiversity	Goal D, Target 19	High-Medium	(D.2 Domestic public funding for conservation)	High	-	-	High
E2. Expenditure on UK and international biodiversity	E2b. Non-governmental organisation expenditure on UK biodiversity	Goal D, Target 19	Low	(D.3 Private funding (domestic and international) on conservation)	Low	-	-	Low
E2. Expenditure on UK and international biodiversity	E2c. UK public sector expenditure on international biodiversity	Goal D, Target 19	High-Medium	(D.1 International public funding & ODA for conservation)	High	-	-	High

3.2 Other functions of existing UKBIs

The UKBIs are used for reporting progress against requirements other than those under CBD. This review has identified that 21 of the 52 UKBI measures are used for other reporting functions and by stakeholders for other purposes (see Table 5). These include feeding into the Outcome Indicator Framework (OIF) for the 25 Year Environment Plan and the Sustainable Development Goal (SDG) indicators, as well as metrics produced by the Office for National Statistics.

Table 5. Other reporting functions of the UK Biodiversity Indicators.

UK Biodiversity Indicator (UKBI)	UKBI Measure(s)	Other reporting functions (Y/N)	Outcome Indicator Framework	Sustainable Development Goal Indicators	Office for National Statistics Wellbeing dashboard	Other
A1. Awareness, understanding and support for conservation	-	N	-	-	-	-
A2. Taking action for nature: volunteer time spent in conservation	-	Y	G5: People engaged in social action for the environment	-	-	-
A3. Value of biodiversity integrated into decision making	-	N	-	-	-	-
A4. Global biodiversity impacts of UK economic activity / sustainable consumption	-	Y	K1: Global environmental impacts of UK consumption of key commodities	SDG Goal 12 Ensure sustainable consumption and production patterns	-	-
A5. Integration of biodiversity considerations into business activity	-	N	-	-	-	-

UK Biodiversity Indicator (UKBI)	UKBI Measure(s)	Other reporting functions (Y/N)	Outcome Indicator Framework	Sustainable Development Goal Indicators	Office for National Statistics Wellbeing dashboard	Other
B1. Agricultural and forest area under environmental management schemes	B1a. Area of land in agri-environment schemes	N	-	-	-	-
B1. Agricultural and forest area under environmental management schemes	B1b. Area of forestry land certified as sustainably managed	N	-	-	-	-
B2. Sustainable fisheries	B2a. Percentage of marine fish stocks harvested sustainably	Y	C10: Productive seas: fish and shellfish stocks fished sustainably	14.4.1 – Proportion of fish stocks within biologically sustainable levels	-	-
B2. Sustainable fisheries	B2b. Biomass of marine fish stocks at full reproductive capacity	Y	C10: Productive seas: fish and shellfish stocks fished sustainably	14.4.1 – Proportion of fish stocks within biologically sustainable levels	-	-
B3. Climate change adaptation	-	N	-	-	-	-

UK Biodiversity Indicator (UKBI)	UKBI Measure(s)	Other reporting functions (Y/N)	Outcome Indicator Framework	Sustainable Development Goal Indicators	Office for National Statistics Wellbeing dashboard	Other
B4. Pressure from climate change (Spring Index)	-	N	-	-	-	-
B5. Pressure from pollution	B5a(i). Area affected by acidity	N	-	-	-	-
B5. Pressure from pollution	B5a(ii). Area affected by nitrogen	N	-	-	-	-
B5. Pressure from pollution	B5b. Marine pollution	N	-	-	-	-
B6. Pressure from invasive species	B6a. Freshwater invasive species	Y	H1: Abatement of the number of invasive non-native species entering and establishing against a baseline (interim)	-	-	-

UK Biodiversity Indicator (UKBI)	UKBI Measure(s)	Other reporting functions (Y/N)	Outcome Indicator Framework	Sustainable Development Goal Indicators	Office for National Statistics Wellbeing dashboard	Other
B6. Pressure from invasive species	B6b. Marine (coastal) invasive species	Y	H1: Abatement of the number of invasive non-native species entering and establishing against a baseline (interim)	-	-	-
B6. Pressure from invasive species	B6c. Terrestrial invasive species	Y	H1: Abatement of the number of invasive non-native species entering and establishing against a baseline (interim)	-	-	-
B7. Surface water status	-	Y	B3: State of the water environment (interim)	-	Surface water status	-
C1. Protected areas	C1a. Total extent of protected areas: on land	Y	D2: Extent and condition of protected sites – land, water, and sea	-	Protected areas	Defra Outcome Delivery Plan – Priority outcome 1

UK Biodiversity Indicator (UKBI)	UKBI Measure(s)	Other reporting functions (Y/N)	Outcome Indicator Framework	Sustainable Development Goal Indicators	Office for National Statistics Wellbeing dashboard	Other
C1. Protected areas	C1b. Total extent of protected areas: at sea	N	-	-	-	-
C1. Protected areas	C1c. Condition of Areas/Sites of Special Scientific Interest	N	-	-	-	-
C2. Habitat connectivity	-	Y	-	-	-	Office for National Statistics Natural Capital
C3. Status of European habitats and species	C3a. Status of UK habitats of European importance	Y	-	-		UK Habitats Directive (Article 17) Statutory Reporting
C3. Status of European habitats and species	C3b. Status of UK species of European importance	Y	-	-	-	UK Habitats Directive (Article 17) Statutory Reporting
C4. Status of UK priority species	C4a. Relative abundance	Y	D6ai: Relative abundance of priority species in England	-	Priority Species	-
C4. Status of UK priority species	C4b. Distribution	Y	D6bi: Distribution of priority species in England	-	Priority Species	-

UK Biodiversity Indicator (UKBI)	UKBI Measure(s)	Other reporting functions (Y/N)	Outcome Indicator Framework	Sustainable Development Goal Indicators	Office for National Statistics Wellbeing dashboard	Other
C5. Birds of the wider countryside and at sea	C5a. Farmland birds	Y	D4aii: Trends in abundance of breeding wild birds on farmland in England	-	-	Defra Agriculture in the UK Dashboard; UK Food Security Report 2021
C5. Birds of the wider countryside and at sea	C5b. Woodland birds	Y	D4ai: Trends in abundance of breeding wild birds in woodland in England	-	-	Office for National Statistics Natural Capital – Habitat Extent and condition
C5. Birds of the wider countryside and at sea	C5c. Wetland birds	N	-	-	-	-
C5. Birds of the wider countryside and at sea	C5d. Seabirds	N	-	-	-	-
C5. Birds of the wider countryside and at sea	C5e. Wintering waterbirds	N	-	-	-	-
C6. Insects of the wider countryside (butterflies)	C6a. Habitat specialists	N	-	-	-	-

UK Biodiversity Indicator (UKBI)	UKBI Measure(s)	Other reporting functions (Y/N)	Outcome Indicator Framework	Sustainable Development Goal Indicators	Office for National Statistics Wellbeing dashboard	Other
C6. Insects of the wider countryside (butterflies)	C6b. Species of the wider countryside	Y	D4bii: Trends in abundance of widespread butterflies on farmland in England & D4bi: Trends in abundance of widespread butterflies in woodland in England	-	-	Office for National Statistics Natural Capital – Habitat Extent and condition; UK Butterfly Monitoring Scheme publish their annual reports
C7. Plants of the wider countryside	C7a. Arable field margins	N	-	-	-	-
C7. Plants of the wider countryside	C7b. Bog & wet heath	N	-	-	-	-
C7. Plants of the wider countryside	C7c. Broadleaved woodland & hedges	N	-	-	-	-
C7. Plants of the wider countryside	C7d. Lowland Grassland	N	-	-	-	-

UK Biodiversity Indicator (UKBI)	UKBI Measure(s)	Other reporting functions (Y/N)	Outcome Indicator Framework	Sustainable Development Goal Indicators	Office for National Statistics Wellbeing dashboard	Other
C8. Mammals of the wider countryside (bats)	-	Y	D4c: Trends in abundance of bats in England	-	-	Office for National Statistics Natural Capital – Habitat Extent and condition
C9. Genetic resources for food and agriculture	C9a. Animal genetic resources – effective population size of Native Breeds at Risk	N	-	-	-	-
C9. Genetic resources for food and agriculture	C9a(i). Goat breeds	N	-	-	-	-
C9. Genetic resources for food and agriculture	C9a(ii). Pig breeds	N	-	-	-	-
C9. Genetic resources for food and agriculture	C9a(iii). Horse breeds	N	-	-	-	-
C9. Genetic resources for food and agriculture	C9a(iv). Sheep breeds	N	-	-	-	-

UK Biodiversity Indicator (UKBI)	UKBI Measure(s)	Other reporting functions (Y/N)	Outcome Indicator Framework	Sustainable Development Goal Indicators	Office for National Statistics Wellbeing dashboard	Other
C9. Genetic resources for food and agriculture	C9a(v). Cattle breeds	N	-	-	-	-
C9. Genetic resources for food and agriculture	C9b. Plant genetic resources – Enrichment Index	Y	-	2.5.1 Number of plant and animal genetic resources for food and agriculture secured in either medium- or long-term conservation facilities	-	-
D1. Biodiversity and ecosystem services	D1a. Fish size classes in the North Sea	N	-	-	-	-
D1. Biodiversity and ecosystem services	D1b. Removal of greenhouse gases by UK forests	N	-	-	-	-
D1. Biodiversity and ecosystem services	D1c. Status of pollinating insects	Y	D7i: Change in the distribution of pollinators in the UK	-	-	Office for National Statistics Climate Change portal

