UK Biodiversity Indicators 2021 Revised

This document, with additional supporting data and text, is available to be downloaded on the Joint Nature Conservation Committee website: jncc.gov.uk/ukbi

Image credits:

In October 2021 the following indicator was revised, leading to a revision of this Compendium document:

A4 Global biodiversity impacts of UK economic activity / sustainable consumption

As the Covid-19 pandemic continues, we would like to thank all colleagues who have contributed to this publication; your efforts in such difficult times are greatly appreciated

Images clockwise from top:

1. Monitoring © NatureScot/Lorne Gill

2. Orange-tipped butterfly © Jeannie Debs

3. Humpback whale diving © James Williams

4. Hoverfly © Natural England/Allan Drewitt

5. Swallow © Natural England/Allan Drewitt

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UK Biodiversity Indicators 2021

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

To allow for a thorough review of these indicators it is anticipated that there will be a pause in publication in 2022, with the next update in 2023. We are keen to know the likely impact on users so please let us have your views by emailing enviro.statistics@defra.gov.uk. In addition, please let us know if you have any feedback you would like us to consider as part of our review or if you would like to be contacted in order to contribute directly.

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.

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.

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 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.

The UK Biodiversity Indicators are dependent on a wide variety of data, provided by government, research bodies, and the voluntary sector – in total nearly 100 organisations are involved. The presentation and assessment of the indicators has been verified by the data providers, and the production and editing of the indicators has been overseen by government statisticians.

The UK biodiversity indicators publication is a National Statistics Compendium (see Annex). The publication is overseen by government statisticians in Defra and is compliant with the Code of Practice for Statistics. It is subject to review by the UK Statistics Authority and the Office for Statistics Regulation.

For more information visit UK Biodiversity Indicators 2021, where the most recent information is presented. Links to the full detail of each of the previous editions are provided on the Joint Nature Conservation Committee website (stored on The National Archives website).

Assessing Indicators

Each indicator is composed of one or more measures that show trends over time. 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   ❌ Deteriorating

≈ Little or no overall change   ⋯ 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

The table below summarises traffic light assessments for 24 indicators and their component measures. 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.

Indicator / measure(s)	Long-term change[a]	Short-term change[b]	Last Updated	Latest Data
A1.Awareness, understanding and support for conservation	⊙	⊙	2020	2018
A2. Taking action for nature: volunteer time spent in conservation	✓ 2000 to 2019	✓ 2014 to 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	2021	2017

UK Biodiversity Indicators 2021

Indicator / measure(s)		Long-term change[a]	Short-term change[b]	Last Updated	Latest Data
A5. Integration of biodiversity considerations into business activity		⊙	⊙	2021	2019
B1. Agricultural and forest area under environmental management schemes	B1a. Area of land in agri-environment schemes	✓ 1992 to 2020	✓ 2015 to 2020	2021	2020
	B1b. Area of forestry land certified as sustainably managed	✓ 2001 to 2021	≈ 2016 to 2021	2021	2021
B2. Sustainable fisheries	B2a. Percentage of marine fish stocks harvested sustainably	✓ 1990 to 2019	✓ 2014 to 2019	2021	2019
	B2b. Biomass of marine fish stocks at full reproductive capacity	✓ 1990 to 2019	✗ 2014 to 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	✓ 1996 to 2018	✓ 2013 to 2018	2021	2018
	B5a(ii). Area affected by nitrogen	✓ 1996 to 2018	✓ 2013 to 2018	2021	2018
B5b. Marine pollution		✓ 1990 to 2019	✓ 2014 to 2019	2021	2019
B6. Pressure from invasive species	B6a. Freshwater invasive species	✗ 1960 to 2020	Not assessed	2021	2020
	B6b. Marine (coastal) invasive species	✗ 1960 to 2020	Not assessed	2021	2020
	B6c. Terrestrial invasive species	✗ 1960 to 2020	Not assessed	2021	2020
B7. Surface water status		≈ 2009 to 2020	≈ 2015 to 2020	2021	2020

UK Biodiversity Indicators 2021

Indicator / measure(s)		Long-term change[a]	Short-term change[b]	Last Updated	Latest Data
C1. Protected areas	C1a. Total extent of protected areas: on land	✓ 1950 to 2021	≈ 2016 to 2021	2021	2021
	C1b. Total extent of protected areas: at sea	✓ 1950 to 2021	✓ 2016 to 2021	2021	2021
	C1c. Condition of Areas / Sites of Special Scientific Interest	✓ 2005 to 2021	✗ 2016 to 2021	2021	2021
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 to 2019	✗ 2013 to 2019	2019	2019
	C3b. Status of UK species of European importance	✗ 2007 to 2019	✗ 2013 to 2019	2019	2019
C4. Status of UK priority species	C4a. Relative abundance	✗ 1970 to 2019	≈ 2014 to 2019	2021	2019
	C4b. Distribution	≈ 1970 to 2018	≈ 2013 to 2018	2021	2018
C5. Birds of the wider countryside and at sea	C5a. Farmland birds	✗ 1970 to 2018	✗ 2013 to 2018	2021	2019
	C5b. Woodland birds	✗ 1970 to 2018	✗ 2013 to 2018	2021	2019
	C5c. Wetland birds	✗ 1975 to 2018	≈ 2013 to 2018	2021	2019
	C5d. Seabirds	Not Assessed	Not Assessed	2021	2019
	C5e. Wintering waterbirds	✓ 1975/76 to 2017/18	≈ 2012/13 to 2017/18	2021	2018/19
C6. Insects of the wider countryside (butterflies)	C6a. Habitat specialists	✗ 1976 to 2020	≈ 2015 to 2020	2021	2020
	C6b. Species of the wider countryside	≈ 1976 to 2020	≈ 2015 to 2020	2021	2020
C7. Plants of the wider countryside		Experimental Statistic – under review	Experimental Statistic – under review	2020	2019
C8. Mammals of the wider countryside (bats)		✓ 1999 to 2019	✓ 2014 to 2019	2021	2020

Indicator / measure(s)		Long-term change[a]	Short-term change[b]	Last Updated	Latest Data
C9. Genetic resources for food and agriculture					
C9a. Animal genetic resources – effective population size of Native Breeds at Risk	C9a(i). Goat breeds	✔ 2004 to 2020	≈ 2015 to 2020	2021	2020
	C9a(ii). Pig breeds	✖ 2000 to 2020	✖ 2015 to 2020	2021	2020
	C9a(iii). Horse breeds	✖ 2000 to 2020	✖ 2015 to 2020	2021	2020
	C9a(iv). Sheep breeds	✔ 2000 to 2020	✔ 2015 to 2020	2021	2020
	C9a(v). Cattle breeds	✔ 2000 to 2020	✔ 2015 to 2020	2021	2020
C9b. Plant genetic resources – Enrichment Index		✔ 1960 to 2018	✔ 2013 to 2018	2018	2018
D1. Biodiversity and ecosystem services	D1a. Fish size classes in the North Sea	✖ 1983 to 2019	✖ 2014 to 2019	2020	2019
	D1b. Removal of greenhouse gases by UK forests	✔ 1990 to 2019	✔ 2014 to 2019	2021	2019
	D1c. Status of pollinating insects	✖ 1980 to 2017	≈ 2012 to 2017	2021	2017
E1. Biodiversity data for decision making	E1a. Cumulative number of records	✔ 2004 to 2021	✔ 2016 to 2021	2021	2021
	E1b. Number of publicly accessible records at 1 km^2 resolution or better	✔ 2008 to 2021	✔ 2016 to 2021	2021	2021
E2. Expenditure on UK and international biodiversity	E2a. Public sector expenditure on UK biodiversity	✔ 2000/01 to 2019/20	✖ 2014/15 to 2019/20	2021	2019/20 financial year
	E2b. Non-governmental organisation expenditure on UK biodiversity	⊙	✔ 2014/15 to 2019/20	2021	2019/20 financial year
	E2c. UK public sector expenditure on international biodiversity	✔ 2001/02 to 2019/20	≈ 2014/15 to 2019/20	2021	2019/20- financial year

a 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.

b 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 UK Government is a signatory to the Convention on Biological Diversity (CBD) and is committed to the biodiversity goals and targets agreed in 2010 and set out in the Strategic Plan for Biodiversity 2011 to 2020. The targets are known as 'Aichi Targets', after the province in Japan where they were agreed. The Strategic Plan has 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):

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.

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

i. Publication of a new experimental indicator on Global biodiversity impacts of UK economic activity / sustainable consumption (A4).

ii. Methodological change in how the individual species trends are combined to form a composite indicator for the priority species measures (C4a/b).

iii. The integration of biodiversity considerations into business activity (A5) has been revised, and until more data points are available this indicator cannot be assessed.

Assessment of Change: all measures
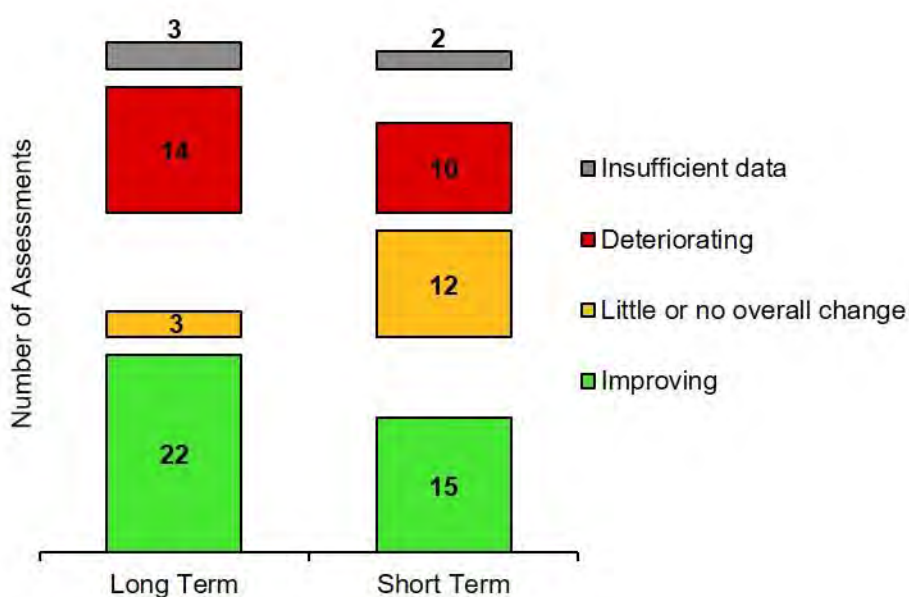
The UK biodiversity indicators set comprises 24 indicators and 52 measures. Of these, ten measures are not assessed in the long-term, and 13 in the short term, as the measures are either under development, or analytical methods for short-term assessment need to be refined. In this 2021 publication, 18 indicators have been updated.

Twenty-two of the 42 measures assessed over the long term show an improvement, compared to 15 of the 39 measures that are assessed over the short term. Fourteen measures show a decline in the long term, and ten 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.

A1. Awareness, understanding and support for conservation

Type: Response indicator

No update since the previous publication.

This indicator addresses awareness of biodiversity and understanding of its value, concern about biodiversity loss, as well as support for performing actions that can help to conserve it. The indicator uses a hierarchical system to group people in the UK according to the extent to which they are aware of the threat to biodiversity in the UK, their level of concern about the loss of biodiversity and the number and type of actions they take to support and protect it.

The England data used to produce this indicator previously came from the Monitor of Engagement with the Natural Environment Survey. This survey was replaced by the People and Nature Survey, which started data collection in 2020, and there is not yet sufficient data to update the indicator for the 2021 publication.

Key results

In 2018, 11% of people surveyed were highly engaged with biodiversity loss in the UK. These people stated that they were aware of the threat to UK biodiversity, they were concerned about the loss of biodiversity and they undertook actions that help to support and protect biodiversity. At the other end of the scale, 31% of people surveyed stated that they were not aware of a threat to biodiversity in the UK.

