UK Biodiversity Indicators 2022

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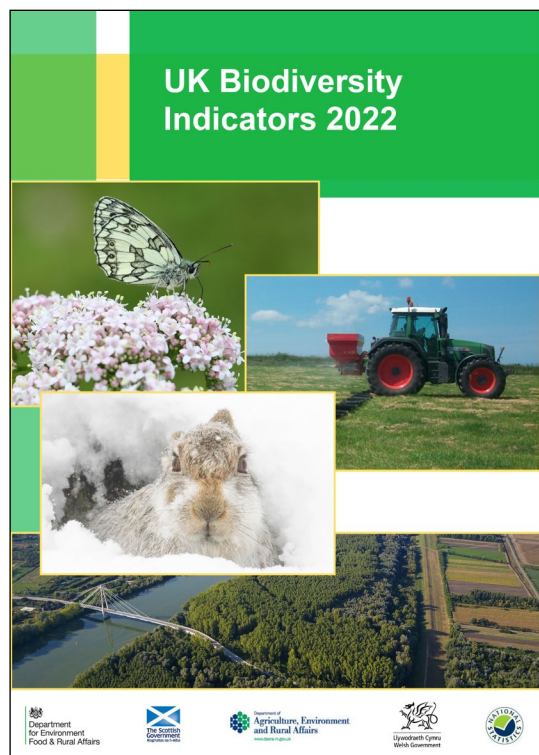
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Production

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For further details on all the indicators, including data sources and assessment methods, please visit jncc.gov.uk/ukbi2022.

UK Biodiversity Indicators 2022

Biodiversity is the variety of all life on Earth: genes, species and ecosystems. It includes all species of animals and plants, and the natural systems that support them. Biodiversity matters because it supports the vital benefits humans get from the natural environment. It contributes to the economy, health and well-being, and it enriches our lives.

A reduced set of indicators was updated in 2022 and published on 14 December 2022 (see Overview of Assessments).

The UK is a signatory to the Convention on Biological Diversity (CBD) and is committed to the biodiversity goals and targets (the 'Aichi targets') agreed in 2010 and set out in the Strategic Plan for Biodiversity 2011-2020. The UK uses a set of indicators to report on progress towards meeting these international goals and targets. The UK biodiversity indicators formed a major part of the UK's 6th National Report to the CBD in 2019, supplemented with other information relating to UK biodiversity.

Indicators are useful tools for summarising and communicating broad trends. They are not intended to incorporate all the relevant information available in the UK. They are best seen, as their name suggests, as indicative of wider changes. The UK indicators are being comprehensively reviewed during 2022/23 to ensure that that best possible data are available, and in response to the development of the new post-2020 global biodiversity framework, being negotiated through the 15th Conference of the Parties of the Convention on Biological Diversity.

Indicators are one of the means by which the UK can communicate the results of monitoring and surveillance. The audience for indicators is extremely broad, from the general public to all parts of the private and public sectors. The idea of a headline suite of indicators, easily understood and communicated to all, supported by additional data and background information to aid interpretation and provide more detail, has proved to be a robust model and an effective solution for communicating such a breadth of information to such a wide audience. The UK approach to biodiversity indicators has been well received internationally and has helped to place the UK at the forefront of international work on this subject.

The UK biodiversity indicators have been developed in a co-operative fashion, with input from government, statutory agencies and public bodies, non-governmental organisations, and academic institutes – in total nearly 100 organisations are involved. Much of the data collection and reporting undertaken by non-governmental organisations is already statistically robust. Government and its agencies and public bodies work with such organisations to ensure that methodologies and the reporting of results are meeting the standards in the Code of Practice for Statistics.