UK Biodiversity Indicator (UKBI)	UKBI Measure(s)	Other reporting functions (Y/N)	Outcome Indicator Framework	Sustainable Development Goal Indicators	Office for National Statistics Wellbeing dashboard	Other
E1. Biodiversity data for decision making	E1a. Cumulative number of records added to the National Biodiversity Network	N	-	-	-	-
E1. Biodiversity data for decision making	E1b. Number of publicly accessible records at 1km ² resolution or better	N	-	-	-	-
E2. Expenditure on UK and international biodiversity	E2a. Public sector expenditure on UK biodiversity	Y	-	SDG 15.a.1: (a) Official development assistance on conservation and sustainable use of biodiversity; and (b) revenue generated and finance mobilized from biodiversity-relevant economic instruments	-	-

UK Biodiversity Indicator (UKBI)	UKBI Measure(s)	Other reporting functions (Y/N)	Outcome Indicator Framework	Sustainable Development Goal Indicators	Office for National Statistics Wellbeing dashboard	Other
E2. Expenditure on UK and international biodiversity	E2b. Non-governmental organisation expenditure on UK biodiversity	N	-	-	-	-
E2. Expenditure on UK and international biodiversity	E2c. UK public sector expenditure on international biodiversity	N	-	-	-	-

3.3 Potential for improving alignment of existing UKBIs with the GBF

The mapping process has identified that 48 UKBI measures show high or medium alignment with the GBF (see Figure 1 and Table 4). These UKBIs are further assessed in Table 6, along with their other functions, to make recommendations for their further use and development. Table 7 lists the recommendations for the four UKBI measures that had low alignment with the GBF.

Table 6. UK Biodiversity Indicators with high or medium alignment with the GBF and recommendations for their use, development, or ongoing review.

UK Biodiversity Indicator (UKBI)	UKBI measure	Alignment with GBF	Other Reporting Functions	Review Recommendation	Additional notes on recommendations
A3. Value of biodiversity integrated into decision making	-	Medium	No	Further review/ consultation required	Development of this indicator was paused in 2019 due to technical difficulties. There may be opportunities to further develop this indicator to align with the GBF Monitoring Framework.
A4. Global biodiversity impacts of UK economic activity / sustainable consumption	-	High	Yes – OIF (K1); SDG 12	Use for GBF following minimal/ no development	There is minimal to no development required for this indicator. It is developed and produced by JNCC and was included in the GBF Monitoring Framework in response to JNCC recommendations.
A5. Integration of biodiversity considerations into business activity	-	Medium	No	Further review/ consultation required	UKBI A5 reports the number of businesses with ISO 14001 certification; however, additional metrics will be required to align this indicator with the GBF Monitoring Framework. In its current form, UKBI A5 somewhat aligns with Headline Indicator 15.1 (Number of companies reporting on disclosures of risks, dependencies and impacts on biodiversity); however, the final methodology for 15.1 was not available at the time of writing and a further review will be required when this becomes available.

UK Biodiversity Indicator (UKBI)	UKBI measure	Alignment with GBF	Other Reporting Functions	Review Recommendation	Additional notes on recommendations
B1. Agricultural and forest area under environmental management schemes	B1a. Area of land in agri-environment schemes	High	No	Use for GBF following minimal/no development	Headline Indicator 10.1 (The proportion of agricultural area under productive and sustainable agriculture) is an SDG indicator (2.4.1). The Headline Indicator is defined by the formula 'Area under productive and sustainable agriculture/Agricultural land area'. UKBI B1a reports the area covered by agri-environment schemes. This indicator will require minimal development to further align with Headline Indicator 10.1, for which the methodology is available.
B1. Agricultural and forest area under environmental management schemes	B1b. Area of forestry land certified as sustainably managed	High	No	Use for GBF following minimal/no development	There are plans to expand UKBI B1b to include 'percentage of woodland under long-term management plans' to align with Headline Indicator 10.2 (Progress towards sustainable forest management) for which the methodology is available. However, Headline Indicator 10.2 is already reported through SDG Indicator 15.2.1, which could therefore be utilised for GBF reporting.

UK Biodiversity Indicator (UKBI)	UKBI measure	Alignment with GBF	Other Reporting Functions	Review Recommendation	Additional notes on recommendations
B2. Sustainable fisheries	B2a. Percentage of marine fish stocks harvested sustainably	High	Yes – OIF C10a&b; SDG Indicator 14.4.1	Use for GBF following minimal/ no development	UKBI B2 aligns very closely with Headline Indicator 5.1 (Proportion of fish stocks within biologically sustainable levels) for which the methodology is available. Minimal to no development is required for this indicator to align with GBF reporting requirements.
B2. Sustainable fisheries	B2b. Biomass of marine fish stocks at full reproductive capacity	High	Yes – OIF C10a&b; SDG Indicator 14.4.1	Use for GBF following minimal/ no development	See above for B2a.
B4. Pressure from climate change (Spring Index)		Medium	No	Consider for future GBF reporting	UKBI B4 does not map to any of Headline, Component or Complementary indicators of the GBF Monitoring Framework; however, it does align with target 8. This indicator is useful for this purpose and could be adopted as a national indicator for GBF reporting with minimal to no development required.

UK Biodiversity Indicator (UKBI)	UKBI measure	Alignment with GBF	Other Reporting Functions	Review Recommendation	Additional notes on recommendations
B5. Pressure from pollution	B5a(i). Area affected by acidity	Medium	No	Further review/consultation required	UKBI B5a(i) does not map to any of the Headline, Component or Complementary indicators of the GBF Monitoring Framework, although it does have relevance to target 7 of the GBF. This indicator will be further reviewed to assess its suitability for GBF reporting and its relevance to other reporting mechanisms.
B5. Pressure from pollution	B5a(ii). Area affected by nitrogen	Medium	No	Further review/consultation required	There is alignment between UKBI B5a(ii) and Headline Indicator 7.1 (Index of coastal eutrophication potential); however, B5a(ii) does not report on the impacts of eutrophication on coastal environments. The methodology is available for Headline Indicator 7.1; however, this is also an SDG indicator (14.1.1 – Index of coastal eutrophication), which the UK currently does not report. This is possibly due to data deficiencies. Further review is required to investigate if/how UKBI B5a(ii) can be adapted to align closely with the Headline Indicator 7.1.

UK Biodiversity Indicator (UKBI)	UKBI measure	Alignment with GBF	Other Reporting Functions	Review Recommendation	Additional notes on recommendations
B5. Pressure from pollution	B5b. Marine pollution	Medium	No	Further review/consultation required	UKBI B5b aligns with target 7 of the GBF and is somewhat aligned with Headline Indicator 7.2 (Pesticide environment concentration) for which the methodology is available. However, UKBI B5b reports on the most hazardous substances to the marine environment which include 5 heavy metals and one organic compound Lindane which had applications as a pesticide. The methodology for Headline Indicator 7.2 suggests that pesticides will be measured as ' <i>Use per area of cropland</i> ' or through pesticides' sales data if pesticide use data is not available. Further review is required to assess whether B5b should be retained within the UKBI suite and whether the Headline Indicator 7.2 is developed as a separate indicator.

UK Biodiversity Indicator (UKBI)	UKBI measure	Alignment with GBF	Other Reporting Functions	Review Recommendation	Additional notes on recommendations
B6. Pressure from invasive species	B6a. Freshwater invasive species	High	Yes – OIF (H1)	Use for GBF following minimal/ no development	UKBI B6 aligns with the Headline Indicator for target 6. UKBI B6 measures establishment and extent of invasive alien species, which so far aligns with the Headline Indicator 6.1 (Rate of invasive alien species establishment); however, the full methodology for this indicator is not yet available to make a full assessment. It is anticipated that there will be minimal development required for this indicator to align fully with GBF requirements.
B6. Pressure from invasive species	B6b. Marine (coastal) invasive species	High	Yes – OIF (H1)	Use for GBF following minimal/ no development	See above for B6a.
B6. Pressure from invasive species	B6c. Terrestrial invasive species	High	Yes – OIF (H1)	Use for GBF following minimal/ no development	See above for B6a.