Figure A1i   Public engagement with biodiversity loss: awareness, concern and action, 2014, 2017 and 2018.
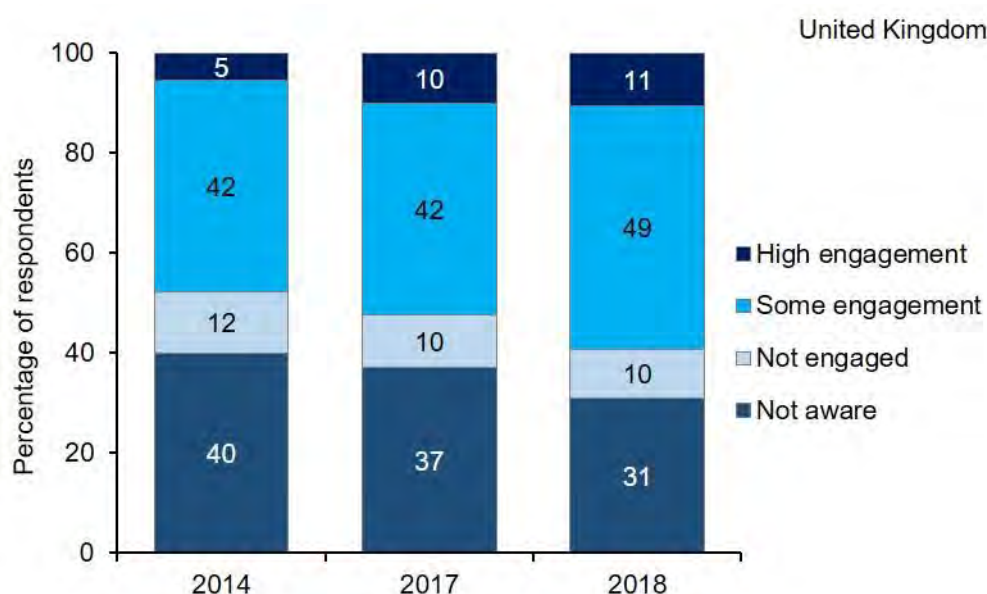
Notes:
1. Groups are defined as: 'not aware'; 'not engaged'; 'some engagement'; and 'high engagement', according to responses to survey questions concerning engagement with biodiversity loss, as described on the indicator webpage.
2. Data are weighted based on the relative population size of each country.
3. This indicator is built from survey results obtained separately by each of the four countries in the UK - which each run surveys in a slightly different manner. Some changes have occurred to the surveys over time.

   - England ran the Monitor of Engagement in the Natural Environment survey annually.
   - Scotland run the Scottish Nature Omnibus Survey every two years. Data from the 2017 survey has been used in this publication and carried forward to calculate a UK 2018 total.
   - Wales run an annual survey. Data relating to this indicator used to come from the Wales Outdoor Recreation Survey (WORS). The WOR Survey was discontinued in 2015. Sections of WORS were incorporated into the new National Survey for Wales, but not a direct transcription of the questions

previously used for this indicator, so the data for Wales for 2014 from WORS have been carried forward into the UK totals for 2017 and 2018.

- Northern Ireland run an annual survey, the Continuous Household Survey (CHS). The specific questions relating to this indicator ceased being asked in the CHS 2015 to 2016, so the data from the CHS 2014 to 2015 have been carried forward into the UK totals for 2017 and 2018.

Source: Department of Agriculture, Environment and Rural Affairs Northern Ireland; Natural England; Natural Resources Wales; NatureScot.

Assessment of change in the percentage of people highly engaged with the issue of biodiversity loss

	Long term	Short term	Latest year
Percentage of people highly engaged	⊙	⊙	Not assessed

Note: There are currently insufficient data points available for this indicator to carry out any assessments. See Assessing indicators.

A2. Taking action for nature: volunteer time spent in conservation

Type: Response indicator

This indicator presents an index of the number of hours worked by volunteers for 14 UK conservation charities and public bodies (including National Parks England which represents all National Parks in England – see the indicator webpage). Conservation volunteering includes any voluntary activity for an organisation or community undertaken to: further the understanding, protection or enjoyment of the natural environment, including wildlife recording and surveying; practical countryside management; providing education, training and guided walks; and administration or other office support.

Key results

The amount of time people spend volunteering to assist with conservation in part reflects society's interest in and commitment to biodiversity.

Between 2000 and 2019, the amount of time volunteers contributed to conservation activities in the UK increased by 61%. It also increased by 20% in the five years to 2019. By contrast, it decreased by 1% in the most recent year available.

Figure A2i   Index of volunteer time spent on conservation activities with selected environmental organisations in the UK, 2000 to 2019.
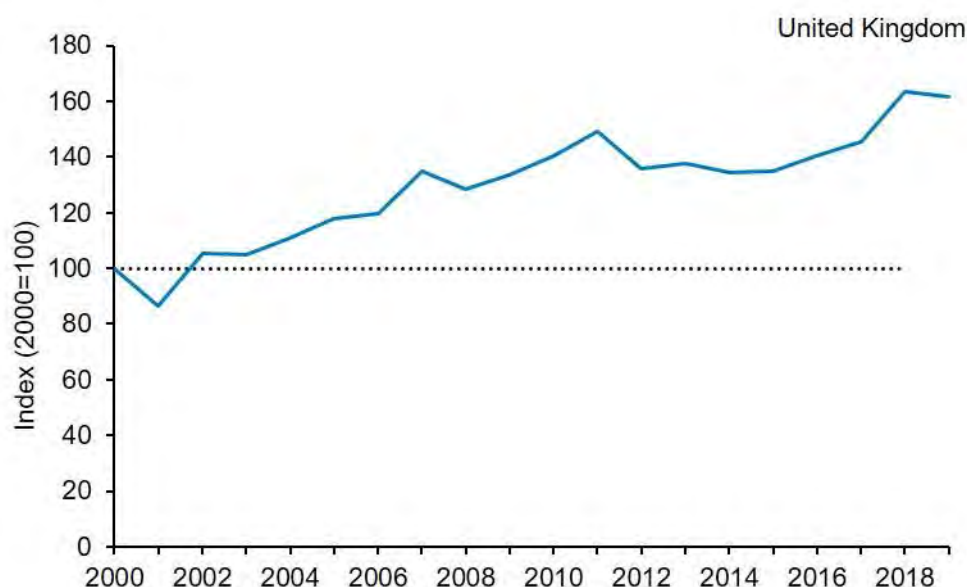
Notes:

1. The index is calculated using a non-weighted aggregation across organisations. It is therefore strongly dependent on the trends reported by the organisations recording large amounts for total volunteer hours.
2. Historical data were not available for all organisations in all years. To make best use of available data and to allow a combined index to be compiled, interpolation estimates have been used to fill gaps. See the indicator webpage.
3. Data provided by the Canal & River Trust (formerly British Waterways); The Conservation Volunteers; Loch Lomond & The Trossachs National Park Authority; National Parks England; Natural England; Pembrokeshire Coast National Park Authority; RSPB and The Wildlife Trusts were for financial years rather than calendar years. Financial year data have been assigned to the first calendar year (e.g. 2019 to 2020 data were allocated to 2019).
4. The data series was revised in 2018 due to some organisations, most notably The Wildlife Trusts, providing updated figures for previous years (see the indicator webpage). The methodology used to calculate the interpolated estimates was also revised in 2018. This chart is therefore not comparable to those presented in publications prior to 2018.

Source: Bat Conservation Trust; Botanical Society of Britain & Ireland; British Trust for Ornithology; Butterfly Conservation; Canal & River Trust; The Conservation Volunteers; Loch Lomond & The Trossachs National Park Authority; Natural England; National Parks England; Pembrokeshire Coast National Park Authority; Plantlife; Royal Society for the Protection of Birds (RSPB); The Wildlife Trusts; Woodland Trust.

Assessment of change in volunteer time spent in conservation

	Long term	Short term	Latest year
Conservation volunteering	✅ 2000 to 2019	✅ 2014 to 2019	Decreased (2019)

Note: Long- and short-term assessments are based on a 3% rule of thumb. Where possible, the base years for these assessments use a three-year average. See Assessing Indicators.

A3. Value of biodiversity integrated into decision making

Indicator previously under development

No update since the previous publication; there are no plans for further development.

The integration of biodiversity into mainstream social and economic processes should allow us to continue to enjoy the benefits of biodiversity that we currently achieve. However, this is a difficult concept to measure, and it has not been possible to develop an indicator. There are no plans for further development.

A4. Global biodiversity impacts of UK economic activity / sustainable consumption

Revised 28 October 2021

Experimental Statistic – indicator under development. The UK biodiversity indicators project team would welcome feedback on the novel methods used in the development of this indicator. For example, does this new indicator measure something readers feel should be measured?, and how well does it measure global impacts? As this is an experimental statistic it has not been assessed.

Type: State indicator

This indicator estimates the global environmental impacts of UK consumption of agricultural crop commodities[1] (and for some metrics additionally cattle-related[2] and timber commodities), between 2005 and 2017[3]. The headline indicator is based on tropical deforestation, but other impacts considered include biodiversity loss; greenhouse gas (GHG) emissions related to tropical deforestation; water consumption and scarcity-weighted water footprint; cropland area harvested; and Material consumption (tonnes of biomass production).

In this experimental statistic, results are shown for total UK consumption of agricultural commodities. However, the underlying data set (see the technical document) also breaks this down by the commodity responsible for the impact, and the production countries in which the impacts take place (covering all production countries globally, except for the two metrics relating to deforestation for which data is only available on tropical and subtropical forest, thereby restricting geographic coverage). This breakdown of results can also be visualised through an external dashboard.

Key results

UK consumption of crop, cattle-related and timber commodities in 2017 was associated with an estimated 31,126 hectares of agriculture-driven tropical deforestation worldwide (Figure A4i), a decrease of 58% since the time-series began in 2005. Comparing the 2017 footprint with 2012 reveals a short-term decrease of 41%. For the latest year (2017) a decrease is observed (6% decrease).

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[1] All crops with data recorded in FAOSTAT are included. See the technical document for further detail and exceptions).

[2] Cattle-related commodities' refer to meat, offal, fats and hides from cattle and buffalo as reported within FAOSTAT, and aligning with data usages within Pendril et al., 2019. Note that impacts attributed to cattle result from land used for pasture, whilst impacts from commodities used as feed are presented as impacts associated with the raw commodity (e.g. soy).

[3] Underlying data sets currently restrict analysis to 2005 to 2017. See the technical document for further information about planned data updates for each underlying data set.

Figure A4i   Area of tropical deforestation associated with UK consumption (hectares).
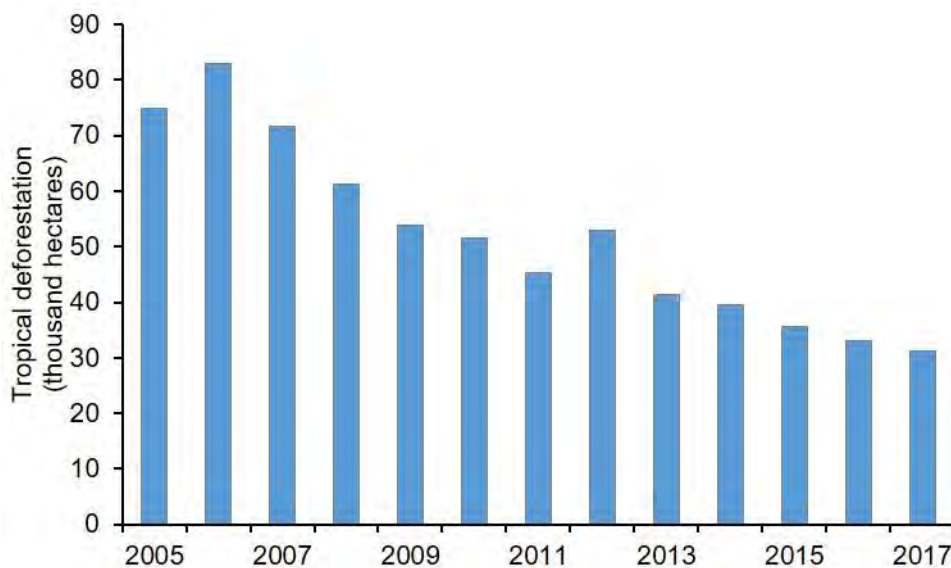
Notes: Estimates refer to tropical and subtropical deforestation as a result of crop, cattle-related, and timber commodities only.

Source: Calculated via application within the IOTA (Input Output Trade Analysis) framework (Croft et al, 2018) using data from Exiobase; the Food and Agriculture Organisation of the United Nations; and Pendrill et al., 2019, 2020.

Results for other impact metrics are presented on the indicator webpage.

A5. Integration of biodiversity considerations into business activity

Type: Response indicator

This indicator shows the number of ISO[4] ('International Organization for Standardization') 14001 certifications in the UK as a proportion of the total number of medium (50 to 249 employees) and large (at least 250 employees) businesses in the UK.

It is a proxy for the number of medium and large businesses in the UK that are taking steps to minimise their environmental impact as measured by the proportion of these businesses with ISO 14001 Environmental Management System (EMS) certification.

Key results

This indicator was not updated for the 2020 publication as ISO, who provide the number of 14001 certifications, refined their survey in 2018 and the results were not comparable with the previous results. ISO have now published results for the 2019 survey, and these are comparable with the 2018 data. Therefore the headline chart shows data from the refined ISO survey (that is data for 2018 and 2019) and the time-series showing the previous results from 1999 to 2017 are available on the indicator webpage.

In 2019, the number of ISO ('International Organization for Standardization') 14001 certifications in the UK as a proportion of the total number of medium and large businesses in the UK was 26.0% (Figure A5). Between 2018 and 2019, this proportion is unchanged from 2018.

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[4] Because 'International Organization for Standardization' would have different acronyms in different languages the organisation is known by the short form ISO. ISO is derived from the Greek isos, meaning equal.