The UK biodiversity indicators publication is designated as a National Statistic Compendium. Across government and linked bodies, very high importance is given to ensuring trustworthy statistics are produced to inform decision making and ensure accountability to the public. The Statistics and Registration Service Act 2007 established the independent UK Statistical Authority which has statutory authority to oversee the standards for the production and dissemination of official statistics across government. The Authority has established a Code of Practice for Statistics and assesses compliance with this. This includes the monitoring of the pre-release rules which strictly limit who can see the final figures in advance of publication. Together, these set the standards for assuring that the statistics are produced objectively and impartially to high professional standards.

The UK is fortunate in having lots of information about its biodiversity, collected across a broad spread of species and habitats both by professionals and by expert volunteers. This information provides an essential source of evidence for reporting biodiversity change and the impact of policies and actions to conserve biodiversity. Biodiversity policy is a devolved responsibility in the UK; England, Scotland, Wales and Northern Ireland have each developed, or are developing, their own biodiversity or environment strategies. Indicators are being developed to track progress with the respective commitments in each country. The UK indicators have a specific purpose for international reporting and were selected following consultation and agreement between the

administrations. The indicators provide a flexible framework and a common set of methodologies which in some cases can also be used for country reporting.

Full information for each individual indicator is available online – please visit jncc.gov.uk/ukbi2022. – this includes charts, assessments and access to background information and resources, including data and technical background documents. The publication is overseen by government statisticians in Defra and is subject to review by the UK Statistics Authority and the Office for Statistics Regulation.

Assessing Indicators

Each indicator is composed of one or more measures that show trends over time. Many indicators have a single measure, but where data cannot be combined logically, the indicator will have more than one measure. Each measure is summarised or assessed separately using a set of 'traffic lights'. The traffic lights show 'change over time'. They do not show whether the measure has reached any published or implied targets, or indeed whether the status is 'good' or 'bad', although where targets have been set, these are identified in the indicator text.

The traffic lights are determined by identifying the period over which the change is to be assessed and comparing the value of the measure in the end year with the value in the base or start year.

✓   Improving

≈   Little or no overall change

✗   Deteriorating

⋯   Insufficient or no comparable data

Where possible, statistical tests are used to decide if a positive or negative change has occurred. The assessment may be made by Defra statisticians in collaboration with the data providers, or undertaken by the data providers themselves. A green or red traffic light is only applied when there is sufficient confidence that the change has occurred and that it is not simply a product of random fluctuations. An amber traffic light is applied when there is insufficient confidence that the change has taken place. Where there are insufficient data to make an assessment, for example, when the time series is too short, or where there are no data available to compare, a white 'traffic light' is applied to the indicator / measure.

For some indicators, it is not possible to formally determine statistical significance, and in such cases the assessment has been made by comparing the difference between the value of the measure in the end year and the value in the base or start year against a 'rule of thumb' threshold. The standard threshold used is 3%, unless noted otherwise. Where the data allow it, a 3-year average is used to calculate the base year, to reduce the likelihood of any unusual year(s) unduly influencing the assessment. Where an indicator value has changed by less than the threshold of 3%, the traffic light has been set at amber. The choice of 3% as the threshold is arbitrary, but is used across other government indicators; use of this approach is kept under review.

The traffic lights only reflect the overall change in the measure from the base to latest year and do not reflect fluctuations during the intervening years.

Where data are available, two assessment periods have been used:

- Long-term – an assessment of change since the earliest year for which data are available, although if the data run is for less than 10 years a long-term assessment is not made.

- Short-term – an assessment of change over the latest 5 years. For a very few indicators, the short-term change is over a longer time-period as a result of the frequency of update of the data upon which the indicators are based. Thus, indicators C3a and C3b have a 6-year short-term assessment.

For both long-term and short-term assessments the years over which the assessment is undertaken are stated in the assessment table. The individual indicators also have a third marker showing the direction of change in the latest year. This period is too short for a meaningful assessment. However, when it exceeds a 1% threshold, the direction of change is given simply as an acknowledgement of very recent trends and as a possible early indication of emerging trends.