UK Biodiversity Indicator (UKBI)	UKBI measure	Alignment with GBF	Other Reporting Functions	Review Recommendation	Additional notes on recommendations
B7. Surface water status	-	High	Yes – OIF (B3); Office for National Statistics wellbeing dashboard	Use for GBF following minimal/ no development	UKBI B7 aligns very closely with target 11 and component indicator 'Proportions of bodies of water with good ambient water quality'. Minimal to no development is required for this indicator to align with GBF requirements.
C1. Protected areas	C1a. Total extent of protected areas: on land	Medium	Yes – OIF (D2), Defra Outcome Delivery Plan; Office for National Statistics Wellbeing Dashboard	Use for GBF following moderate development	This indicator will require some development to align closely with Headline Indicator 3.1 (Coverage of protected areas and OECMs) for which the methodology is available, particularly the inclusion of OECMs into this statistic.
C1. Protected areas	C1b. Total extent of protected areas: at sea	Medium	-	Use for GBF following moderate development	See above for C1a.
C1. Protected areas	C1c. Condition of Areas/Sites of Special Scientific Interest	Medium	-	Use for GBF following moderate development	See above for C1a. The condition data for C1 will likely be used to develop Headline Indicator 2.2 (Area under restoration); however, the methodology for this Headline Indicator was not available at the time of writing and therefore a full assessment could not be made.

UK Biodiversity Indicator (UKBI)	UKBI measure	Alignment with GBF	Other Reporting Functions	Review Recommendation	Additional notes on recommendations
C2. Habitat connectivity	-	Medium	Yes – Office for National Statistics Natural Capital	Consider for other reporting functions	UKBI C2 aligns with specific goals and targets of the GBF but does not align directly with any indicators of the GBF Monitoring Framework. This is an ‘indicator under development’ and is open to review on how well it captures connectivity. Another GBF indicator (not a Headline Indicator) could be used for reporting on connectivity and could be adopted into the UKBI in lieu of C2 (Habitat Connectivity).
C3. Status of European habitats and species	C3a. Status of UK habitats of European importance	Medium	Yes – UK Habitats Directive (Article 17) Statutory Reporting	Further review/consultation required	UKBI C3a measures the status of UK habitats of European importance. This indicator could be used to inform the development of Headline Indicator A2 (Extent of Natural Ecosystems) for which the methodology is available; however, it would need to be expanded to include all habitats. Headline Indicator A2 can be compiled using the ecosystem extent accounts from the SEEA framework, which organise data on the extent of different ecosystem types.

UK Biodiversity Indicator (UKBI)	UKBI measure	Alignment with GBF	Other Reporting Functions	Review Recommendation	Additional notes on recommendations
C3. Status of European habitats and species	C3b. Status of UK species of European importance	Medium	Yes – UK Habitats Directive (Article 17) Statutory Reporting	Further review/ consultation required	This indicator aligns with goal A of the GBF but does not align directly with any of the Headline Indicators. The underlying data for this indicator, which includes 'range; population; habitat for the species; and future prospects', could be used to inform abundance indicators.
C4. Status of UK priority species	C4a. Status of UK priority species (Relative abundance)	High	Yes – OIF (D6ai); Office for National Statistics wellbeing dashboard	Use for GBF following minimal/ no development	This indicator is useful in its current form to report to species abundance targets under goal A of the GBF.
C4. Status of UK priority species	C4b. Status of UK priority species (Distribution)	Medium	Yes – OIF (D6bi)	Further review/ consultation required	UKBI C4b reports an occupancy index for UK priority species, not species abundance; however, further review is recommended to ascertain whether the underlying data can be used to inform abundance trends.
C5. Birds of the wider countryside and at sea	C5a. Farmland birds	High	Yes – OIF (D4aii); Defra Agriculture in the UK Dashboard; UK Food Security Report 2021	Use for GBF following minimal/ no development	This indicator is useful in its current form to report to species abundance targets under goal A of the GBF.

UK Biodiversity Indicator (UKBI)	UKBI measure	Alignment with GBF	Other Reporting Functions	Review Recommendation	Additional notes on recommendations
C5. Birds of the wider countryside and at sea	C5b. Woodland birds	High	Yes – OIF (D4ai); Office for National Statistics Natural Capital – Habitat Extent and condition	Use for GBF following minimal/ no development	See above for C5a.
C5. Birds of the wider countryside and at sea	C5c. Wetland birds	High		Use for GBF following minimal/ no development	See above for C5a.
C5. Birds of the wider countryside and at sea	C5d. Seabirds	High		Use for GBF following minimal/ no development	See above for C5a.
C5. Birds of the wider countryside and at sea	C5e. Wintering waterbirds	High		Use for GBF following minimal/ no development	See above for C5a.
C6. Insects of the wider countryside (butterflies)	C6a. Habitat specialists	High		Use for GBF following minimal/ no development	This indicator is useful in its current form to report to species abundance targets under goal A of the GBF.

UK Biodiversity Indicator (UKBI)	UKBI measure	Alignment with GBF	Other Reporting Functions	Review Recommendation	Additional notes on recommendations
C6. Insects of the wider countryside (butterflies)	C6b. Species of the wider countryside	High	Yes – OIF (D4bii); Office for National Statistics Natural Capital; UK Butterfly Monitoring Scheme	Use for GBF following minimal/ no development	See above for C6a.
C7. Plants of the wider countryside	C7a. Arable field margins	High	No	Use for GBF following minimal/ no development	This indicator is useful in its current form to report to species abundance targets under goal A of the GBF.
C7. Plants of the wider countryside	C7b. Bog & wet heath	High	No	Use for GBF following minimal/ no development	See above for C7a.
C7. Plants of the wider countryside	C7c. Broadleaved woodland & hedges	High	No	Use for GBF following minimal/ no development	See above for C7a.
C7. Plants of the wider countryside	C7d. Lowland Grassland	High	No	Use for GBF following minimal/ no development	See above for C7a.
C8. Mammals of the wider countryside (bats)	-	High	Yes – OIF (D4c); Office for National Statistics Natural Capital	Use for GBF following minimal/ no development	This indicator is useful in its current form to report to species abundance targets under goal A of the GBF.

UK Biodiversity Indicator (UKBI)	UKBI measure	Alignment with GBF	Other Reporting Functions	Review Recommendation	Additional notes on recommendations
C9. Genetic resources for food and agriculture	C9a. Animal genetic resources – effective population size of Native Breeds at Risk - C9a(i). Goat breeds	High	No	Use for GBF following moderate development	UKBI C9a has relevance to goal A and target 4 of the GBF and can be used to inform development of Headline Indicator A.4 (The proportion of populations within species with an effective population size > 500) for which the methodology is available. The feasibility of expanding UKBI C9a to include wild species alongside domestic species will need to be investigated. However, this indicator does have relevance to goal A, target 4 and target 9 of the GBF in its current format and aligns with the complementary indicator 'Proportion of local breeds classified as being at risk of extinction'. It could be retained, and slightly modified, for these purposes.
C9. Genetic resources for food and agriculture	C9a. Animal genetic resources – effective population size of Native Breeds at Risk - C9a(ii). Pig breeds	High	No	Use for GBF following moderate development	See above for C9a(i).

UK Biodiversity Indicator (UKBI)	UKBI measure	Alignment with GBF	Other Reporting Functions	Review Recommendation	Additional notes on recommendations
C9. Genetic resources for food and agriculture	C9a. Animal genetic resources – effective population size of Native Breeds at Risk - C9a(iii). Horse breeds	High	No	Use for GBF following moderate development	See above for C9a(i).
C9. Genetic resources for food and agriculture	C9a. Animal genetic resources – effective population size of Native Breeds at Risk - C9a(iv). Sheep breeds	High	No	Use for GBF following moderate development	See above for C9a(i).
C9. Genetic resources for food and agriculture	C9a. Animal genetic resources – effective population size of Native Breeds at Risk - C9a(v). Cattle breeds	High	No	Use for GBF following moderate development	See above for C9a(i).

UK Biodiversity Indicator (UKBI)	UKBI measure	Alignment with GBF	Other Reporting Functions	Review Recommendation	Additional notes on recommendations
C9. Genetic resources for food and agriculture	C9b. Plant genetic resources – Enrichment Index	Medium	Yes – SDG Indicator 2.5.1	Use for GBF following moderate development	UKBI C9b aligns with goal A, target 4 and target 9 of the GBF monitoring Framework. It has loose relevance to Headline Indicator A.4 (The proportion of populations within species with an effective population size > 500) for which the methodology is available; however, it would require significant development to bring it in line with the reporting requirements of this Headline Indicator. UKBI C9b is currently under development for a revised version of this indicator. Although this UKBI will not be used to develop the relevant Headline Indicator, it has reporting relevance to the GBF Monitoring Framework. This indicator is also an SDG indicator (2.5.1).
D1. Biodiversity and ecosystem services	D1a. Fish size classes in the North Sea	Medium	No	Use for GBF following moderate development	UKBI D1a aligns with goal B and targets 5,9,10 and 11 of the GBF. It has relevance to, but is not fully aligned with, Headline Indicator B.1 (Services provided by ecosystems) for which the methodology is available. UKBI D1a aligns more closely with Headline Indicator 5.1 (Proportion of fish stocks within biologically sustainable levels) but will require further development.