Figure A5   **Number of ISO 14001 certifications in the UK as a proportion of the total number of medium and large businesses in the UK, 2018 and 2019.**
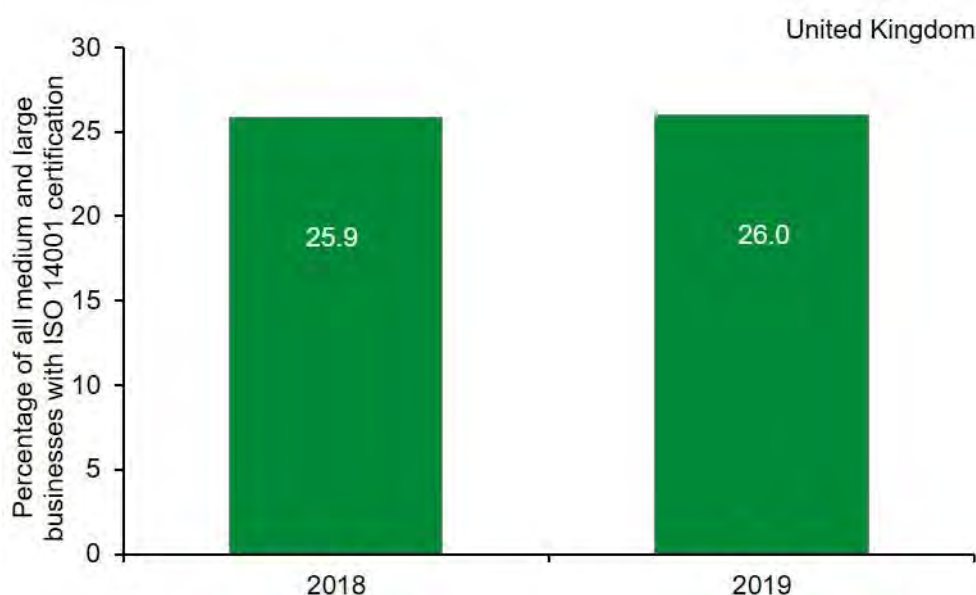
Notes:

1. Based on the total number of ISO 14001 (Environmental Management System) certifications in the UK on 31 December each year and the total number of medium and large businesses in the UK on 1 January of the following year.
2. 'Medium businesses' are those that employ between 50 and 249 staff; 'large businesses' are those that employ at least 250 staff.

Source: Department for Business, Energy & Industrial Strategy; International Organization for Standardization.

Assessment of change in biodiversity considerations in business activity

	Long term	Short term	Latest year
Number of ISO 14001 certifications in the UK as a proportion of the total number of medium and large businesses in the UK	⊙	⊙	Not assessed

Note: There are currently insufficient data points for this indicator to carry out any assessments. See Assessing Indicators.

B1. Agricultural and forest area under environmental management schemes

a.   Area of land in agri-environment schemes

Type: Response indicator

Agri-environment schemes require land managers, including farmers, to implement environmentally beneficial management and to demonstrate good environmental practice on their land. The higher-level or targeted schemes promote environmental management aimed to: conserve wildlife; maintain and enhance landscape quality and character; protect the historic environment and natural resources; and promote public access and understanding of the countryside. The entry-level type schemes aim to encourage large numbers of land managers to implement simple and effective environmental management on their land.

Key results

In 2020, the total area of land in higher-level or targeted agri-environment agreements in the UK was 3.6 million hectares: 1.9 million hectares in England; 0.5 million hectares in Wales; 1.2 million hectares in Scotland; and 0.1 million hectares in Northern Ireland.

Fluctuations in areas of land under agri-environment agreements over time can occur as a result of the introduction of new schemes and the ending of previous scheme agreements. Existing agreements will continue to be honoured until they expire.

Figure B1ai   Area of land covered by higher-level or targeted agri-environment schemes, 1992 to 2020.
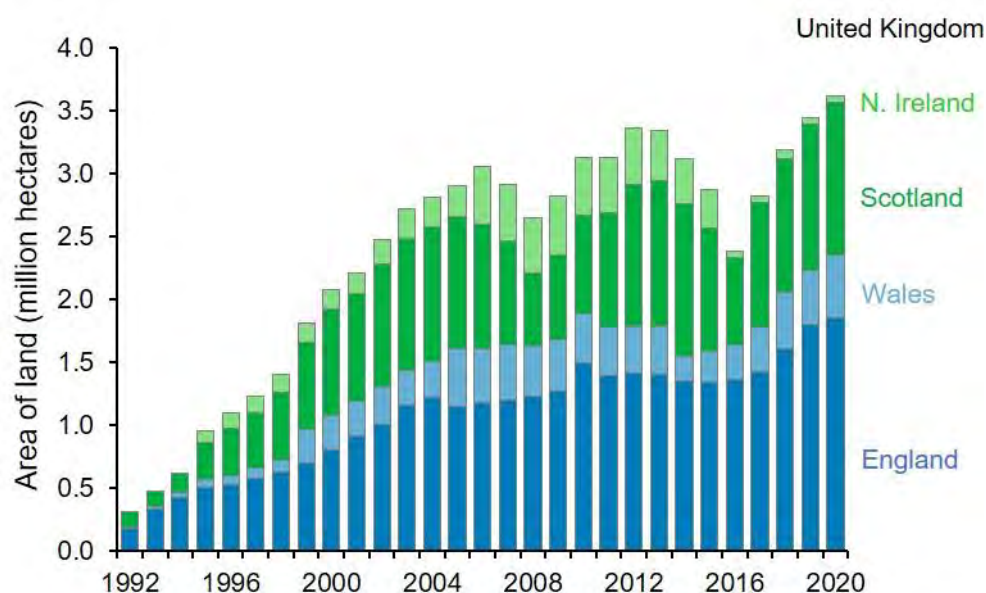
Notes:
1. The following schemes have been included as higher-level or targeted agri-environment schemes:

    England: Environmentally Sensitive Areas (ESA); Countryside Stewardship (CS); Higher Level Stewardship (HLS) which includes Entry Level Stewardship (ELS) linked to HLS; and from 2016 new Countryside Stewardship (Higher Tier and Mid Tier – both contribute to Figure B1ai).

    Scotland: ESA; Countryside Premium and Rural Stewardship; Rural Priorities; and from 2016 Agri-Environment Climate Scheme.

    Wales: ESA; Tir Cymen; Tir Gofal; Glastir Advanced; and Decoupled Advanced (from 2016).

    Northern Ireland: ESA; Countryside Management; and Environmental Farming Scheme (from 2017).
2. Higher-level schemes have stricter criteria for qualification than other agri-environment schemes.

Source: Department of Agriculture, Environment and Rural Affairs, Northern Ireland; Defra; Natural England; Scottish Government; Welsh Government.

Assessment of change in area of land covered by agri-environment schemes

	Long term	Short term	Latest year
Higher-level or targeted schemes	✅ 1992 to 2020	✅ 2015 to 2020	Increased (2020)

Note: Long- and short-term assessments are based on a 3% rule of thumb. Where possible, the base years for these assessments use a three-year average. See Assessing indicators.

b. **Area of forestry land certified as sustainably managed**

Type: Response indicator

This indicator shows the percentage of the woodland area that is certified against agreed environmental standards. Woodland certification schemes promote good forest practice and are used to demonstrate that wood or wood products come from well-managed forests.

Key results

In March 2021, there were 1.4 million hectares of certified woodland across the UK, representing 44% of the total woodland area. The proportion of woodland certified as sustainably managed has remained stable at either 43% or 44% since 2007.

Certification of woodlands promotes responsible forest management to safeguard forests' natural heritage and protect threatened species. Since 2001, the percentage of woodland certified as sustainably managed in the UK has increased from 36% to 44% in 2021. The percentage of woodland certified as sustainably managed in the UK remains relatively stable.

The total area certified can change if new woodlands are certified, if existing certificates are not renewed, or if there is a time lag in renewal of an existing certificate.

Figure Bbi **Percentage of woodland area certified as sustainably managed, 2001 to 2021.**
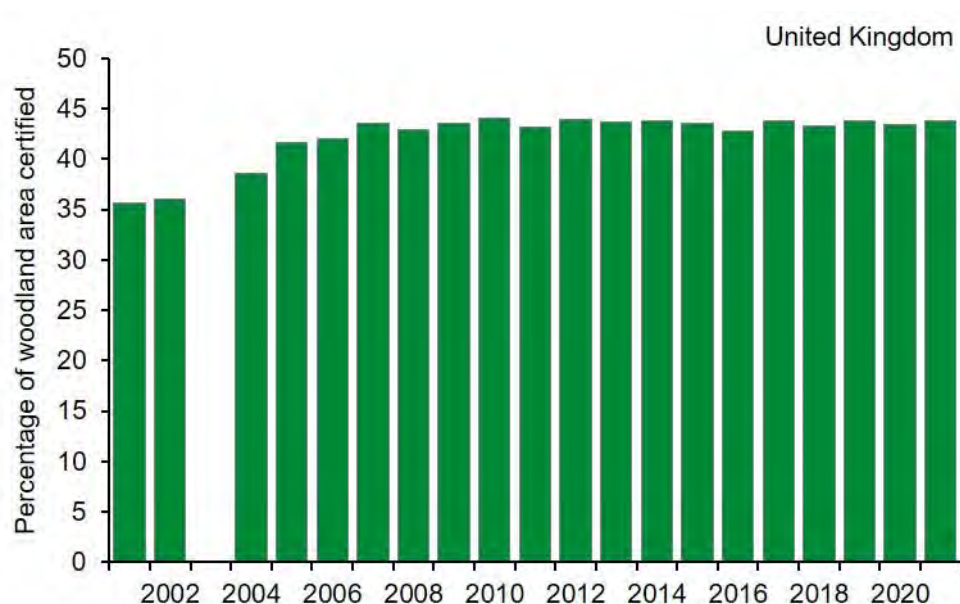
Note: All figures relate to data at 31 March, apart from 2001 (31 December) and 2002 (30 September), with regular data collection from 2004.
Source: Forest Research.

Assessment of change in area of woodland certified as sustainably managed

	Long term	Short term	Latest year
Percentage of woodland certified	✔ 2001 to 2021	≈ 2016 to 2021	No change (2021)

Note: Long- and short-term assessments are based on a 3% rule of thumb. Where possible, the base years for these assessments use a three-year average. See Assessing Indicators.

B2. Sustainable fisheries

a. Percentage of marine fish (quota) stocks of UK interest harvested sustainably

b. Percentage of marine fish (quota) stocks of UK interest with biomass at levels that maintain full reproductive capacity

Type: Pressure (a) and state (b) indicator

Sustainable fisheries help to ensure our marine ecosystems remain diverse and resilient, providing a long-term and viable fishing industry.

Changes have been made to the indicator since the previous publication to bring it in line with the Multi-Annual Plans (MAPs) for fisheries. The indicator is therefore not directly comparable with previous versions. The indicator has been developed to meet the needs of the UK Marine Strategy and uses quota-fish assessments for UK commercial fisheries. Data have been updated to 2019 for both fishing pressure and spawning stock biomass.

Key results

The revised indicator includes a category for stocks that are fished in acceptable mortality range (in F_{MSY} range). Estimates show that the percentage of UK quota-fish stocks (including Norway lobster, *Nephrops norvegicus*) fished at or below F_{MSY}, and/or within acceptable mortality range levels, has increased from 9% in 1990 to 51% in 2019. In 2019, 26% of UK quota-fish stocks were assessed to be fished at levels of fishing pressure above both F_{MSY} and the upper F_{MSY} range where this estimate is available.

To maintain the reproductive capacity of stocks, each stock's spawning biomass (SSB) should be at or above the level capable of producing maximum sustainable yield (MSY $B_{trigger}$). The revised indicator introduces a zone 'below MSY $B_{trigger}$ but above B_{lim}' to indicate conditions where a stock is at low risk of reproductive impairment relative to those stocks at high risk. The percentage of stocks subject to quota management and achieving SSB at or above MSY $B_{trigger}$ increased from 30% in 1990 to 58% in 2019. However, 16% of stocks remain with SSB below MSY $B_{trigger}$, with a further 3.5% with SSB below MSY $B_{trigger}$ but above B_{lim}.

Overall, a positive trend towards a greater proportion of stocks fished sustainably is evident in both the long-term and short-term. There is also a positive trend for fish within safe biological limits in the long term, but a negative trend in the short term. For both measures, there is a decreasing percentage of stocks with unknown status, but 23% of stocks remained in unknown status in 2019.