Overview of Assessment of change for all indicators

Table 1 below summarises traffic light assessments for 24 indicators and their component measures, with updates in 2022 for:

- A4.   Global biodiversity impacts
- B5a. Air pollution
- C1.   Protected areas
- C6.   Butterflies
- D1c. Pollinating insects
- E2.   Biodiversity Expenditure

In addition, C4a Status of priority species: relative abundance will be updated in early 2023 as soon as the data become available. Defra and JNCC do not anticipate that this will lead to missing data for the indicators which are not updated this year; data which would have been published in 2022 will be available in 2023. The next full update is planned to take place after the review of the indicators has been completed in 2023. For more information on the Defra and JNCC review of the biodiversity indicators, visit the gov.uk website.

For each indicator, its number, title, and measures (where applicable) are shown. Indicators are numbered according to the Strategic Goal with which they most closely link.

✅ Improving   ❌ Deteriorating

≈ Little or no overall change   ⋯ Insufficient or no comparable data

Table 1. Assessment of change for all the indicators

Indicator	Measure(s)	Long-term change[1]	Short-term change[2]	Last Updated	Latest Data
A1. Awareness, understanding and support for conservation		⋯	⋯	2020	2018
A2. Taking action for nature: volunteer time spent in conservation		✅ 2000–2019	✅ 2014–2019	2021	2019
A3. Value of biodiversity integrated into decision making		Under development	Under development	2019	Not Applicable
A4. Global biodiversity impacts of UK economic activity / sustainable consumption		Experimental Statistic – under review	Experimental Statistic – under review	2022	2018
A5. Integration of biodiversity considerations into business activity		⋯	⋯	2021	2019

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Indicator	Measure(s)	Long-term change[1]	Short-term change[2]	Last Updated	Latest Data
B1. Agricultural and forest area under environmental management schemes	B1a. Area of land in agri-environment schemes	✓ 1992–2020	✓ 2015–2020	2021	2020
	B1b. Area of forestry land certified as sustainably managed (NATIONAL STATISTICS)	✓ 2001–2021	≈ 2016–2021	2021	2021
B2. Sustainable fisheries	B2a. Percentage of marine fish stocks harvested sustainably	✓ 1990–2019	✓ 2014–2019	2021	2019
	B2b. Biomass of marine fish stocks at full reproductive capacity	✓ 1990–2019	✗ 2014–2019	2021	2019
B3. Climate change adaptation		Under development	Under development	2019	Not Applicable
B4. Pressure from climate change (Spring Index)		Not Assessed	Not Assessed	2021	2020
B5. Pressure from pollution	B5a. Air pollution				
	B5a(i). Area affected by acidity	⋯	✓ 2014–2019	2022	2019
	B5a(ii). Area affected by nitrogen	⋯	✓ 2014–2019	2022	2019
	B5b. Marine pollution	✓ 1990–2019	✓ 2014–2019	2021	2019
B6. Pressure from invasive species	B6a. Freshwater invasive species	✗ 1960–2020	Not assessed	2021	2020
	B6b. Marine (coastal) invasive species	✗ 1960–2020	Not assessed	2021	2020
	B6c. Terrestrial invasive species	✗ 1960–2020	Not assessed	2021	2020
B7. Surface water status		≈ 2009–2020	≈ 2015–2020	2021	2020