UK Biodiversity Indicator (UKBI)	UKBI measure	Alignment with GBF	Other Reporting Functions	Review Recommendation	Additional notes on recommendations
D1. Biodiversity and ecosystem services	D1b. Removal of greenhouse gases by UK forests	Medium	No	Use for GBF following moderate development	UKBI D1b aligns with goal B and target 11 of the GBF. It may be used to report to Headline Indicator B.1 (Services provided by ecosystems) for which the methodology is available; however, some development may be required to align these more closely.
D1. Biodiversity and ecosystem services	D1c. Status of pollinating insects	Medium	Yes – OIF (D7a); Office for National Statistics climate change portal	Further review/consultation required	UKBI D1c has low alignment with goal B and target 11, as it does not directly measure the ecosystem service of pollination however, this indicator does report an occupancy index for UK pollinators. A further review is recommended to ascertain whether the underlying data can be used to inform abundance trends reporting to goal A.
E1. Biodiversity data for decision making	E1a. Cumulative number of records added to the National Biodiversity Network	High	No	Use for GBF following moderate development	UKBI E1 aligns with and has high relevance to Headline Indicator 21.1 (Indicator on biodiversity information for the monitoring of the GBF); however, the methodology for this Headline Indicator has not yet been developed and therefore it is difficult to assess what development may be required for this indicator.

UK Biodiversity Indicator (UKBI)	UKBI measure	Alignment with GBF	Other Reporting Functions	Review Recommendation	Additional notes on recommendations
E1. Biodiversity data for decision making	E1b. Number of publicly accessible records at 1km ² resolution or better	High	No	Use for GBF following moderate development	See above for E1a.
E2. Expenditure on UK and international biodiversity	E2a. Public sector expenditure on UK biodiversity	High	Yes – SDG Indicator 15.a.1	Use for GBF following minimal/ no development	This indicator aligns very closely with Headline Indicator D.2 (Domestic public funding for conservation) and will require minimal to no further development.
E2. Expenditure on UK and international biodiversity	E2c. UK public sector expenditure on international biodiversity	High	Yes – SDG Indicator 15.a.1	Use for GBF following minimal/ no development	This indicator aligns very closely with Headline Indicator D.2 (Domestic public funding for conservation) and will require minimal to no further development.

Table 7. UK Biodiversity Indicators with low alignment with the GBF and recommendations for their use, development, or ongoing review.

UK Biodiversity Indicator	Level of alignment with GBF	Other reporting functions	Recommendation	Additional notes on recommendations
A1. Awareness, understanding and support for conservation	Low	No	Further review/ consultation required	UKBI A1 has some limited relevance to targets 21 and 23 and could be developed to increase its suitability for GBF reporting; however, a discussion about this indicator's applications in its current form is recommended.
A2. Taking action for nature: volunteer time spent in conservation	Low	Yes – OIF (G5)	Further review/ consultation required	UKBI A2 has some relevance to target 23 but would need more research and development for this purpose, and it currently feeds into OIF indicator G5, so a further review is recommended.
B3. Climate change adaptation	Low	No	Further review/ consultation required	UKBI B3 has been in development and is not ready for use. A further review is recommended to investigate whether to progress with developing the indicator, as it has some potential relevance to target 8.
E2b. Non-governmental organisation expenditure on UK biodiversity	Low	No	Further review/ consultation required	UKBI E2b has low alignment with goal D and target 19 and no other apparent reporting functions, but a further review is recommended to ascertain its other applications.

Overall, 37 measures are recommended for GBF reporting, with 13 of these requiring a moderate amount of development. It is recommended that one additional measure, B4 (Pressure from climate change (Spring Index)), be considered for future GBF reporting, as it does not map to the GBF indicators but does show medium alignment with target 8 (see Table 6). One measure, C2 (Habitat connectivity), is recommended for consideration for other reporting functions (see Table 6). Further review and consultation are recommended for the remaining 13 measures (see Tables 6 and 7). Stakeholders, including data users and providers, will be consulted on implementing all these recommendations.

3.4 Assessment of whether any new UKBIs require development

The mapping carried out for this review has highlighted that the existing UKBIs have negligible or no alignment to 10 of the 26 GBF Headline Indicators, and only low alignment to two other Headline Indicators. These 12 GBF Headline Indicators, listed in Table 8, represent a significant gap in the current UK response to the GBF. Some of these missing Headline Indicators could be formed from other UK-scale indicators or data sources, but we would recommend, as a priority, that new UKBIs should be developed to fill some of these gaps. For those UKBIs that have only medium-low alignment to a Headline Indicator, it may not be possible to develop them to be more aligned. This may necessitate the development of other new UKBIs to fill these gaps.

Table 8. GBF Headline Indicators for which existing UKBIs show low to no alignment and therefore are recommended as priorities for the development of new UKBIs.

GBF Headline Indicator	Alignment of existing UKBIs	Notes
A.1 Red List Index of Ecosystems	None/negligible	This indicator could be developed using IUCN data, with some OSPAR assessments, Habitat Regulations reporting and the European Red List of Habitats potentially being relevant.
A.3 Red List Index	None/negligible	A new UKBI could be created for this Headline Indicator; however, available guidance implies that it is already reported by the UK as SDG indicator 15.5.1. It is informed by global Red List assessments by IUCN and Red List Authorities. OSPAR assessments and OIF indicators may also inform this indicator.
C.1 Indicator on monetary benefits received	None/negligible	ONS Natural Capital Accounts data may be suitable for this indicator.
C.2 Indicator on non-monetary benefits	None/negligible	ONS Natural Capital Accounts data may be suitable for this indicator.
D.3 Private funding (domestic and international) on conservation and sustainable use of biodiversity and ecosystems	Low	While UKBI E2b could potentially be adapted to align with this Headline Indicator, E2b may be retained for other purposes, in which case a new measure for E2 or a new indicator would require development.
1.1 Percent of land and seas covered by biodiversity-inclusive spatial plans	None/negligible	Relevant data may be available through SDG indicators, Marine Spatial Plans and the MEPCA indicator.
7.2 Pesticide environment concentration	Low	Although UKBI B5b and other UK-scale and country-scale indicators have some relevance to pesticide persistence in the environment, the methodological guidance for this Headline Indicator suggests that a new UKBI will be required.
9.1 Benefits from the sustainable use of wild species	None/negligible	ONS Natural Capital Accounts data may be suitable for this indicator.
9.2 Percentage of the population in traditional employment	None/negligible	ONS Natural Capital Accounts data may be suitable for this indicator.

GBF Headline Indicator	Alignment of existing UKBIs	Notes
12.1 Average share of the built-up area of cities that is green/blue space for public use for all	None/negligible	Relevant data may be available through existing OIF indicators, country-scale datasets and SDG indicator 11.7.1.
18.1 Positive incentives in place to promote biodiversity conservation and sustainable use	None/negligible	ONS Natural Capitals Accounts data may be suitable for this indicator.
18.2 Value of subsidies and other incentives harmful to biodiversity, that have been eliminated, phased out or reformed	None/negligible	ONS Natural Capital Accounts data may be suitable for this indicator.

3.5 UKBIs with data suitable for GBF reporting at the country scale

Although the UKBIs are designed for reporting at the UK scale, they can offer the ability to monitor and track progress at the country scale. As part of this review, notes were collated on the actual or potential ability to disaggregate each of the UKBIs to the country scale (see Table 9). These notes may inform the development of the UKBIs in order to increase the extent to which they can be disaggregated, as well as potentially assisting the development of other country-scale indicators.

Table 9. A list of the UK Biodiversity Indicators and notes on whether these can be disaggregated to a country scale.

UK Biodiversity Indicator/measure	GBF Goals/Targets for which the UKBI has been mapped to one or more components	Maximum level of GBF alignment	Notes on disaggregation
A1: Awareness, understanding and support for conservation	Target 23	Low	The data for the indicator can be disaggregated to a country level; however, due to changes and/or discontinuation of some of the data sources, it may not be possible to continue to produce this indicator.
A2: Taking action for nature: volunteer time spent in conservation	Target 21	Low	Data for this indicator is compiled from several different organisations, some at a UK or GB scale and others at a Scotland or England scale. There is no data specific to Welsh or Northern Ireland organisations. Data could possibly be disaggregated by the data providers; however, this is likely a difficult and time-consuming process and it is suspected that data will not be comparable across organisations.
A3: Value of biodiversity integrated into decision making	Target 14	Medium	It has not been possible to develop this indicator.
A4: Global biodiversity impacts of UK economic activity / sustainable consumption	Target 15, Target 16	High	This indicator currently reports at a UK scale. It may be possible to implement the analysis of global consumption at a country scale; however, the underlying data for this indicator cannot be disaggregated.
A5: Integration of biodiversity considerations into business activity	Target 14, Target 15	Medium	It may be possible to disaggregate this indicator, but this would require a discussion with the data provider.
B1a: Area of land in agri-environment schemes	Goal A, Target 10	High	This indicator can be disaggregated to a country scale and already presents some data for Scotland, England and Wales.