Figure B2a **Percentage of marine fish (quota) stocks of UK interest harvested sustainably, 1990 to 2019.**
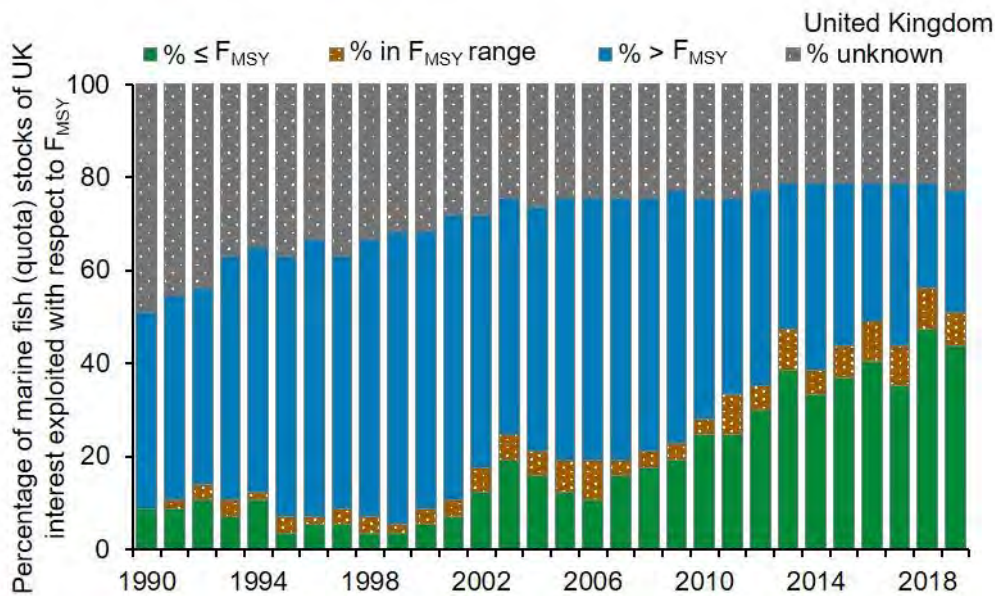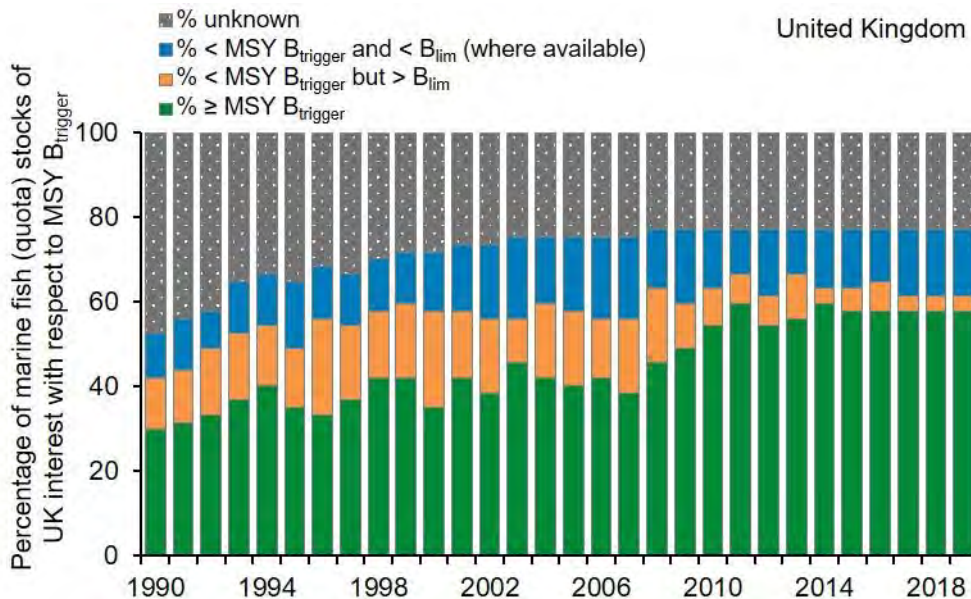

Figure B2b **Percentage of marine fish (quota) stocks of UK interest with biomass at levels that maintain full reproductive capacity, 1990 to 2019.**

Notes:

1. Based on 57 stocks of UK interest for which data are available from ICES (International Council for the Exploration of the Sea) stock assessments.

2. Changes have been made to the indicator since the previous publication to bring it in line with the Multi-Annual Plans (MAPs) for fisheries. The indicator is therefore not directly comparable with previous versions.

Source: Centre for Environment, Fisheries and Aquaculture Science (see: Lynam *et al*, Cefas (2021). International (ICES) and national (UK) fish stock and shellfish stock data from 2020 assessment year. Cefas, UK. V1. doi: https://doi.org/10.14466/CefasDataHub.120).

Assessment of change in stocks harvested sustainably and at full reproductive capacity

	Long term	Short term	Latest year
Percentage of fish stocks harvested sustainably	✓ 1990 to 2019	✓ 2014 to 2019	Decreased (2019)
Biomass of stocks at full reproductive capacity	✓ 1990 to 2019	✗ 2014 to 2019	No change (2019)

Note: Long- and short-term assessments are based on a 3% rule of thumb. The base years for these assessments use a three-year average. See Assessing Indicators.

B3. Climate change adaptation

Indicator previously under development

No update the previous publication; there are no plans for further development.

Actions that are taken to adapt to climate change can reduce the risk of biodiversity loss, and provide opportunities for biodiversity to adapt to changing circumstances. However, this is a difficult concept to measure, and it has not been possible to develop an indicator. There are no plans for further development.

B4. Pressure from climate change – Spring Index

Type: Context indicator

This is a context indicator and is not assessed; it is shown to highlight a biological response to climate change and a potential pressure on biological systems. It shows the impact of temperature change on the timing of biological events such as flowering or migration in the spring. The UK Spring Index is calculated from the annual mean observation date of the following four biological events: first flowering of hawthorn (*Crataegus monogyna*), first flowering of horse chestnut (*Aesculus hippocastanum*), first recorded flight of an orange-tip butterfly (*Anthocharis cardamines*), and first sighting of a swallow (*Hirundo rustica*).

Key results

Since 1998, the annual mean observation dates have been 8.7 days in advance of the average dates in the first part of the 20th century.

The Index shows a strong relationship with mean temperature in March and April, and it advances more rapidly when the mean temperature equals or exceeds seven degrees Celsius.

Figure B4i **Index of the timing of biological spring events (number of days after 31 December) in the UK, 1891 to 1947, and 1998 to 2020.**
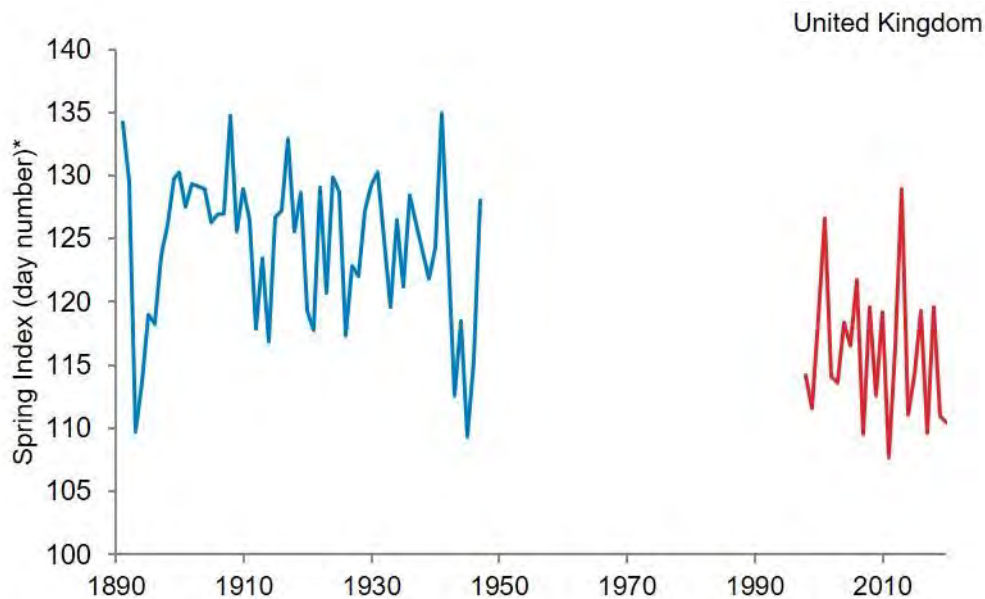
Notes:
1. * Number of days after 31 December (e.g. day 121 = 1 May).
2. Not directly comparable to previous versions of the indicator following a change in methodology in 2019.

Source: 1891 to 1947 – Royal Meteorological Society; 1998 to 2020 – UK Phenology Network (Nature's Calendar).

This is a contextual indicator showing how changes in climate, particularly temperature, are associated with changes in the timing of biological events.

The Spring Index for the UK has high year-to-year variability, but since 1998 biological events in the spring have occurred around 8.7 days in advance of the average dates in the period 1891 to 1947 (Figure B4i).

The advancement of spring events is strongly linked to warmer temperatures in March and April. The mean observation dates in 2011 were the earliest for which there are records. The warmest April in the Central England Temperature series (1659 onwards) occurred in 2011 and was almost certainly influential.

B5. Pressure from pollution

a. Air pollution

#### i. Area affected by acidity
ii. Area affected by nitrogen

Type: Pressure indicator

The air pollutants sulphur dioxide, nitrogen oxides and ammonia can contribute to acidification; nitrogen oxides and ammonia can also contribute to terrestrial eutrophication. These pollutants arise mainly from burning fossil fuels and from livestock waste. Around a third of UK land area (78,000km^2) is sensitive to acidification, and a third (73,000km^2) to eutrophication (much of this area is sensitive to both). Critical loads are thresholds for pollutant load above which significant harmful effects may occur on sensitive habitats; statistics on critical load exceedance indicate the risk of damage.

Key results

The percentage of sensitive terrestrial habitat areas in the UK exceeding the critical load for acidification has continued to decline since 1996, but there has been less change in the percentage of areas exceeding the critical load for nutrient nitrogen deposition (eutrophication). In 2018, acid deposition exceeded critical load in 40% of sensitive terrestrial habitats and nitrogen deposition exceeded critical load in 59% of sensitive habitats.

Figure B5ai   Percentage area of sensitive terrestrial UK habitats exceeding critical loads for acidification and eutrophication, 1996 to 2018.
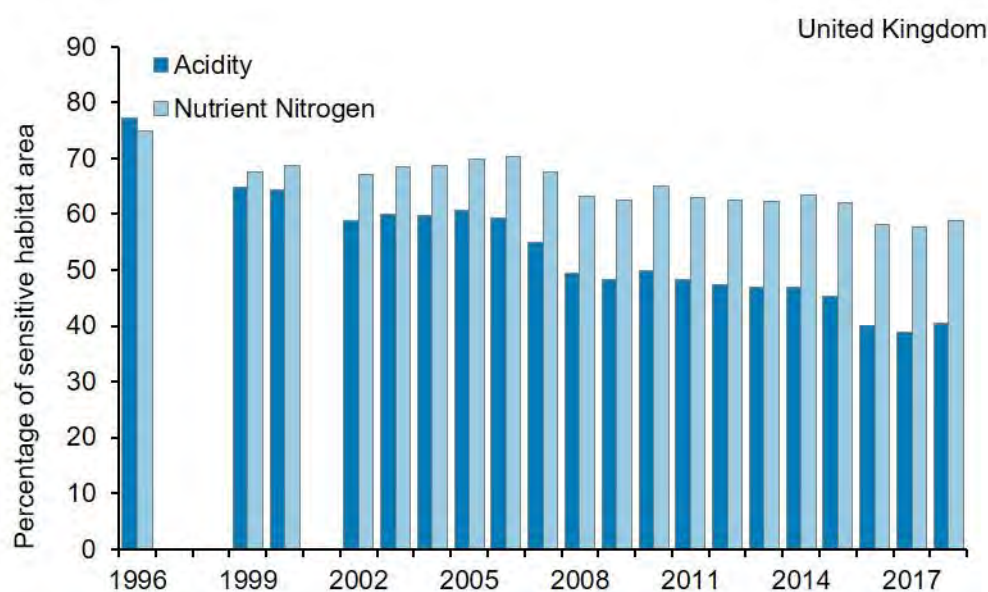
Notes:

1. Each bar represents a three-year average of deposition data. To reduce the effects of variation in meteorology, exceedance statistics are reported as the mean of three years of data. In Figure B5ai, time periods are referred to using the middle year of the three. For example, "1996" means the period 1995 to 1997.
2. Since 2002, nitric acid has been included in the estimates of nitrogen deposition. This additional deposition led to some increases in critical load exceedance compared with earlier periods.
3. There are a few inconsistencies between years due to changes in the methods used to derive deposition estimates, and some minor alterations to the acidity critical loads. This information should be taken into account when interpreting the trends' results.

Source: UK Centre for Ecology & Hydrology.