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Indicator	Measure(s)	Long-term change[1]	Short-term change[2]	Last Updated	Latest Data
C1. Protected areas	C1a. Total extent of protected areas: on land	✓ 1950–2022	≈ 2017–2022	2022	2022
	C1b. Total extent of protected areas: at sea	✓ 1950–2022	✓ 2017–2022	2022	2022
	C1c. Condition of Areas/Sites of Special Scientific Interest	✓ 2005–2022	✗ 2017–2022	2022	2022
C2. Habitat connectivity		Experimental Statistic – under review	Experimental Statistic – under review	2019	2012
C3. Status of European habitats and species	C3a. Status of UK habitats of European importance	✗ 2007–2019	✗ 2013–2019	2019	2019
	C3b. Status of UK species of European importance	✗ 2007–2019	✗ 2013–2019	2019	2019
C4. Status of UK priority species	C4a. Relative abundance	✗ 1970–2019	≈ 2014–2019	2021	2019
	C4b. Distribution	≈ 1970–2018	≈ 2013–2018	2021	2018
C5. Birds of the wider countryside and at sea	C5a. Farmland birds	✗ 1970–2018	✗ 2013–2018	2021	2019
	C5b. Woodland birds	✗ 1970–2018	✗ 2013–2018	2021	2019
	C5c. Wetland birds	✗ 1975–2018	≈ 2013–2018	2021	2019
	C5d. Seabirds	Not Assessed	Not Assessed	2021	2019
	C5e. Wintering waterbirds	✓ 1975/76–2017/18	≈ 2012/13–2017/18	2021	2018-19
C6. Insects of the wider countryside (butterflies)	C6a. Habitat specialists	✗ 1976–2021	≈ 2016–2021	2022	2021
	C6b. Species of the wider countryside	≈ 1976–2021	≈ 2016–2021	2022	2021

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Indicator	Measure(s)	Long-term change[1]	Short-term change[2]	Last Updated	Latest Data
C7. Plants of the wider countryside		Experimental Statistic – under review	Experimental Statistic – under review	2020	2019
C8. Mammals of the wider countryside (bats)		✓ 1999–2019	✓ 2014–2019	2021	2020
C9. Genetic resources for food and agriculture	C9a. Animal genetic resources – effective population size of Native Breeds at Risk				
	C9a(i). Goat breeds	✓ 2004–2020	≈ 2015–2020	2021	2020
	C9a(ii). Pig breeds	✗ 2000–2020	✗ 2015–2020	2021	2020
	C9a(iii). Horse breeds	✗ 2000–2020	✗ 2015–2020	2021	2020
	C9a(iv). Sheep breeds	✓ 2000–2020	✓ 2015–2020	2021	2020
	C9a(v). Cattle breeds	✓ 2000–2020	✓ 2015–2020	2021	2020
	C9b. Plant genetic resources – Enrichment Index	✓ 1960–2018	✓ 2013–2018	2018	2018
D1. Biodiversity and ecosystem services	D1a. Fish size classes in the North Sea	✗ 1983–2019	✗ 2014–2019	2020	2019
	D1b. Removal of greenhouse gases by UK forests	✓ 1990–2019	✓ 2014–2019	2021	2019
	D1c. Status of pollinating insects	✗ 1980–2019	✗ 2014–2019	2022	2019
E1. Biodiversity data for decision making	E1a. Cumulative number of records	✓ 2004–2021	✓ 2016–2021	2021	2021
	E1b. Number of publicly accessible records at 1km^2 resolution or better	✓ 2008–2021	✓ 2016–2021	2021	2021

Indicator	Measure(s)	Long-term change[1]	Short-term change[2]	Last Updated	Latest Data
E2. Expenditure on UK and international biodiversity	E2a. Public sector expenditure on UK biodiversity	✓ 2000/01–2020/21	✗ 2015/16–2020/21	2022	2020/21 financial year
	E2b. Non-governmental organisation expenditure on UK biodiversity	✓ 2010/11–2020/21	✗ 2015/16–2020/21	2022	2020/21 financial year
	E2c. UK public sector expenditure on international biodiversity	✓ 2001/02–2020/21	✗ 2015/16–2020/21	2022	2020/21 financial year

[1] Long term – an assessment of change since the earliest date for which data are available, although if the data run is for less than ten years a long-term assessment is not made.

[2] Short term – an assessment of change over the latest five years. For a very few indicators the short-term change is over a longer time-period as a result of the frequency of update of the data upon which the indicators are based. Indicators C3a and C3b have a six year short-term assessment.