UK Biodiversity Indicator/measure	GBF Goals/Targets for which the UKBI has been mapped to one or more components	Maximum level of GBF alignment	Notes on disaggregation
B1b: Area of forestry land certified as sustainably managed	Target 10	High	This indicator can be disaggregated to a country scale and already presents some data for Scotland, England, Wales, and Northern Ireland.
B2: Sustainable fisheries	Target 5, Target 9	High	It is unlikely that the data for this indicator can be disaggregated to a country scale. England Biodiversity Indicator 23 (Sustainable Fisheries) also reports at a UK level.
B3: Climate change adaptation	Target 8	Low	There are currently no confirmed plans to further develop this indicator.
B4: Pressure from climate change (Spring Index)	Target 8	Medium	It may be possible to disaggregate this indicator to country scale as had been done for England Biodiversity Indicator 18 (Spring Index). However, this will be dependent on the sample size at a country scale.
B5a(i): Air pollution (Area affected by acidity)	Target 7	Medium	This indicator can be disaggregated to a country scale and already presents some data for Scotland, England, Wales, and Northern Ireland.
B5a(ii): Air pollution (Area affected by nitrogen)	Target 7	Medium	This indicator can be disaggregated to a country scale and already presents some data for Scotland, England, Wales, and Northern Ireland.
B5b: Marine pollution	Target 7	Medium	Data for this indicator cannot be disaggregated to a country scale. England Biodiversity Indicator 19 (Pollution: air and marine) reports at the UK scale.
B6a: Pressure from invasive species: Freshwater Invasive Species	Target 6	High	It may be possible to disaggregate this indicator to a country scale; however, there may be limitations with country-scale sample size. England Biodiversity Indicator 20 (Pressure from Invasive species) reports at the UK scale.

UK Biodiversity Indicator/measure	GBF Goals/Targets for which the UKBI has been mapped to one or more components	Maximum level of GBF alignment	Notes on disaggregation
B6b: Pressure from invasive species: Marine (Coastal) Invasive Species	Target 6	High	It may be possible to disaggregate this indicator to a country scale; however, there may be limitations with country-scale sample size. England Biodiversity Indicator 20 (Pressure from Invasive species) reports at the UK scale.
B6c: Pressure from invasive species: Terrestrial Invasive Species	Target 6	High	It may be possible to disaggregate this indicator to a country scale; however, there may be limitations with country-scale sample size. England Biodiversity Indicator 20 (Pressure from Invasive species) reports at the UK scale.
B7: Surface water status	Target 11	High	This indicator can be disaggregated to a country scale and already presents some data for Scotland, England, Wales, and Northern Ireland.
C1a: Protected areas: Total extent of protected areas: on land	Target 2	Medium	Data can be disaggregated to a country scale and some data is presented for England, Scotland, Wales, and Northern Ireland. However, there is a need to define marine offshore boundaries between countries.
C1b: Protected areas: Total extent of protected areas: at sea	Target 2	Medium	Data can be disaggregated to a country scale and some data is presented for England, Scotland, Wales, and Northern Ireland. However, there is a need to define marine offshore boundaries between countries.
C1c: Protected areas: Condition of Areas/Sites of Special Scientific Interest	Target 2, Target 3	Medium	Data can be disaggregated to a country scale and some data is presented for England, Scotland, Wales, and Northern Ireland. However, there is a need to define marine offshore boundaries between countries.

UK Biodiversity Indicator/measure	GBF Goals/Targets for which the UKBI has been mapped to one or more components	Maximum level of GBF alignment	Notes on disaggregation
C2: Habitat Connectivity	Goal A, Target 2, Target 3	Medium	Data for this indicator is not easily disaggregated to country scale. England Biodiversity Indicator 3 (Habitat connectivity in the wider countryside) also reports at a UK level. In theory, it could be done but there will be limitations with sample size.
C3a: Status of UK habitats of European Importance	Goal A, Target 1, Target 2	Medium	Data for this indicator can be disaggregated to country scale
C3b: Status of UK species of European importance	Goal A	Medium	Data for this indicator can be disaggregated to country scale
C4a: Status of UK priority species – Relative abundance	Goal A	High	Theoretically data for this indicator can be disaggregated, although this will likely be limited by sample size at a country scale.
C4b: Status of UK priority species – Distribution	Goal A	Medium	Theoretically data for this indicator can be disaggregated, although this will likely be limited by sample size at a country scale.
C5: Birds of the wider countryside and at sea	Goal A	High	Data for this indicator could be disaggregated, but this would require discussion with data providers and will likely be limited by sample size at a country scale.
C6: Insects of the wider countryside (butterflies)	Goal A	High	Theoretically data for this indicator can be disaggregated, although this will likely be limited by sample size at a country scale.
C7: Plants of the wider countryside	Goal A	High	Data for this indicator could be disaggregated, but this would require discussion with data providers and will likely be limited by sample size at a country scale.

UK Biodiversity Indicator/measure	GBF Goals/Targets for which the UKBI has been mapped to one or more components	Maximum level of GBF alignment	Notes on disaggregation
C8: Mammals of the wider countryside (bats)	Goal A	High	Data for this indicator could be disaggregated, but this would require discussion with data providers.
C9a: Animal genetic resources	Goal A, Target 4	High	Data for this indicator cannot be disaggregated. England Biodiversity Indicator 12a (Animal Genetic Resources) also reports at a UK scale.
C9b: Plant genetic resources – Enrichment Index	Goal A, Target 4, Target 9	Medium	Data for this indicator cannot be disaggregated to a country scale.
D1a: Fish size classes in the North Sea	Goal B, Target 5, Target 9, Target 10, Target 11	Medium	Data for this indicator cannot be disaggregated to a country scale.
D1b: Removal of greenhouse gases by UK forests	Goal B, Target 11	Medium	Data for this indicator cannot be disaggregated to a country scale.
D1c: Status of pollinating insects	Goal B, Target 11	Medium	Theoretically data for this indicator can be disaggregated, although this will likely be limited by sample size at a country scale.
E1: Biodiversity data for decision making: Cumulative number of records	Target 21	High	It may be possible to disaggregate the data for this indicator to a country scale; however, this would require discussions with data providers. England Biodiversity Indicator 24 (Biodiversity data for decision making) reports at a UK level. There may be limitations to the sample size at a country scale.
E2a: Expenditure on UK and international biodiversity: Public sector expenditure on UK biodiversity	Goal D, Target 19	High	Data for this indicator can be disaggregated to a country scale, as is done in England Biodiversity Indicator 15 (Funding for biodiversity); however, it is likely difficult for all countries in the UK.

UK Biodiversity Indicator/measure	GBF Goals/Targets for which the UKBI has been mapped to one or more components	Maximum level of GBF alignment	Notes on disaggregation
E2b: Non-governmental organisation expenditure on UK biodiversity	Goal D, Target 19	Low	Data for this indicator can be disaggregated to a country scale, as is done in England Biodiversity Indicator 15 (Funding for biodiversity); however, it is likely difficult for all countries in the UK.
E2c: Expenditure on UK and international biodiversity: UK public sector expenditure on international biodiversity	Goal D, Target 19	High	Data for this indicator cannot be disaggregated to a country scale.

3.6 Improvements to individual UKBIs

3.6.1 User feedback

Results from the user engagement survey, which focused on both the UK Biodiversity Indicators and England Biodiversity Indicators, found that our users were predominantly internal to the Civil Service (42 responses), with 24 working in analysis and evidence, and 18 as policy professionals. A further 24 respondents were from environmental charities or non-governmental organisation, and a few worked in local government or academia. Respondents were asked which indicators they used; one indicator (England 14b; Households encouraging wildlife in their garden) was not selected by any respondents, while all others were selected by at least 5 respondents. The most selected indicators were ones relating to protected areas and habitats, habitat connectivity and species abundance.

Accreditation as National Statistics did add to respondents' confidence to use the indicators. There were some comments, however, which expressed confusion about the difference between Official Statistics and National Statistics, as well as uncertainty about what added value National Statistics accreditation brings to the publication.

Around two-thirds of respondents felt that the indicators were at the right level of granularity for their purposes. Those that did not agree with this predominantly asked for greater regional resolution – for instance individual regions, countries or rivers.

Almost all respondents agreed that the charts were easy to understand, although a small number of respondents did not find the language used in the commentary easy to understand.

Some respondents left specific suggestions for better engagement with users, for instance through newsletters or engagement with voluntary recording networks.

The internet traffic accessing the UKBIs and EBIs was relatively evenly spread across the 2 publications. There were around 3,200 unique visits to the EBI GOV.UK webpage, and around 2,900 unique visits to the UKBI 2021 JNCC publication page.

3.6.2 Individual indicator review

The separation of the UKBI and EBI publications places a significant administrative burden on the production team, introducing inefficiencies and increasing the potential for human error and mistakes. It also makes it harder for the users to compare and contrast UK and England scale indicators. In addition, the differing numbering systems between the 2 publications, which are also inconsistent with other places that the indicators are published (such as the Outcome Indicator Framework) also introduces inefficiencies and confusion. Some issues were highlighted consistently across all indicators, including the need to update production processes to take advantage of Reproducible Analytical Pipelines. The ease and reliability of obtaining data was also raised and is indicative of our reliance on external data providers. This is particularly important for those indicators which are relied upon for reporting and statutory dependencies.

The 10 indicators relating to species trends are made up of many individual species trends, which are then combined into individual composite indices using a variety of methods including hierarchical modelling methods, geometric and arithmetic mean. There is also a varied approach to smoothing and communicating how much confidence we can have in each trend.