Assessment of change in area of sensitive habitat exceeding critical loads

	Long term	Short term	Latest year
Area affected by acidity	✓ 1996 to 2018	✓ 2013 to 2018	Increased (2018)
Area affected by nitrogen	✓ 1996 to 2018	✓ 2013 to 2018	Increased (2018)

Note: Long- and short-term assessments are based on a direct comparison of the two relevant data points, using a 3% rule of thumb. See Assessing Indicators.

b.   Marine pollution

Type: Pressure indicator

The indicator shows the combined input of six of the most hazardous substances to the UK marine environment. The indicator is based on levels of five heavy metals (cadmium, mercury, copper, lead and zinc) and one organic compound (lindane). Pollution in the marine environment from these six substances should decrease to levels that are non-detrimental by 2020.

Key results

The combined inputs of all six of the hazardous materials included within this indicator have shown a long-term decrease of 78% since 1990. In the short term (since 2014), inputs of five out of six of these substances show decreases; one heavy metal (zinc) has increased.

Figure B5bi   **Combined input of hazardous substances to the UK marine environment, as an index of estimated weight of substances per year, 1990 to 2019.**
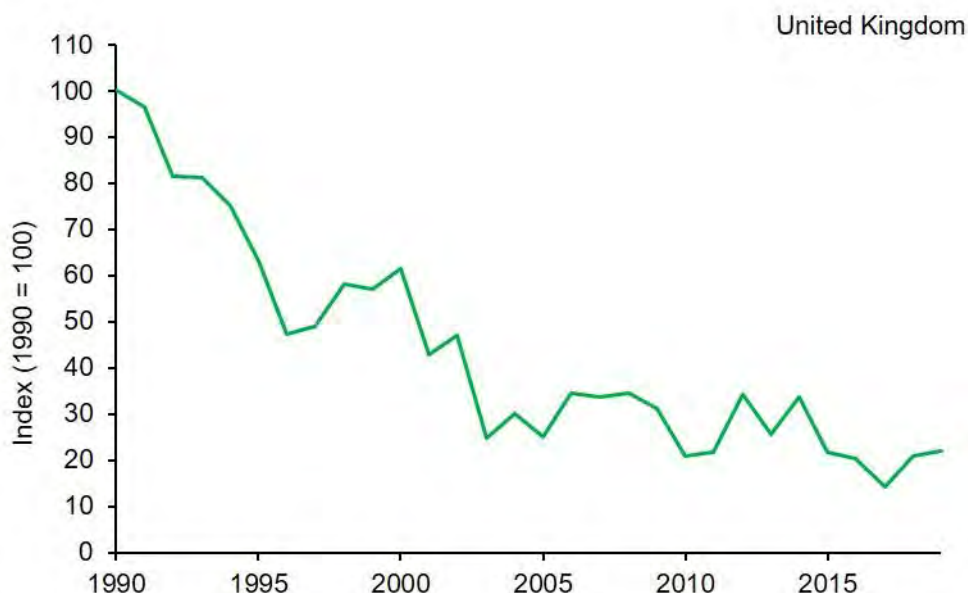
Source: Defra Marine Strategy and Evidence Division, using data provided by: Environment Agency; Northern Ireland Environment Agency; and Scottish Environment Protection Agency.

Levels of all six substances declined over the period 1990 to 2019. The heavy metals, mercury, cadmium, lead, copper and zinc decreased by 91%, 88%, 59%, 59% and 55%, respectively. The organic compound lindane decreased by 86%.

In the short term, the combined inputs of all six hazardous substances decreased by 18% from 2014 to 2019 (using a three-year average for 2014). Inputs for five out of the six of the hazardous substances declined in the short term: lindane had the highest percentage decrease (-44%), cadmium decreased by 31%, mercury by 26%, copper by 8% and lead by 6%. By contrast, zinc increased by 17%.

Inputs into the marine environment are estimated from concentrations and flow rates in rivers entering the sea and those from estuarine and coastal point sources. Riverine inputs reflect both point and diffuse sources upstream of the sampling point and tend to be strongly influenced by flow rates. Flow rates are heavily affected by rainfall patterns so year-to-year fluctuations in pollutant loads are likely.

Assessment of change in input of hazardous substances to the marine environment

	Long term	Short term	Latest year
Combined input of hazardous substances	✅ 1990 to 2019	✅ 2014 to 2019	Increased (2019)

Note: Long- and short-term assessments are based on a 3% rule of thumb. Where possible, the base years for these assessments use a three-year average. See Assessing Indicators.

B6. Pressure from invasive species

a. Freshwater invasive species

b. Marine (coastal) invasive species

c. Terrestrial invasive species

Type: Pressure indicator

Non-native species are those that have reached Great Britain by accidental human transport, deliberate human introduction, or which arrived by natural dispersal from a non-native population in Europe. Species that have arrived since 1500 are included within this indicator. Most non-native species are considered benign or positive, but some have a negative impact on native species through the spread of disease, competition for resources, or by direct consumption, parasitism or hybridisation; such species are termed invasive. Invasive non-native species have one or more of these negative impacts and a high capacity to spread to natural and semi-natural habitats. This indicator shows the change in number of invasive non-native species established across 10% or more of the land area of Great Britain, or along 10% or more of the extent of its coastline.

Key results

There are 3,248 non-native species in Great Britain, 2,016 of which are classified as established (reproducing in the wild). This indicator contains 194 non-native species that are considered to be exerting a negative impact on native biodiversity (47 freshwater species, 39 marine species and 108 terrestrial species). The majority (187) of these species are established; six[5] are long-term residents but not known to breed in the wild.

Over the period 1960 to 2020, invasive non-native species have become more prevalent in the countryside. Since 1960, the number of these species established in or along 10% or more of Great Britain's land area or coastline has increased in the freshwater, marine (coastal) and terrestrial environments, thereby increasing the likely pressure on native biodiversity (Figure B6i).

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[5] The six long-term resident species included in the indicator are two species of terrapin (*Emys orbicularis* and *Trachemys scripta*) and four freshwater fish (*Ameiurus melas*, *Leuciscus idus*, *Salvelinus fontinalis* and *Oncorhynchus gorbuschas*).

Figure B6i   **Number of invasive non-native species established in or along 10% or more of Great Britain's land area or coastline, 1960 to 2020.**
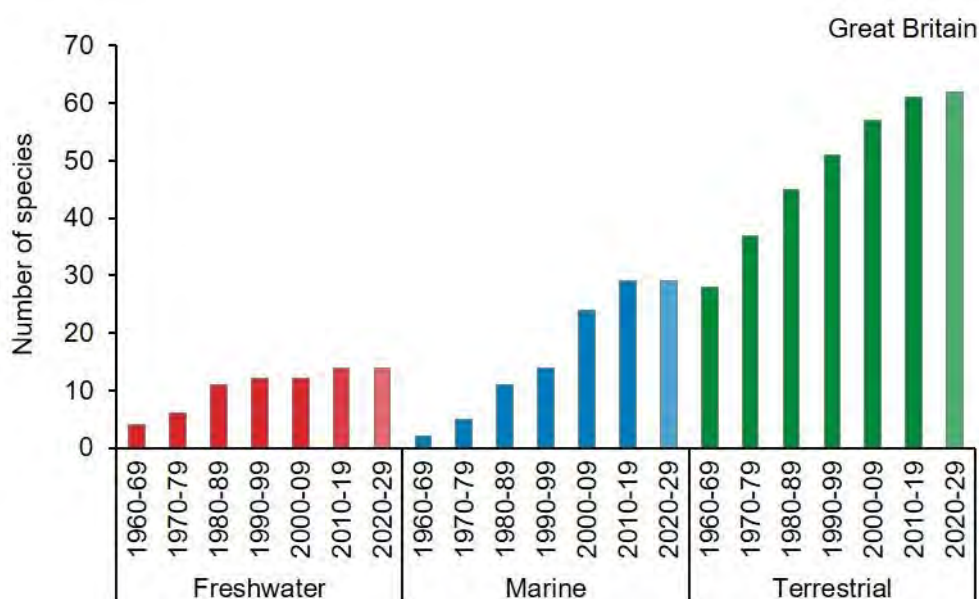
Source: Botanical Society of Britain & Ireland; British Trust for Ornithology; UK Centre for Ecology & Hydrology; Marine Biological Association; National Biodiversity Network.

Assessment of change in the number of invasive non-native species established in or along 10% or more of Great Britain's land area or coastline

	Long term	Short term	Latest year
Freshwater invasive species	❌ 1960 to 2020	Not assessed	Not assessed
Marine (coastal) invasive species	❌ 1960 to 2020	Not assessed	Not assessed
Terrestrial invasive species	❌ 1960 to 2020	Not assessed	Not assessed

Note: Analysis of the underlying long-term trends is carried out by the data providers. See Assessing Indicators. Short-term trends and latest-year changes are not assessed.

Comparing the latest period (2020 to 2029; so currently one year into this period) with the previous one (2010 to 2019), the number of invasive non-native species established in or along 10% or more of Great Britain's land area or coastline has increased in terrestrial (from 61 to 62 species), and remained the same in freshwater (13 species) and marine environments (29 species).

B7. Surface water status

Type: State indicator

The Water Framework Directive (WFD) is an important mechanism for assessing and managing the water environment in the European Union (EU), through a six-yearly cycle of planning and implementing measures to protect and improve the water environment. Since the UK left the EU, the EU Water Framework Directive has been revoked and replaced in England, Wales and Northern Ireland by the following laws: the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017, and the Water Environment (Water Framework Directive) Regulations (Northern Ireland) 2017. In Scotland the WFD has

been transposed into the Water Environment and Water Services (Scotland) Act 2003. The UK continues to fulfil its reporting requirements under the new legislation. For ease of reference this legislation will be referred to as the WFD throughout this document.

This indicator shows the percentage of surface water bodies in each status classification and assesses the change in the percentage of water bodies in the UK awarded a good or high surface water status classification under the WFD. Around 10,000 water body assessments are included in the indicator each year; including rivers, canals, lakes, estuaries and coastal waters.

Key results

There has been little change in the overall number of surface water bodies in the UK awarded high or good ecological status since the indicator was first prepared in 2009, and similarly, there has been little change in the short term, between 2015 and 2020 (Figure B7i).

In 2020, 36% of surface water bodies were assessed under the Water Framework Directive (WFD) as being in high or good status, the same as in 2009 and one percentage point higher than the figure of 35% reported in 2015.

Figure B7i   Status classification of UK surface water bodies under the Water Framework Directive, 2009 to 2020.
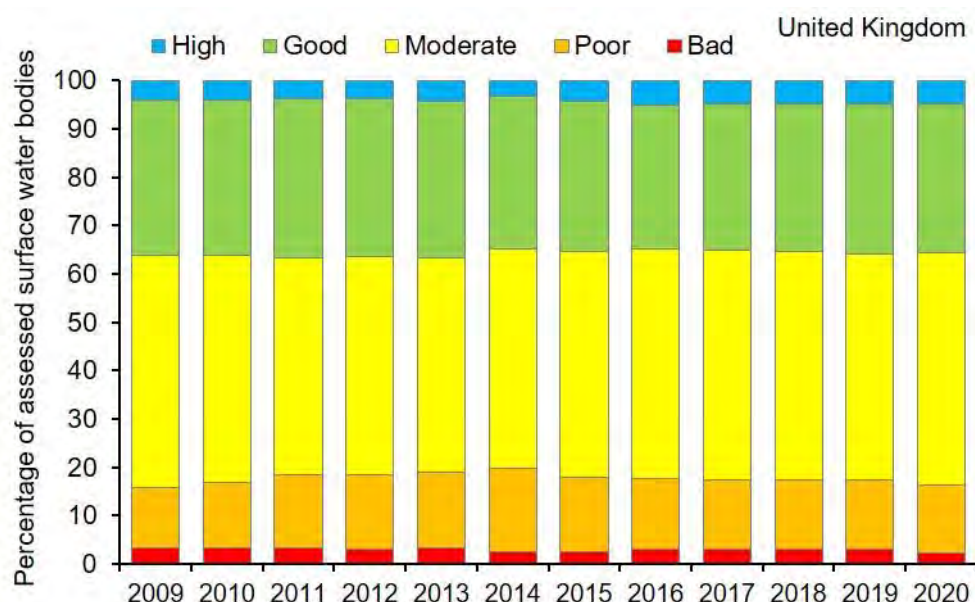
Notes:
1. Based on numbers of surface water bodies classified under the Water Framework Directive (WFD) in England, Wales, Scotland and Northern Ireland. Includes rivers, canals (Northern Ireland does not report on canals), lakes, estuaries and coastal water bodies.
2. A water body is a management unit, as defined by the relevant authorities.
3. Water bodies that are heavily modified or artificial (HMAWBs) are included in this indicator alongside natural water bodies. HMAWBs are classified as good, moderate, poor or bad 'ecological potential'. Results have been combined; for example, the number of water bodies with a high-status classification has been added to the number of HMAWBs with high ecological potential.
4. The results published each year relate to data reported in that year under the WFD; data reported in a given year relate to data collected over the previous year (for Scotland) and previous three-year period (for England, Wales and Northern Ireland). From 2016, England, Wales and Northern Ireland have moved to a triennial reporting system. Wales and Northern Ireland reported in 2018 and whilst due to report in 2021, the data was not available in time for inclusion in this publication; England reported in 2016 (classifications carried forward for 2017 and 2018) and 2019. The most recent classification for England was in 2019 and therefore these classifications have been carried forward to 2020. Classifications are valid until they are next assessed; therefore, for years where a country does not report, their latest available data are carried forward.
5. The percentage of water bodies in each status classification has been calculated based on the total number of water bodies assessed in each year.