The Strategic Plan for Biodiversity 2011–2020.sets out five goals (A to E), each with a number of targets (the focus of each goal is shown by the words in bold type below). The targets are known as the 'Aichi Targets', after the province in Japan where they were agreed.

A. Address the underlying causes of biodiversity loss by **mainstreaming** biodiversity across government and society.

B. Reduce the direct **pressures** on biodiversity and promote sustainable use.

C. Improve the **status** of biodiversity by safeguarding ecosystems, species and genetic diversity.

D. Enhance the **benefits** to all from biodiversity and ecosystems.

E. Enhance **implementation** through planning, knowledge management and capacity building.

A new set of global biodiversity targets is being negotiated under the Convention on Biological Diversity (CBD) – it is anticipated that these will be agreed in December 2022.

The individual assessments for each measure can be combined to produce an overall picture of progress made. The charts below (figures 1 to 3) display the numbers of measures that have shown an improvement, deterioration, little or no overall change, or that have insufficient / no comparable data for an assessment to be made.

As well as an overall summary, based on all measures in the indicator set, separate summaries for Strategic Goals B and C are shown, which are based on the indicators and measures linked to those goals (B1 to B7; C1 to C9). Strategic Goals A, D and E currently have fewer measures; separate charts are therefore not shown.
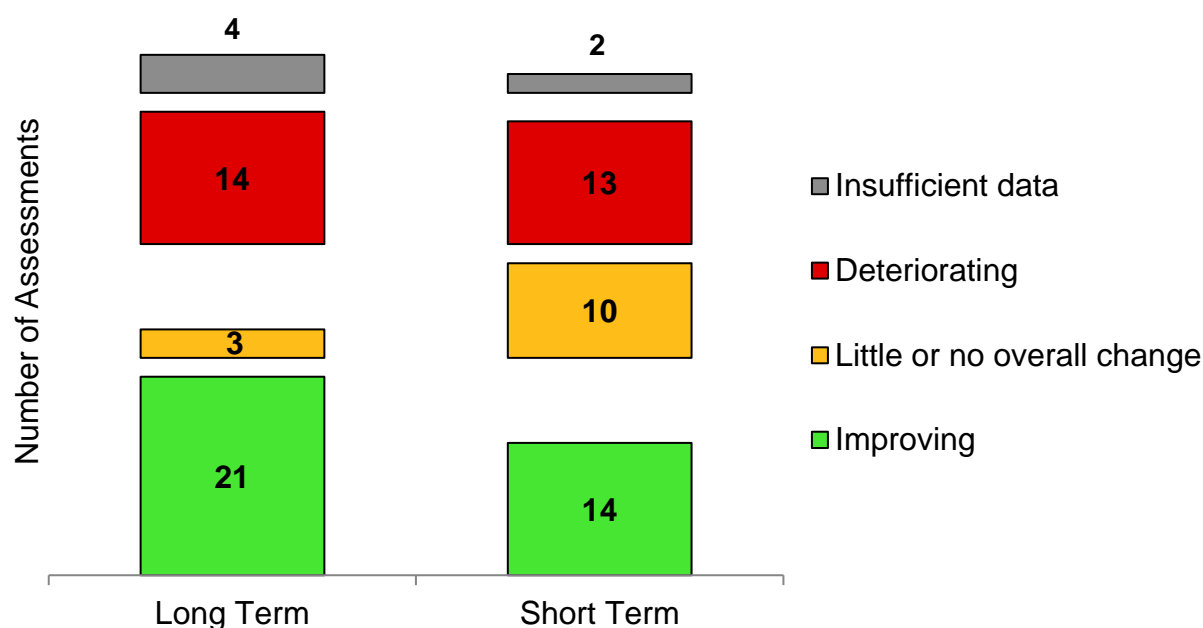
Assessment of change: all measures.