The 2022 publications were used as a trial to formalise the presentational and content changes needed to be made for our publications to be fully accessible. These included altered structure, modified graphs, and a change in publishing format from a pdf to HTML documents.

3.6.3 Review of official statistics in development

Having reviewed the guidance from the Office for Statistics Regulation and the Government Statistical Service, a strategy for dealing with official statistics in development (OSiD) in the [UK](#) and [England Biodiversity Indicators](#) has now been published. The next steps will include the publication of individual development plans for all UKBIs, with a focus on OSiD indicators in 2024.

4 Recommendations

4.1 Revisions to the list of UKBIs

The recommendations in Tables 6, 7 and 8 will be used to inform the development of a revised list of UKBIs that contribute to GBF reporting and fulfil other functions. Of the 52 existing UKBI measures, it is recommended that 37 be used for GBF reporting, with some of these requiring more development than others (see Figure 2 for summary). The process of developing the existing UKBIs for GBF requirements will be conducted in collaboration with data users and providers and other stakeholders. A process of further review and consultation with stakeholders is recommended for another 13 of the existing UKBI measures. Of the remaining UKBI measures, it is recommended that one be considered for other purposes outside of GBF requirements and the other UKBI measure be considered in the future for GBF reporting.

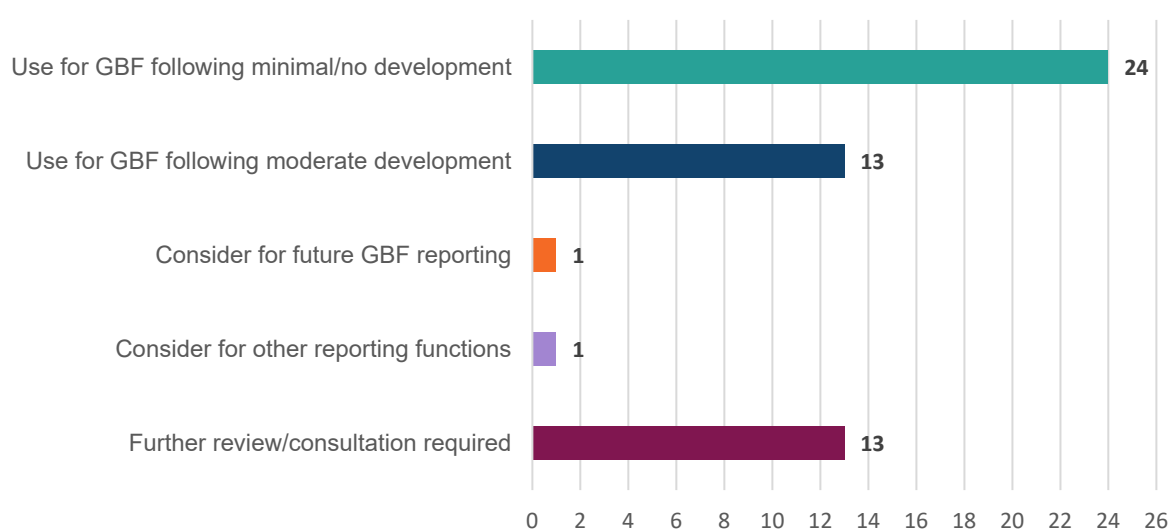


Figure 2. Numbers of UK Biodiversity Indicator measures (total = 52) for which different recommendations are made in this review.

There is a significant gap in the current UK response to the GBF. There are no current UKBIs that align well with 12 of the 26 compulsory Headline Indicators (listed in Table 8). Some of these missing Headline Indicators could be formed from other UK-scale indicators or data sources, but we would recommend, as a priority, that new UKBIs should be developed to fill remaining gaps. The actual number of new UKBIs to be developed will depend on the outcomes of further reviews and consultations to be carried out for some of the existing UKBIs. Additional gaps in GBF alignment and reporting may be identified in the future during these processes, perhaps leading to proposals for other new UKBIs. Other UK indicators, such as those used under the UK Marine Strategy and OSPAR Convention, which differ from similar UKBIs, may also feed into the UK's reporting under the GBF.

It is recommended that, in general, and wherever possible, the potential for disaggregating indicators to a country scale be built into the ongoing development of the UKBIs, particularly to help the four countries track progress against GBF targets, and to assist in the development of other country-scale indicators.

During this review, it became apparent that the UKBIs and their measures might benefit from some restructuring to improve consistency. For instance, the distinction between indicators and measures is unclear in places, for example within UKBI C9 (Genetic resources for food

and agriculture) or UKBI D1 (Biodiversity and ecosystem services)). Further work could look at more clearly defining indicators and measures, and how measures are grouped together as indicators.

The current nomenclature of the UKBIs is framed around the post-2010 Aichi Targets (Targets A to E) and does not have relevance to the new goals and targets of the GBF (goals A to D, targets 1 to 23). The nomenclature of each UKBI will be reviewed to align more closely with the GBF goal or target it reports to. There is also an opportunity here to improve the consistency of nomenclature between the UKBIs and England Biodiversity Indicators, to ease navigation between these two indicators suites.

4.2 UKBI development and modification

In Tables 6, 7 and 8, recommendations are given for the development and modification of existing UKBIs. It is proposed that those UKBIs that can contribute to the Headline Indicators, as well as new UKBIs to fill the gaps identified in the current alignment of the UKBIs with Headline Indicator requirements, be prioritised for development to enable their inclusion in the UK's national reports. Table 10 includes a list of the GBF Headline Indicators and how the existing UKBIs and UKBI measures relate to these based on the levels of alignment shown in this report. Where further development of a UKBI or creation of a new UKBI is needed, other existing indicators and datasets could be utilised for this process.

The timeframe for modifying the UKBIs is set out by the GBF reporting deadlines, with the seventh national report to CBD due by 28 February 2026. The eighth national report to CBD is required by 30 June 2029. CBD Parties are urged to use the Headline Indicators; therefore, the ambition should be to have them available for these national reports.

The detailed process of prioritisation will be guided by stakeholder input. Those UKBIs for which further review and consultation have been recommended will require sufficient time for development or modification if these are recommended following feedback from stakeholders.

Table 10. A list of the GBF Headline Indicators and how existing UK Biodiversity Indicators (UKBIs) and UKBI measures relate to these, along with the likely level of indicator development needed and whether a new UKBI would be required, based on the assessments of alignment in this report.

GBF Headline Indicator	UK Biodiversity Indicator / measure	Consider use with minimal/no development	Consider use with further development	Consider a new UKBI
A.1 Red List of Ecosystems	-	-	-	✓
A.2 Extent of natural ecosystems	C3a. Status of UK habitats of European importance	-	✓	-
A.3 Red List Index	-	-	-	✓
A.4 The proportion of populations within species with an effective population size > 500	C9. Genetic resources for food and agriculture	-	✓	-
B.1 Services provided by ecosystems	D1. Biodiversity and ecosystem services	-	✓	-
C.1 Indicator on monetary benefits received	-	-	-	✓
C.2 Indicator on non-monetary benefits	-	-	-	✓
D.1 International public funding, including official development assistance (ODA) for conservation and sustainable use of biodiversity and ecosystems	E2c. UK public sector expenditure on international biodiversity	✓	-	-
D.2 Domestic public funding on conservation and sustainable use of biodiversity and ecosystems	E2a. Public sector expenditure on UK biodiversity	✓	-	-
D.3 Private funding (domestic and international) on conservation and sustainable use of biodiversity and ecosystems	-	-	-	✓
1.1 Percentage of land and sea area covered by biodiversity-inclusive spatial plans	-	-	-	✓
2.2 Area under restoration	C1. Protected areas	-	✓	-
	C3a. Status of UK habitats of European importance	-	✓	-

GBF Headline Indicator	UK Biodiversity Indicator / measure	Consider use with minimal/no development	Consider use with further development	Consider a new UKBI
3.1 Coverage of protected areas and other effective area-based conservation measures	C1. Protected areas	-	✓	-
5.1 Proportion of fish stocks within biologically sustainable levels	B2. Sustainable fisheries	✓	-	-
6.1 Rate of invasive alien species establishment	B6. Pressure from invasive species	✓	-	-
7.1 Index of coastal eutrophication potential	B5a(ii). Area affected by nitrogen	-	✓	-
7.2 Pesticide environment concentration	-	-	-	✓
9.1 Benefits from the sustainable use of wild species	-	-	-	✓
9.2 Percentage of the population in traditional occupations	-	-	-	✓
10.1 Proportion of agricultural area under productive and sustainable agriculture	B1a. Area of land in agri-environment schemes	✓	-	-
10.2 Progress towards sustainable forest management	B1b. Area of forestry land certified as sustainably managed	✓	-	-
12.1 Average share of the built-up area of cities that is green/blue space for public use for all	-	-	-	✓
15.1 Number of companies reporting on disclosures of risks, dependencies and impacts on biodiversity	A5. Integration of biodiversity considerations into business activity	-	✓	-
18.1 Positive incentives in place to promote biodiversity conservation and sustainable use	-	-	-	✓
18.2 Value of subsidies and other incentives harmful to biodiversity that have been eliminated, phased out or reformed	-	-	-	✓

GBF Headline Indicator	UK Biodiversity Indicator / measure	Consider use with minimal/no development	Consider use with further development	Consider a new UKBI
21.1 Indicator on biodiversity information for monitoring the Kunming-Montreal Global Biodiversity Framework	E1. Biodiversity data for decision making	-	✓	-

4.3 Other recommended changes to the UKBI publication

4.3.1 User feedback

The survey and analytics results has shown that users' needs are mostly met. For example, most respondents agreed in the trustworthiness of data and in the number of updates being sufficient, but there is room to do more to increase the usability and use of the biodiversity indicators. These recommendations outline steps that will be taken to improve engagement in future.