6. The number of water body assessments included varies slightly from year to year: 10,835 water body assessments were included in 2009; 10,763 were included in 2010; 10,783 in 2011; 10,705 in 2012; 10,764 in 2013; 10,799 in 2014; 10,379 in 2015; 9,297 in 2016; 9,298 in 2017; 9,300 in 2018; 9,300 in 2019; and 9,300 in 2020.

7. The reductions in the number of assessments made in 2015 were due to England, Wales and Northern Ireland adopting the monitoring and classification standards laid down in Cycle 2 of the WFD. This means that data from 2014 onwards (when Scotland adopted the Cycle 2 monitoring and classification standards) are not directly comparable to those in earlier years.

Source: Department of Agriculture, Environment and Rural Affairs for Northern Ireland; Environment Agency; Natural Resources Wales; Scottish Environment Protection Agency.

Assessment of change in status of UK surface water bodies

	Long term	Short term	Latest year
Percentage of UK surface water bodies in 'High' or 'Good' ecological status	≈ 2009 to 2020	≈ 2015 to 2020	No change (2020)

Note: Long- and short-term assessments are based on a 3% rule of thumb. Where possible, the base years for these assessments use a three-year average. See Assessing Indicators.

C1. Protected areas

a. **Total extent of protected areas: on land**

b. **Total area of protected areas: at sea**

c. **Condition of Areas/Sites of Special Scientific Interest**

Type: Extent - Response indicator; Condition State / Response indicator

This indicator shows the extent of UK protected areas both on land and at sea. The two extent measures are a calculation of the net (non-overlapping) extent of protected areas using mean high water as the boundary between the on land and at sea measures.

The indicator also shows the condition of terrestrial and coastal features on Areas or Sites of Special Scientific Interest (A/SSSIs). A/SSSIs are designated for their 'features' – habitats or species which give them their scientific interest. Each country in the UK assesses the condition of features and reports either the area or the number of features in favourable or unfavourable-recovering condition. These assessments are converted to percentages in this indicator, to allow them to be combined, but the percentage does not equate exactly to the area that is favourable or unfavourable-recovering.

Key results

The total extent of land and sea protected in the UK through national and international protected areas, and through wider landscape designations, has increased by 17.1 million hectares (MHa), from 23.5 MHa in December 2016 to 40.6 MHa as at 31 March 2021 (Figure C1i).

This increase is almost entirely down to the designation of inshore and offshore marine sites. The extent of protected areas on land has increased by 10,707 hectares since 2016.

The percentage of features, or area, of Areas or Sites of Special Scientific Interest (A/SSSIs) in favourable or unfavourable-recovering condition increased from 67% in 2005, to 87% in 2016, and then decreased slightly to 83% in 2021 (Figure C1ii). The proportion of features or area of land in unfavourable-recovering condition has increased from 14% in 2005 to 34% in 2021. These changes reflect improved management of sites, but may also be affected by a greater number of sites/features having been assessed over time.

Figure C1i   Extent of UK nationally and internationally important protected areas: (a) on land and (b) at sea, 1950 to 2021.
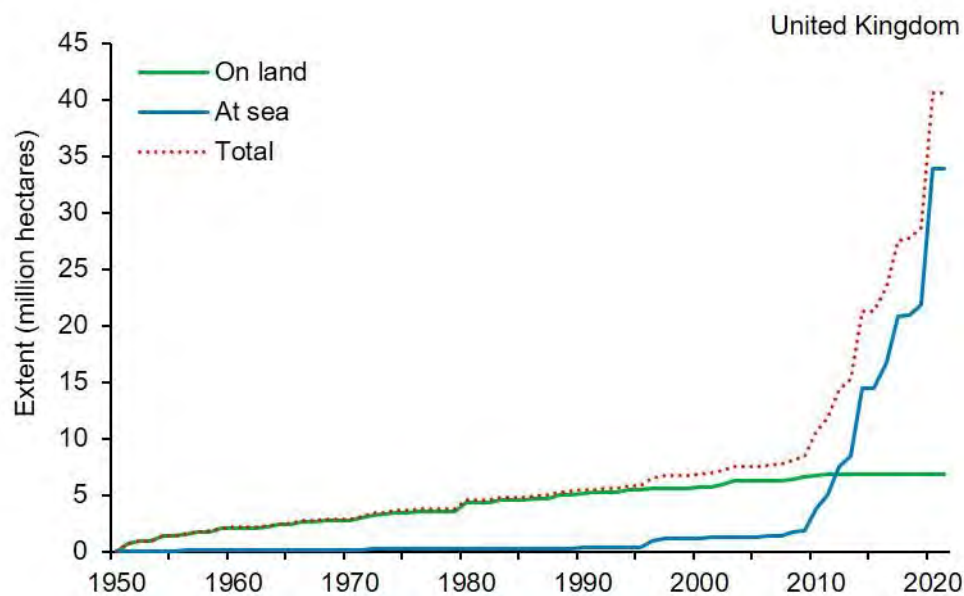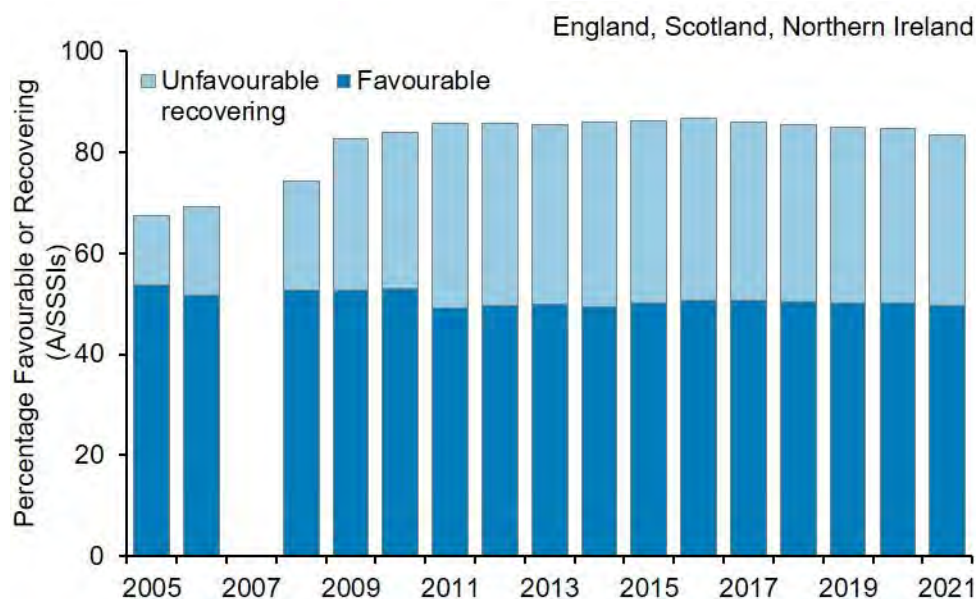

Notes:

1. The boundary between protected areas on land and at sea is mean high water (mean high water springs in Scotland). Coastal sites in the indicator are split between 'on land' and 'at sea' if they cross the mean high water mark. At sea extent includes offshore marine protected areas out to the limit of the UK continental shelf. The area of UK sea is calculated at 88.543 million hectares.

2. Based on calendar year of site designation except for the latest year. For 2021, the data cut-off for both terrestrial and marine sites was 31 March.

3. The calculation method and projection of spatial areas changed in 2019; these data are therefore not directly comparable to those presented in previous publications up to and including 2018 (see the indicator webpage).

4. Extent is based on the following site designations: Areas of Special Scientific Interest (Northern Ireland); Sites of Special Scientific Interest (England, Scotland and Wales); National Nature Reserves; Marine Conservation Zones; Nature Conservation Marine Protected Areas; Ramsar Sites; Special Areas of Conservation (including candidate Special Areas of Conservation and Sites of Community Importance); Special Protection Areas; Areas of Outstanding Natural Beauty; National Scenic Areas; National Parks.

Source: Joint Nature Conservation Committee; Natural England; Natural Resources Wales; NatureScot; Northern Ireland Environment Agency.

Figure C1ii   Cumulative proportion of Areas of Special Scientific Interest (Northern Ireland) and Sites of Special Scientific Interest (England and Scotland) in 'favourable' or 'unfavourable-recovering' condition, 2005 to 2021.

Notes:

1. England figures based on area. Scotland and Northern Ireland figures based on number of features.
2. Figures for Northern Ireland not available for 2020 and 2021. For these years, 2019 values have been carried forward.
3. Based on data to the end of March, except in 2006 and 2008, when data are to end of December. Data were not collated in 2007.
4. Imputation has been used to calculate the breakdown between favourable and unfavourable-recovering for Northern Ireland for the years 2009 to 2011.
5. Figures exclude condition of Areas/Sites of Special Scientific Interest notified for geological features only.

Source: Natural England; NatureScot; Northern Ireland Environment Agency.

Assessment of change in extent and condition of UK protected areas

	Long term	Short term	Latest year
Total extent of protected areas: on land	✓ 1950 to 2021	≈ 2016 to 2021	No change (2021)
Total extent of protected areas: at sea	✓ 1950 to 2021	✓ 2016 to 2021	Increased (2021)
Condition of Areas / Sites of Special Scientific Interest.	✓ 2005 to 2021	✗ 2016 to 2021	Decreased (2021)

Notes:

1. Latest year assessment for extent on land and at-sea is based on comparison of this year's figures with those published for the indicator in the previous year.
2. Assessment of this indicator is based on comparison of latest data point with a three-year average from the baseline, using the three earliest consecutive years available. See Assessing Indicators.

C2. Habitat connectivity

Experimental Statistic – indicator under development. The UK biodiversity indicators project team would welcome feedback on the novel methods used in the development of this indicator. For example, should Figure C2i and/or Figure C2ii be the headline measure? Does this new indicator measure something readers feel should be measured?, and how well does it measure connectivity? As this is an experimental statistic it has not been assessed.

Type: State indicator

No update since the previous publication.

Connectivity is a measure of the relative ease with which typical species can move through the landscape between patches of habitat. Habitat loss and fragmentation can reduce the size of populations and hinder the movement of individuals between increasingly isolated populations, threatening their long-term viability.

This indicator illustrates changes in functional connectivity – the ability of species to move between resource patches – of 33 butterfly and 29 woodland bird species in the UK. The indicator is based on a measure of population synchrony, which is the level of correlation in time-series of population growth rates from different monitoring sites. Quantifying functional connectivity will allow more targeted landscape conservation management to help reduce the risk of species extinction.

Key results

For UK butterflies, the average functional connectivity between 1985 and 1995 was relatively stable, the unsmoothed index fell to a low of 48% in 2004, and then rose. The level of functional connectivity in 2012 (110%) is 10% greater than in the start year of 1985, with 72% of species increasing in connectivity in the late short-term (2000 to 2012), see Figure C2i. The long-term trend from 1985 to 2012 masks mixed, individual species trends, with 33% of species increasing in functional connectivity, 19% decreasing, and 48% showing no significant change.

For UK woodland birds, the average functional connectivity between 1985 and 1996 was relatively stable. However, between 1999 and 2012 the unsmoothed index declined to a low of 44% of its 1999 baseline value in 2005 and although it has since shown some signs of recovery, most species (57%) have declined in connectivity in the late short-term (1999 to 2012), see Figure C2ii.