Figure 1. Assessment of change: all measures

The UK biodiversity indicators set comprises 24 indicators and 52 measures. Of these, ten measures are not assessed in the long-term, and thirteen in the short term, as the measures are either under development, or analytical methods for short-term assessment need to be refined. In this 2022 publication, six indicators have been updated.

Twenty-one of the 42 measures assessed over the long term show an improvement, compared to fourteen of the 39 measures that are assessed over the short term. Fourteen measures show a decline in the long term, and thirteen a decline in the short term. Measures that improved or deteriorated in the long term have not necessarily continued to improve or deteriorate respectively in the short term.

The fourteen measures showing an improvement in the short term are:

A2. Taking action for nature: volunteer time spent in conservation
B1a. Area of land in agri-environment schemes
B2a. Proportion of fish stocks harvested sustainably
B5. Pressure from pollution (three measures)
C1b. Total area of protected sites: at sea
C8. Mammals of the wider countryside (Bats)
C9a. Animal genetic resources (two measures)
C9b. Plant genetic resources
D1b. Greenhouse gas removals by forests
E1. Biodiversity data for decision making (two measures)

The twenty-one measures which have improved in the long term are:

A2. Taking action for nature: volunteer time spent in conservation
B1a. Area of land in agri-environment schemes
B1b. Area of forestry land certified as sustainably managed
B2. Sustainable fisheries (two measures)
B5. Pressure from pollution (marine)

C1.   Protected areas (three measures)
C5e. Wintering water birds
C8.   Mammals of the wider countryside (Bats)
C9a. Animal genetic resources (three measures)
C9b. Plant genetic resources
D1b. Greenhouse gas removals by UK forests
E1.   Biodiversity data for decision making (two measures)
E2.   Expenditure on biodiversity (three measures)

The thirteen measures showing a decline in the short term are:

B2b. Biomass of stocks at full reproductive capacity
C1c. Condition of A/SSSIs
C3.   Status of threatened habitats and species (two measures)
C5.   Birds of the wider countryside and at sea (two measures)
C9a. Animal genetic resources (two measures)
D1a. Fish size classes in the North Sea
D1c. Pollinators
E2a. Expenditure on biodiversity (three measures)

The fourteen measures showing long-term deterioration are:

B6.   Pressure from invasive species (three measures)
C3.   Status of threatened habitats and species (two measures)
C4a. Status of UK Priority species (relative abundance)
C5.   Birds of the wider countryside and at sea (three measures)
C6a. Insects in the wider countryside (butterflies) (Semi-natural habitat specialists)
C9a. Animal genetic resources (two measures)
D1a. Fish size classes in the North Sea
D1c. Pollinators

Key changes to the indicator set since the previous publication are:

i.   Update of the experimental indicator on Global biodiversity impacts of UK economic activity / sustainable consumption (A4) to increase the number of countries covered and the sectors analysed.

ii. Methodological change in how air pollution indicator is calculated, meaning that the length of the time series is reduced (B5a).

iii. Extension of the NGO spending on biodiversity measure (E2b) so that a long-term assessment is possible as there are ten years of data.