In the short-term:

- Contact users who left their details in the user survey and continue a dialogue about improving their usage.
- Trial engagement through workshops where we invite users to speak with us and contribute changes to our publishing and data.
- Trial a newsletter following feedback from users that this would be welcome.
- Where feasible confirm publication dates a year in advance in alignment with the Code of Practice.
- Formalise a user engagement strategy.

Longer term:

- Highlight the contribution of volunteers and citizen scientists to our indicators, without whom much of the data we rely on would not exist.
- Investigate how local authorities and academics use the data and where we can, understand the reasons why they are less engaged as a user group with the biodiversity indicators.
- Explore opportunities to make the data more useful for local authorities, where possible seek to increase the spatial scale of our data to better inform local decision making.
- Identify where others have presented the same or similar data better and consider adopting the same presentation.
- Draw on different user-engagement techniques, such as assessing social media sentiment, to complement and further understand opportunities of engagement.

4.3.2 Individual indicator review

This part of the review created a lot of recommendations which are summarised in a development plan and published alongside the 2023 Biodiversity Indicators publications on the [JNCC website](#) and the [GOV.UK publication page](#). Some of the key recommendations include:

- Investigate if the 2 publications could be unified into one publication and seek to improve the numbering of the indicators between the 2 publications.
- To use a consistent template for all indicators, unifying the structure as much as possible.
- Develop a consistent, ideally Reproducible Analytical Pipeline (RAP) based workflow, minimising the potential for human error.
- Improve the commentary for all appropriate indicators, simplify the language used to be accessible to a lay audience and avoid the use of jargon and terminology. Review consistency in the language used across all indicators.

4.3.3 Review of official statistics in development

The strategy for including official statistics in development in the Biodiversity Indicators was published alongside the 2023 Biodiversity Indicators publications on the [JNCC webpage](#).

5 Next steps

The publication of the UK NBSAP is due in 2024. This will set out the list of Headline Indicators to be used by the UK for reporting on progress towards the GBF goals and targets. Once the recommendations in this review have been taken forward and implemented, the UKBIs may form the principal source of evidence for GBF reporting.

Following the publication of this review, the UK Biodiversity Indicators Steering Group (BISG) will be engaged in coordinating and supporting the development of indicators to improve alignment with the GBF. Indicator development research may be commissioned by the JNCC-Defra indicators production team, with guidance from the BISG.

Many of the more urgent recommendations from the first part of the review, especially those concerning the accessibility of the indicators, were implemented in the 2023 publications of the UK Biodiversity Indicators and England Biodiversity Indicators. The production team are continuing to introduce Reproducible Analytical Pipelines into the production of all the indicators, as well as developing the presentation and structure.

Appendix 1: Goals and Targets of the Global Biodiversity Framework

The text of the GBF Goals and Targets is shown here for convenience. Any discrepancies with the published GBF text are due to errors or formatting differences.

Goal	Target
Goal A	<p>Protect and Restore</p> <p>The integrity, connectivity and resilience of all ecosystems are maintained, enhanced, or restored, substantially increasing the area of natural ecosystems by 2050;</p> <p>Human induced extinction of known threatened species is halted, and, by 2050, extinction rate and risk of all species are reduced tenfold, and the abundance of native wild species is increased to healthy and resilient levels; The genetic diversity within populations of wild and domesticated species, is maintained, safeguarding their adaptive potential.</p>
Goal B	<p>Prosper with Nature</p> <p>Biodiversity is sustainably used and managed and nature's contributions to people, including ecosystem functions and services, are valued, maintained, and enhanced, with those currently in decline being restored, supporting the achievement of sustainable development, for the benefit of present and future generations by 2050.</p>
Goal C	<p>Share Benefits Fairly</p> <p>The monetary and non-monetary benefits from the utilization of genetic resources, and digital sequence information on genetic resources, and of traditional knowledge associated with genetic resources, as applicable, are shared fairly and equitably, including, as appropriate with indigenous peoples and local communities, and substantially increased by 2050, while ensuring traditional knowledge associated with genetic resources is appropriately protected, thereby contributing to the conservation and sustainable use of biodiversity, in accordance with internationally agreed access and benefit-sharing instruments.</p>
Goal D	<p>Invest and Collaborate</p> <p>Adequate means of implementation, including financial resources, capacity-building, technical and scientific cooperation, and access to and transfer of technology to fully implement the Kunming-Montreal global biodiversity framework are secured and equitably accessible to all Parties, especially developing countries, in particular the least developed countries and small island developing States, as well as countries with economies in transition, progressively closing the biodiversity finance gap of \$700 billion per year, and aligning financial flows with the Kunming-Montreal Global Biodiversity Framework and the 2050 Vision for Biodiversity.</p>
Target 1	<p>Plan and Manage all Areas To Reduce Biodiversity Loss</p> <p>Ensure that all areas are under participatory integrated biodiversity inclusive spatial planning and/or effective management processes addressing land and sea use change, to bring the loss of areas of high biodiversity importance, including ecosystems of high ecological integrity, close to zero by 2030, while respecting the rights of indigenous peoples and local communities.</p>

Goal	Target
Target 2	<p>Restore 30% of all Degraded Ecosystems</p> <p>Ensure that by 2030 at least 30 per cent of areas of degraded terrestrial, inland water, and coastal and marine ecosystems are under effective restoration, to enhance biodiversity and ecosystem functions and services, ecological integrity and connectivity.</p>
Target 3	<p>Conserve 30% of Land, Waters and Seas</p> <p>Ensure and enable that by 2030 at least 30 per cent of terrestrial, inland water, and of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem functions and services, are effectively conserved and managed through ecologically representative, well-connected and equitably governed systems of protected areas and other effective area-based conservation measures, recognizing indigenous and traditional territories, where applicable, and integrated into wider landscapes, seascapes and the ocean, while ensuring that any sustainable use, where appropriate in such areas, is fully consistent with conservation outcomes, recognizing and respecting the rights of indigenous peoples and local communities including over their traditional territories.</p>
Target 4	<p>Halt Species Extinction, Protect Genetic Diversity, and Manage Human-Wildlife Conflicts</p> <p>Ensure urgent management actions, to halt human induced extinction of known threatened species and for the recovery and conservation of species, in particular threatened species, to significantly reduce extinction risk, as well as to maintain and restore the genetic diversity within and between populations of native, wild and domesticated species to maintain their adaptive potential, including through in situ and ex situ conservation and sustainable management practices, and effectively manage human-wildlife interactions to minimize human-wildlife conflict for coexistence.</p>
Target 5	<p>Ensure Sustainable, Safe and Legal Harvesting and Trade of Wild Species</p> <p>Ensure that the use, harvesting and trade of wild species is sustainable, safe, and legal, preventing overexploitation, minimizing impacts on non-target species and ecosystems, and reducing the risk of pathogen spill-over, applying the ecosystem approach, while respecting and protecting customary sustainable use by indigenous peoples and local communities.</p>
Target 6	<p>Reduce the Introduction of Invasive Alien Species by 50% and Minimize Their Impact</p> <p>Eliminate, minimize, reduce and or mitigate the impacts of invasive alien species on biodiversity and ecosystem services by identifying and managing pathways of the introduction of alien species, preventing the introduction and establishment of priority invasive alien species, reducing the rates of introduction and establishment of other known or potential invasive alien species by at least 50 percent, by 2030, eradicating or controlling invasive alien species especially in priority sites, such as islands.</p>