Figure C2i   Functional connectivity of butterflies in the UK, 1985 to 2012, using a 10-year moving window.
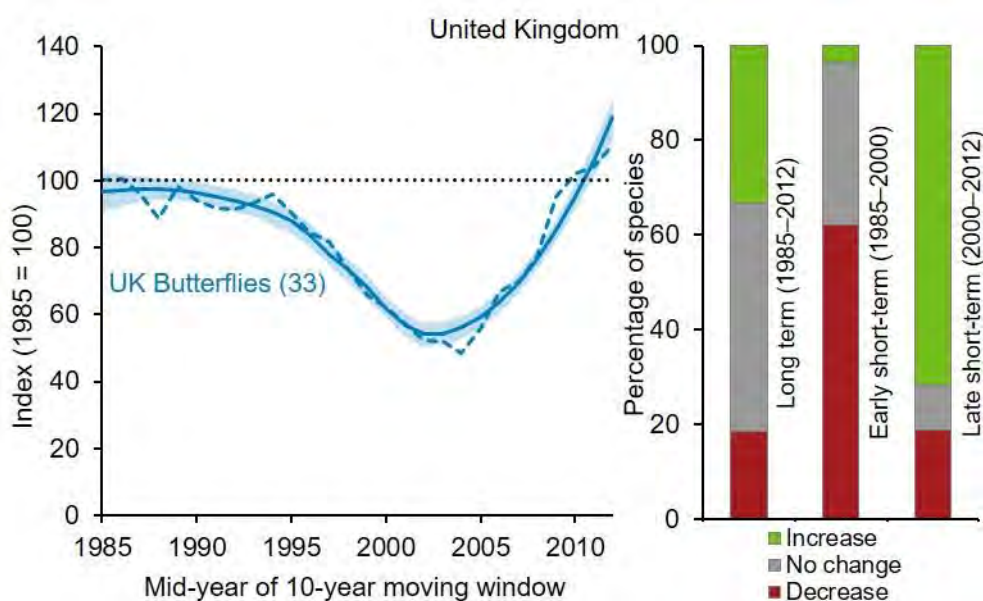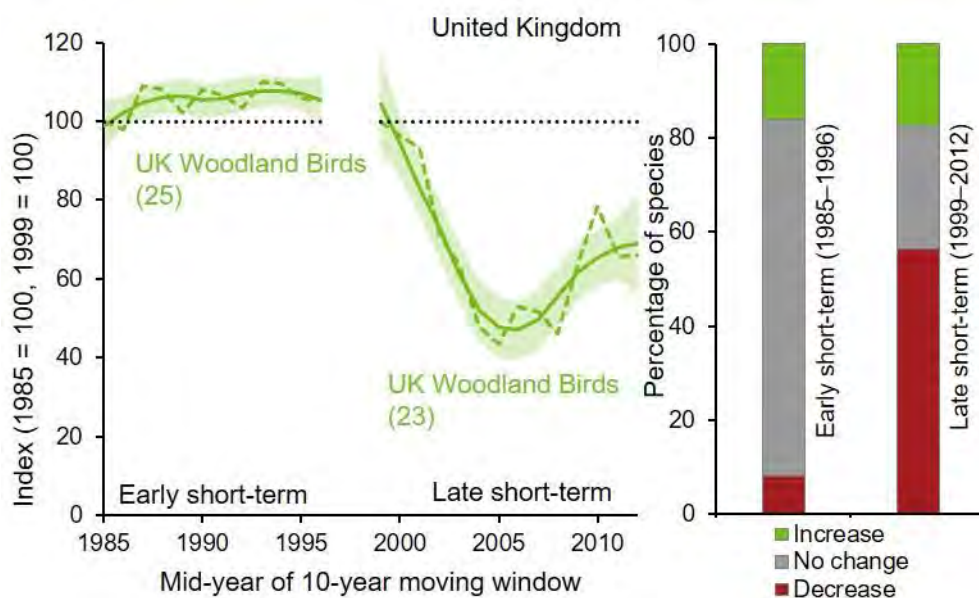
Notes:

1. The connectivity index was calculated as the mean value of population synchrony using a 10-year moving window. The index values were extracted from a statistical (mixed effects) model which accounts for other factors known to influence population synchrony, therefore focusing the measure on functional connectivity.

2. The line graph shows the unsmoothed average trend (dashed line), and the smoothed average trend (using a LOESS regression function; solid line) of functional connectivity over time across all 33 species. The shaded area represents the 95% confidence interval around the smoothed average trend.

3. The figure in brackets shows the number of species in the index.

4. The number of individual species included in each time period varies due to the availability of data: there were 21 species in the long-term period, 24 in the early short-term period and 31 in the late short-term period. In all, 33 species from three habitat types (woodland, grassland, and garden and hedgerows) are included in the indicator.

5. The bar chart shows the percentage of species within the indicator that have shown a statistically significant increase, a statistically significant decrease, or no significant change in functional connectivity over three time periods (long term, 1985 to 2012; early short-term, 1985 to 2000; and late short-term, 2000 to 2012).

Source: UK Butterfly Monitoring Scheme; University of Reading.

Figure C2ii   **Functional connectivity of woodland birds in the UK, 1985 to 2012, using a 10-year moving window.**

Notes:

1. The connectivity index was calculated as the mean value of population synchrony using a 10-year moving window. The index values were extracted from a statistical (mixed effects) model which accounts for other factors known to influence population synchrony, therefore focusing the measure on functional connectivity.

2. The line graph shows the unsmoothed average trend (dashed line), and the smoothed average trend (using a LOESS regression function, solid line) of functional connectivity over two time periods (1985 to 1996 and 1999 to 2012) across all 25 or 23 species. The shaded area represents the 95% confidence interval around the smoothed average trend.

3. The gap in the time series is due to the non-availability of data for 1997 and 1998.

4. The figures in brackets show the number of species in the index.

5. The number of individual species included in each time period varies due to the availability of data: there were 25 species in the early short-term period and 23 in the late short-term period.

6. The bar chart shows the percentage of species within the indicator that have shown a statistically significant increase, a statistically significant decrease, or no significant change in functional connectivity over two time periods (early short-term, 1985 to 1996; and late short-term, 1999 to 2012).

Source: British Trust for Ornithology; University of Reading.

C3. Status of European habitats and species

a. Status of UK habitats of European importance

Type: State indicator

No update since the previous publication.

This indicator is based on the results of UK reporting undertaken under a European Directive, and was last updated prior to the end of the Transition Period following the UK's exit from the European Union (31 December 2020).

Member States of the European Union are required to report every six years on the conservation status of habitats and species of community interest (listed in the Annexes of the EU Habitats Directive). These are habitats and species for which the UK had European level conservation responsibilities.

The assessments needed to conclude whether each habitat of European importance occurring in the UK was in a: 'Favourable', 'Unfavourable-Inadequate', 'Unfavourable-Bad' or 'Unknown' conservation status. These categories are combined in the indicator as explained on the indicator webpage. This indicator is based on an evaluation of whether the results of the most recent assessment (2019) were better or worse than those for the previous assessments (2007 and 2013).

Key results

This indicator was last updated with data from the 2019 UK Habitats Directive Article 17 report to the European Union.

In 2007, 5% of UK habitats listed in Annex I of the EU Habitats Directive were in favourable conservation status, this figure decreased to 3% in 2013 before increasing again to 8% in 2019 (Figure C3ai).

The conservation status of 48% of the habitats was unfavourable-improving in 2007, it decreased to 31% in 2013 and 20% in 2019.

The conservation status of 30% of the habitats was unfavourable-declining in 2007, this decreased to 25% in 2013 and 23% in 2019.

The proportion of the habitats assessed as unfavourable-stable increased from 10% in 2007, to 38% in 2013, and 48% in 2019.

Figure C3ai   Conservation status of UK habitats of European importance, 2007, 2013 and 2019.
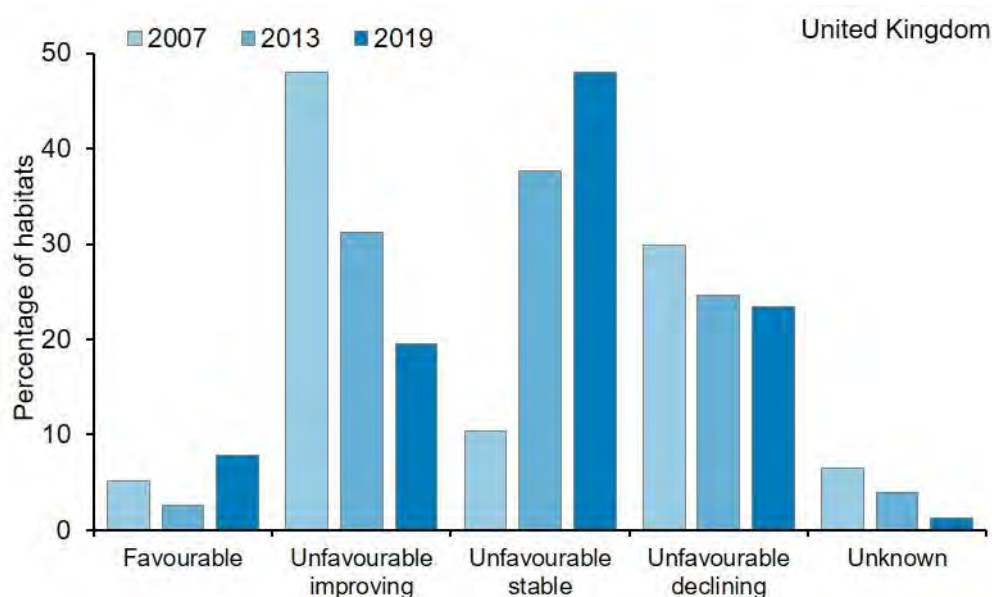
Notes:
1. The chart is based on 77 habitats listed in Annex I of the Habitats Directive.
2. Trends in 'unfavourable' conservation status allow identification of whether progress is being made, as it will take many years for some habitats to reach 'favourable' conservation status.

Source: UK Habitats Directive (Article 17) reports to the EU, 2007, 2013 and 2019.

Assessment of change in status of UK habitats of European importance

	Long term	Short term	Latest year
Percentage of UK habitats of European importance in favourable or improving conservation status	⊗ 2007 to 2019	⊗ 2013 to 2019	Not assessed

Note: The long- and short-term assessments are based on a 3% rule of thumb. See Assessing Indicators. No latest-year change is provided because Article 17 reports are only submitted once every six years and therefore, any latest-year change would simply mirror the short-term assessment.

b. Status of UK species of European importance

Type: State indicator

No update since the previous publication.

This indicator is based on the results of UK reporting undertaken under a European Directive, and was last updated prior to the end of the Transition Period following the UK's exit from the European Union (31 December 2020).

Member States of the European Union are required to report every six years on the conservation status of habitats and species of community interest (listed in the Annexes of the EU Habitats Directive). These are habitats and species for which the UK had European level conservation responsibilities.

The assessments needed to conclude whether each species of European importance found in the UK was in a: 'Favourable', 'Unfavourable-Inadequate', 'Unfavourable-Bad' or 'Unknown' conservation status. These categories are combined in the indicator as explained on the indicator webpage. This indicator is based on an evaluation of whether the results of the most recent assessment (2019) were better or worse than those for the previous assessments (2007 and 2013).

Key results

This indicator was last updated with data from the 2019 UK Habitats Directive Article 17 report to the European Union.
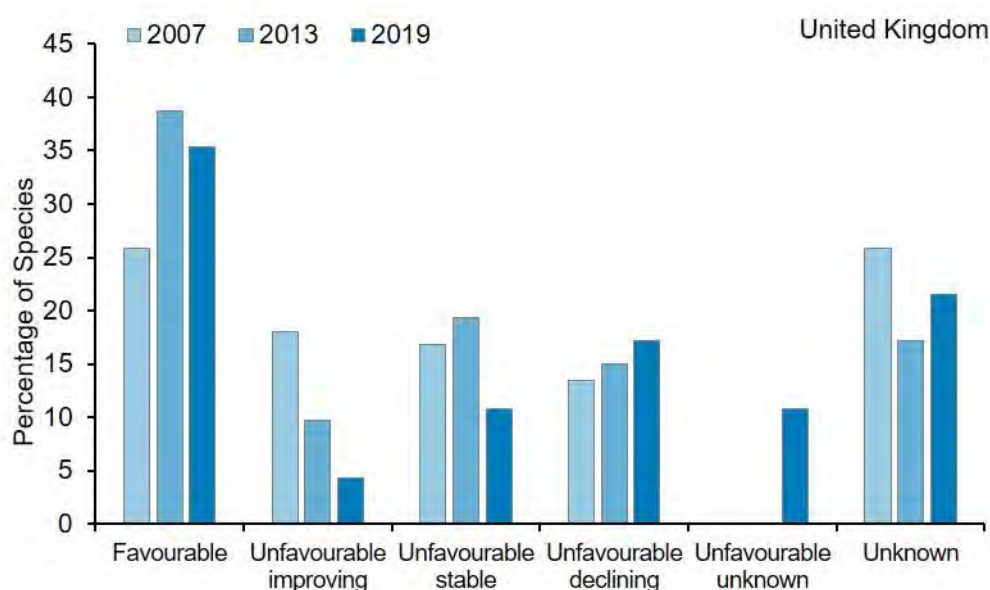
In 2007, 26% of UK species listed in Annexes II, IV or V of the Habitats Directive were in favourable conservation status, this figure increased to 39% in 2013 before decreasing again to 35% in 2019 (Figure C3bi).

The conservation status of 18% of the species was unfavourable-improving in 2007, it decreased to 10% in 2013 and 4% in 2019.

The conservation status of 14% of the species was unfavourable-declining in 2007, this increased to 15% in 2013 and 17% in 2019.

The proportion of the species assessed as unfavourable-stable increased from 17% in 2007, to 19% in 2013, and decreased to 11% in 2019.

Figure C3bi   Conservation status of UK species of European importance, 2007, 2013 and 2019.