Assessment of change: Goal B: Reduce the direct pressures on biodiversity and promote sustainable use.
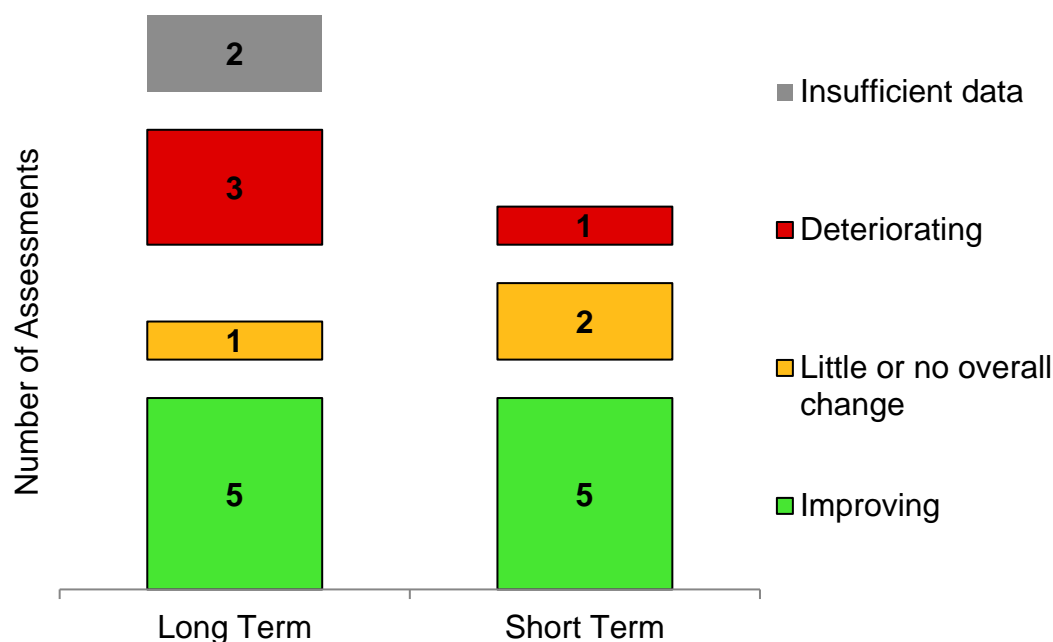

Figure 2. Assessment of change for measures under Goal B.

The indicators under Strategic Goal B (seven indicators and 13 measures prefixed 'B' in the summary table) show long-term progress is being made to address the pressures on biodiversity (e.g. in the proportion of fish stocks harvested sustainably, in the area of land in agri-environment schemes, and in marine pollution). However, there has been a long-term increase in the prevalence of invasive species, reflecting a pattern of continuing or growing threat to biodiversity in the UK. In the short term there is little or no overall change in the area of forestry land certified as sustainably managed, and in surface water status.

Assessment of change: Goal C: Improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity.
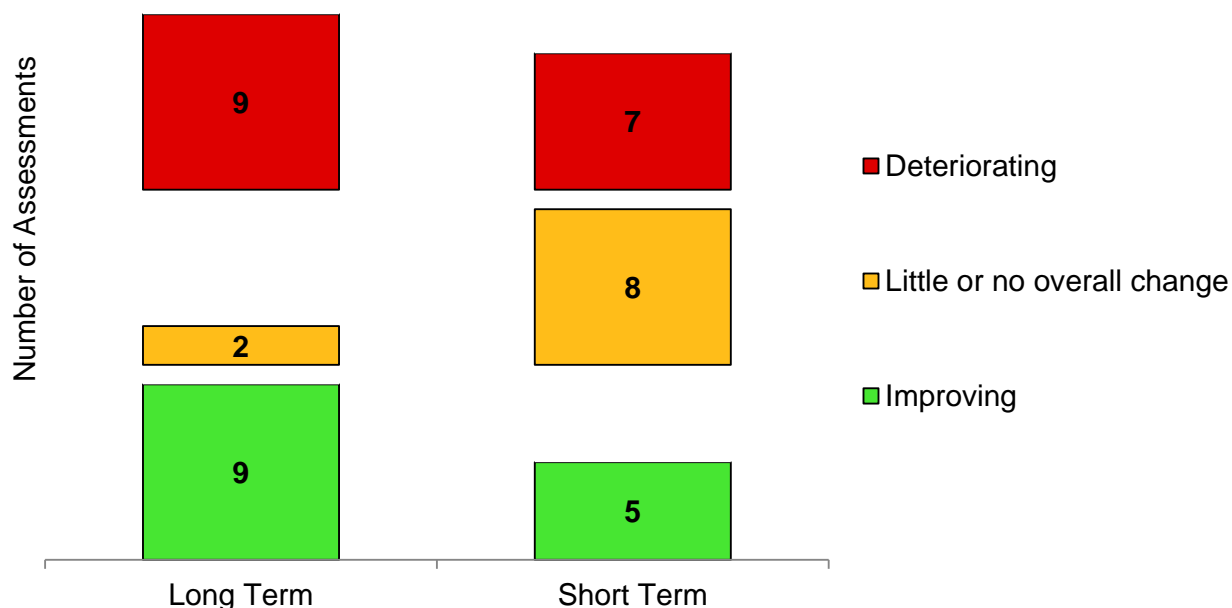