Goal	Target
Target 7	<p>Reduce Pollution to Levels That Are Not Harmful to Biodiversity</p> <p>Reduce pollution risks and the negative impact of pollution from all sources, by 2030, to levels that are not harmful to biodiversity and ecosystem functions and services, considering cumulative effects, including: reducing excess nutrients lost to the environment by at least half including through more efficient nutrient cycling and use; reducing the overall risk from pesticides and highly hazardous chemicals by at least half including through integrated pest management, based on science, taking into account food security and livelihoods; and also preventing, reducing, and working towards eliminating plastic pollution.</p>
Target 8	<p>Minimize the Impacts of Climate Change on Biodiversity and Build Resilience</p> <p>Minimize the impact of climate change and ocean acidification on biodiversity and increase its resilience through mitigation, adaptation, and disaster risk reduction actions, including through nature-based solution and/or ecosystem-based approaches, while minimizing negative and fostering positive impacts of climate action on biodiversity.</p>
Target 9	<p>Manage Wild Species Sustainably To Benefit People</p> <p>Ensure that the management and use of wild species are sustainable, thereby providing social, economic, and environmental benefits for people, especially those in vulnerable situations and those most dependent on biodiversity, including through sustainable biodiversity-based activities, products and services that enhance biodiversity, and protecting and encouraging customary sustainable use by indigenous peoples and local communities.</p>
Target 10	<p>Enhance Biodiversity and Sustainability in Agriculture, Aquaculture, Fisheries, and Forestry</p> <p>Ensure that areas under agriculture, aquaculture, fisheries and forestry are managed sustainably, in particular through the sustainable use of biodiversity, including through a substantial increase of the application of biodiversity friendly practices, such as sustainable intensification, agroecological and other innovative approaches contributing to the resilience and long-term efficiency and productivity of these production systems and to food security, conserving and restoring biodiversity and maintaining nature's contributions to people, including ecosystem functions and services.</p>
Target 11	<p>Restore, Maintain and Enhance Nature's Contributions to People</p> <p>Restore, maintain, and enhance nature's contributions to people, including ecosystem functions and services, such as regulation of air, water, and climate, soil health, pollination, and reduction of disease risk, as well as protection from natural hazards and disasters, through nature-based solutions and ecosystem-based approaches for the benefit of all people and nature.</p>

Goal	Target
Target 12	<p>Enhance Green Spaces and Urban Planning for Human Well-Being and Biodiversity</p> <p>Significantly increase the area and quality and connectivity of, access to, and benefits from green and blue spaces in urban and densely populated areas sustainably, by mainstreaming the conservation and sustainable use of biodiversity, and ensure biodiversity-inclusive urban planning, enhancing native biodiversity, ecological connectivity and integrity, and improving human health and well-being and connection to nature and contributing to inclusive and sustainable urbanization and the provision of ecosystem functions and services.</p>
Target 13	<p>Increase the Sharing of Benefits From Genetic Resources, Digital Sequence Information and Traditional Knowledge</p> <p>Take effective legal, policy, administrative and capacity-building measures at all levels, as appropriate, to ensure the fair and equitable sharing of benefits that arise from the utilization of genetic resources and from digital sequence information on genetic resources, as well as traditional knowledge associated with genetic resources, and facilitating appropriate access to genetic resources, and by 2030 facilitating a significant increase of the benefits shared, in accordance with applicable international access and benefit-sharing instruments.</p>
Target 14	<p>Integrate Biodiversity in Decision-Making at Every Level</p> <p>Ensure the full integration of biodiversity and its multiple values into policies, regulations, planning and development processes, poverty eradication strategies, strategic environmental assessments, environmental impact assessments and, as appropriate, national accounting, within and across all levels of government and across all sectors, in particular those with significant impacts on biodiversity, progressively aligning all relevant public and private activities, fiscal and financial flows with the goals and targets of this framework.</p>
Target 15	<p>Businesses Assess, Disclose and Reduce Biodiversity-Related Risks and Negative Impacts</p> <p>Take legal, administrative or policy measures to encourage and enable business, and in particular to ensure that large and transnational companies and financial institutions:</p> <ul style="list-style-type: none"> (a) Regularly monitor, assess, and transparently disclose their risks, dependencies and impacts on biodiversity including with requirements for all large as well as transnational companies and financial institutions along their operations, supply and value chains and portfolios; (b) Provide information needed to consumers to promote sustainable consumption patterns; (c) Report on compliance with access and benefit-sharing regulations and measures, as applicable; <p>in order to progressively reduce negative impacts on biodiversity, increase positive impacts, reduce biodiversity-related risks to business and financial institutions, and promote actions to ensure sustainable patterns of production.</p>

Goal	Target
Target 16	<p>Enable Sustainable Consumption Choices To Reduce Waste and Overconsumption</p> <p>Ensure that people are encouraged and enabled to make sustainable consumption choices including by establishing supportive policy, legislative or regulatory frameworks, improving education and access to relevant and accurate information and alternatives, and by 2030, reduce the global footprint of consumption in an equitable manner, halve global food waste, significantly reduce overconsumption and substantially reduce waste generation, in order for all people to live well in harmony with Mother Earth.</p>
Target 17	<p>Strengthen Biosafety and Distribute the Benefits of Biotechnology</p> <p>Establish, strengthen capacity for, and implement in all countries in biosafety measures as set out in Article 8(g) of the Convention on Biological Diversity and measures for the handling of biotechnology and distribution of its benefits as set out in Article 19 of the Convention.</p>
Target 18	<p>Reduce Harmful Incentives by at Least \$500 Billion per Year, and Scale Up Positive Incentives for Biodiversity</p> <p>Identify by 2025, and eliminate, phase out or reform incentives, including subsidies harmful for biodiversity, in a proportionate, just, fair, effective, and equitable way, while substantially and progressively reducing them by at least 500 billion United States dollars per year by 2030, starting with the most harmful incentives, and scale up positive incentives for the conservation and sustainable use of biodiversity.</p>

Goal	Target
Target 19	<p>Mobilize \$200 Billion per Year for Biodiversity From all Sources, Including \$30 Billion Through International Finance</p> <p>Substantially and progressively increase the level of financial resources from all sources, in an effective, timely and easily accessible manner, including domestic, international, public and private resources, in accordance with Article 20 of the Convention, to implement national biodiversity strategies and action plans, by 2030 mobilizing at least 200 billion United States dollars per year, including by:</p> <ul style="list-style-type: none"> (a) Increasing total biodiversity related international financial resources from developed countries, including official development assistance, and from countries that voluntarily assume obligations of developed country Parties, to developing countries, in particular the least developed countries and small island developing States, as well as countries with economies in transition, to at least US\$ 20 billion per year by 2025, and to at least US\$ 30 billion per year by 2030; (b) Significantly increasing domestic resource mobilization, facilitated by the preparation and implementation of national biodiversity finance plans or similar instruments according to national needs, priorities and circumstances (c) Leveraging private finance, promoting blended finance, implementing strategies for raising new and additional resources, and encouraging the private sector to invest in biodiversity, including through impact funds and other instruments; (d) Stimulating innovative schemes such as payment for ecosystem services, green bonds, biodiversity offsets and credits, benefit-sharing mechanisms, with environmental and social safeguards (e) Optimizing co-benefits and synergies of finance targeting the biodiversity and climate crises, (f) Enhancing the role of collective actions, including by indigenous peoples and local communities, Mother Earth centric actions¹ and non-market-based approaches including community based natural resource management and civil society cooperation and solidarity aimed at the conservation of biodiversity (g) Enhancing the effectiveness, efficiency and transparency of resource provision and use; <p>Note¹: Mother Earth Centric Actions: Ecocentric and rights based approach enabling the implementation of actions towards harmonic and complementary relationships between peoples and nature, promoting the continuity of all living beings and their communities and ensuring the non-commodification of environmental functions of Mother Earth.</p>
Target 20	<p>Strengthen Capacity-Building, Technology Transfer, and Scientific and Technical Cooperation for Biodiversity</p> <p>Strengthen capacity-building and development, access to and transfer of technology, and promote development of and access to innovation and technical and scientific cooperation, including through South- South, North-South and triangular cooperation, to meet the needs for effective implementation, particularly in developing countries, fostering joint technology development and joint scientific research programmes for the conservation and sustainable use of biodiversity and strengthening scientific research and monitoring capacities, commensurate with the ambition of the goals and targets of the framework.</p>

Goal	Target
Target 21	<p>Ensure That Knowledge Is Available and Accessible To Guide Biodiversity Action</p> <p>Ensure that the best available data, information and knowledge, are accessible to decision makers, practitioners and the public to guide effective and equitable governance, integrated and participatory management of biodiversity, and to strengthen communication, awareness-raising, education, monitoring, research and knowledge management and, also in this context, traditional knowledge, innovations, practices and technologies of indigenous peoples and local communities should only be accessed with their free, prior and informed consent², in accordance with national legislation.</p> <p>Note²: Free, prior and informed consent refers to the tripartite terminology of “prior and informed consent” or “free, prior and informed consent” or “approval and involvement.</p>
Target 22	<p>Ensure Participation in Decision-Making and Access to Justice and Information Related to Biodiversity for all</p> <p>Ensure the full, equitable, inclusive, effective and gender-responsive representation and participation in decision-making, and access to justice and information related to biodiversity by indigenous peoples and local communities, respecting their cultures and their rights over lands, territories, resources, and traditional knowledge, as well as by women and girls, children and youth, and persons with disabilities and ensure the full protection of environmental human rights defenders.</p>
Target 23	<p>Ensure Gender Equality and a Gender-Responsive Approach for Biodiversity Action</p> <p>Ensure gender equality in the implementation of the framework through a gender-responsive approach where all women and girls have equal opportunity and capacity to contribute to the three objectives of the Convention, including by recognizing their equal rights and access to land and natural resources and their full, equitable, meaningful, and informed participation and leadership at all levels of action, engagement, policy and decision-making related to biodiversity.</p>