Figure 3. Assessment of change for measures under Goal C.

There were long-term declines for nine measures under Strategic Goal C (nine indicators and 26 measures prefixed 'C' in the summary table, covering status of biodiversity), reflecting the declines in many species populations seen in the 1970s and 1980s. There is some evidence that some of the previous declines have slowed, with some measures assessed as deteriorating in the long term showing little or no overall change in the short term (e.g. semi-natural habitat specialist butterflies and the abundance of priority species). In total, five measures have shown improvement over the short term, including extent of protected areas at sea, and bats. These conclusions should be viewed with some caution as changes are more difficult to assess reliably over the short term.

Annex: Official Statistics

Official Statistics

The Statistics and Registration Service Act 2007 defines 'official statistics' as all those statistical outputs produced by the UK Statistics Authority's executive office (the Office for National Statistics) by central government departments and agencies, by the devolved administrations in Northern Ireland, Scotland and Wales, and by other Crown bodies.

The Act also allows Ministers to determine, through secondary legislation, which non-Crown bodies produce official statistics so that they, too, can be subject to scrutiny and assessment by the Statistics Authority, and be eligible for assessment as 'National Statistics'. This provision is designed to ensure a broad definition of official statistics, as well as flexibility so that the scope of official statistics can be adapted over time to suit changing circumstances.

National Statistics

'National Statistics' are a subset of official statistics which have been certified by the UK Statistics Authority as fully compliant with its Code of Practice for Statistics:

http://www.statisticsauthority.gov.uk/assessment/code-of-practice/

Accredited 'National Statistics' are identified by the following quality mark:

UK Biodiversity Indicators compendium publication

UK Biodiversity Indicators is a Defra National Statistics compendium. The designation does not mean that all the individual statistics presented are National Statistics in their own right. Rather, it means that the compilation and publication has been assessed by the UK Statistics Authority as compliant with the Code of Practice.

These statistics last underwent a full assessment against the Code of Practice for Statistics in 2012. See Assessment Report 173 Statistics on Sustainability and the Environment in England and the UK. Since that assessment by the Office for Statistics Regulation, Defra and JNCC have continued to comply with the Code of Practice for Statistics.

The following individual statistics presented in the publication are National Statistics:

B1b. Area of forestry land certified as sustainably managed   Assessed March 2012

C5. Birds of the wider countryside and at sea   Assessed February 2012

Although all other statistics in this compendium are not *individually* designated as National Statistics, they are Official Statistics, and as such have been produced in line with the Code of Practice. They are subject to rigorous quality assurance by the data owners and general quality assurance by Defra and the Joint Nature Conservation Committee. The presentation of the statistics, the commentary, and the traffic light assessments have been overseen and quality assured by Defra Statisticians.

Experimental Statistics

'Experimental statistics' are a subset of newly developed or innovative official statistics undergoing evaluation. They are developed under the guidance of the Head of Profession for Statistics and are published in order to involve users and stakeholders in the assessment of their suitability and quality at an early stage. Further information can be found in the 'Guide to Experiment Statistics'. If you have feedback on any of our experimental statistics in the UK Biodiversity Indicators, please email us at enviro.statistics@defra.gov.uk.

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