Notes:

1. The number of species assessed was 89 in 2007, and 93 in 2013 and 2019.
2. The chart is based on species listed in Annexes II, IV and V of the Habitats Directive, but excluding vagrants.
3. The 'unfavourable-unknown' category was first introduced in 2019.
4. Trends in unfavourable conservation status allow identification of whether progress is being made, as it will take many years for some species to reach favourable conservation status.

Source: UK Habitats Directive (Article 17) reports to the EU, 2007, 2013 and 2019.

Assessment of change in status of UK species of European importance

	Long term	Short term	Latest year
Percentage of UK species of European importance in favourable or improving conservation status	❌ 2007 to 2019	❌ 2013 to 2019	Not assessed

Note: The long- and short-term assessments are based on a 3% rule of thumb. See Assessing Indicators. No latest-year change is provided because Article 17 reports are only submitted once every six years and therefore, any latest-year change would simply mirror the short-term assessment.

C4. Status of UK priority species

a.   Relative abundance

Type: State indicator

This indicator shows changes in the relative abundance of priority species in the UK for which data are available. Priority species are defined as those appearing on one or more of the biodiversity lists of each UK country (Natural Environmental and Rural Communities Act 2006 – Section 41 (England), Environment (Wales) Act 2016 section 7, Northern Ireland Priority Species List, Scottish Biodiversity List). The combined list contains 2,890 species in total. The priority species were highlighted as being of conservation concern for a variety of reasons, including rapid decline in some of their populations. The indicator will increase when the population of priority species grows on average and decrease when the population declines.

This indicator should be read in conjunction with C4b which provides data on those UK priority species for which distribution data are available.

Key results

Official lists of priority species have been published for each UK country. There are 2,890 species on the combined list; actions to conserve them are included within the respective countries' biodiversity or environment strategies. This indicator shows the average change in 224 species for which abundance trends are available.

By 2019, the index of relative abundance of priority species in the UK had declined to 39% of its base-line value in 1970, a statistically significant decrease (Figure C4ai). Over this long-term period, 21% of species showed a strong or weak increase and 60% showed a strong or weak decline.

Between 2014 and 2019, the indicator did not change significantly, the 2019 value of the indicator was 1% higher than the 2014 value. Over this short-term period, 46% of species showed a strong or weak increase and 36% showed a strong or weak decline.

Figure C4ai   Change in the relative abundance of priority species in the UK, 1970 to 2019.
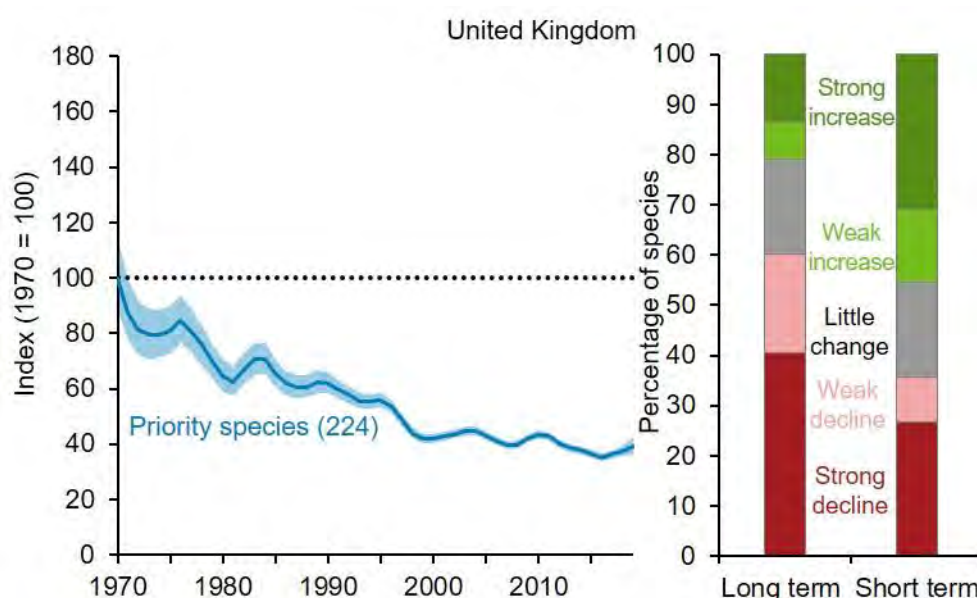
Notes:
1. The line graph shows the smoothed trend (solid line) with its 95% credible interval (shaded area). The width of the credible interval (CI) is in part determined by the proportion of species in the indicator for which data are available; the CI narrows as data becomes available for groups such as bats in the 1990s and widens as datasets such as the Rothamsted Insect Survey drop out before the final indicator year.
2. The figure in brackets shows the number of species included in the composite index.
3. The bar chart shows the percentage of species within the indicator that have increased (weakly or strongly), decreased (weakly or strongly) or shown little change in abundance based on set thresholds of change.
4. All species in the indicator are present on one or more of the country priority species lists (Natural Environmental and Rural Communities Act 2006 – Section 41 (England), Environment (Wales) Act 2016 section 7, Northern Ireland Priority Species List, Scottish Biodiversity List).
5. This indicator is not directly comparable with the previous publication; the number of species included in the composite index has increased from 219 in 2020, to 224 here. Additionally, novel methods to combine individual species trends into the multi-species indicator have been applied in 2021.

Source: Bat Conservation Trust; British Trust for Ornithology; Butterfly Conservation; UK Centre for Ecology & Hydrology; Defra; Joint Nature Conservation Committee; People's Trust for Endangered Species;

Rare Birds Breeding Panel; Rothamsted Research; Royal Society for the Protection of Birds; The State of Britain's Larger Moths 2021.

Assessment of change in the relative abundance of priority species in the UK

	Long term	Short term	Latest year
Priority species – Relative abundance	❌ 1970 to 2019	😐 2014 to 2019	Increased (2019)

Note: Analysis of the underlying trends is undertaken by the data providers.

Of the 2,890 species in the combined priority species list, the 224 for which robust quantitative time series of relative species abundance are available are included in the indicator. These 224 species include birds (103), butterflies (24), mammals (13) and moths (84). This selection is taxonomically limited; it includes no vascular or non-vascular plants, fungi, amphibians, reptiles, or fish. The only invertebrates included are butterflies and moths. The species have not been selected as a representative sample of priority species and they cover only a limited range of taxonomic groups. The measure is therefore not fully representative of species in the wider countryside. The time series that have been combined cover different time periods, were collected using different methods and were analysed using different statistical techniques. In some cases, data have come from non-random survey samples.

b. Distribution

Type: State indicator

This indicator measures change in the number of one kilometre grid squares across the UK in which priority species were recorded in any given year. This is referred to as the 'occupancy index' and is effectively equivalent to changes in the distribution of priority species for which data are available. Priority species are defined as those appearing on one or more of the biodiversity lists of each UK country (Natural Environmental and Rural Communities Act 2006 - Section 41 (England), Environment (Wales) Act 2016 section 7, Northern Ireland Priority Species List, Scottish Biodiversity List). The combined list contains 2,890 species in total. The priority species were highlighted as being of conservation concern for a variety of reasons, including rapid decline in some of their populations. The indicator will increase when priority species become more widespread on average, and decrease when species become less widespread on average.

This indicator should be read in conjunction with C4a which provides data on those species for which abundance data are available.

Key results

Official lists of priority species have been published for each UK country. There are 2,890 species on the combined list; actions to conserve them are included within the respective countries' biodiversity or environment strategies.

Since the 2020 publication, the Biological Records Centre has received additional data for Aquatic bugs, Empid & Dolichopodid Flies, Ephemeroptera, Plecoptera and Trichoptera. These data are included in this year's indicator.

Between 1970 and 2018, the index of distribution of priority species in the UK decreased, with a higher proportion of species decreasing in distribution than increasing. The long-term trend is assessed as a decline of 4%.

The index was 2% lower in 2018 than in 2013, with 18% of species showing an increase and 36% showing a decline. However, this short-term decrease was not significant, and therefore the short-term assessment is little or no change.

Figure C4bi   Change in distribution of UK priority species, 1970 to 2018.
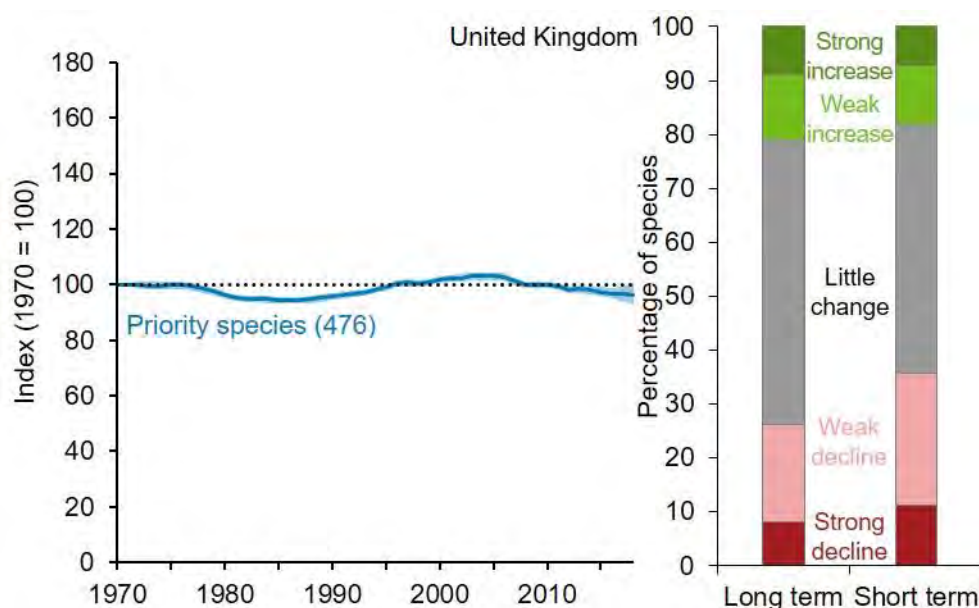
Notes:
1. The line graph shows the smoothed trend (solid line) with variation around the line (shaded area) within which users can be 95% confident that the true value lies (credible interval). The width of the credible interval (CI) is in part determined by the proportion of species in the indicator for which data are available.
2. The figure in brackets shows the number of species included in the composite index.
3. The bar chart shows the percentage of species within the indicator that have increased, decreased or shown little change in distribution (measured as the proportion of occupied sites), based on set thresholds of change.
4. All species in the indicator are present on one or more of the country priority species lists (Natural Environmental and Rural Communities Act 2006 – Section 41 (England), Environment (Wales) Act 2016 section 7, Northern Ireland Priority Species list, Scottish Biodiversity List).
5. This indicator is not directly comparable with the previous publication. Inclusion of new data has increased the number of species that can be included in the indicator from 422 in 2020, to 476 here. Additionally, novel methods to combine individual species trends into the multi-species indicator have been applied in 2021.

Source: Biological records data collated by a range of national schemes and local data centres.

Assessment of change in distribution of priority species in the UK

	Long term	Short term	Latest year
Priority species – Distribution	≈ 1970 to 2018	≈ 2013 to 2018	No change (2018)

Note: Analysis of the underlying trends is undertaken by the data providers.

Of the 2,890 species on the combined priority species list, the 476 for which robust quantitative time-series of the proportion of occupied sites are available are included in the indicator. These 476 species include bees, wasps and ants (95); bryophytes and lichens (128); moths (122); and other taxa (131). The other taxa include a number of insect groups, non-marine molluscs and spiders. The species have not been selected as a representative sample of priority species and they cover only a limited range of taxonomic groups. The measure is therefore not fully representative of species in the wider countryside.

C5. Birds of the wider countryside and at sea

a. **Farmland birds**

b. **Woodland birds**

c. **Wetland birds**

d. **Seabirds**

e. **Wintering waterbirds**

Type: State indicator

The indicator shows relative changes in the abundance of common native birds of farmland and woodland and of freshwater and marine habitats in the UK. Bird populations have long been considered to provide a good indication of the broad state of wildlife in the UK. This is because they occupy a wide range of habitats and respond to environmental pressures that also operate on other groups of wildlife. In addition, there are considerable long-term data on trends in bird populations, allowing for comparison between short-term and long-term changes. Because they are a well-studied taxonomic group, drivers of change for birds are better understood than for some other species groups, which enables interpretation of observed changes.

Key results

In 2019 the UK farmland bird index was 45% of its 1970 value. Short term, between 2013 and 2018 the smoothed index decreased significantly by 5%.

In 2019 the UK woodland bird index was 25% below its 1970 value. Short term, between 2013 and 2018, the smoothed index decreased significantly by 7%.

In 2019 the water and wetland bird index was 14% lower than in 1975. However, more recently the smoothed index increased very slightly and non-significantly, by 1% between 2013 and 2018.

In 2019, the breeding seabird index in the UK was 24% lower than in 1986, slightly above the lowest level recorded (of 31% lower than 1986, recorded in 2013). Short term, between 2013 and 2018 the unsmoothed breeding seabird index increased, non-significantly, by 3%.
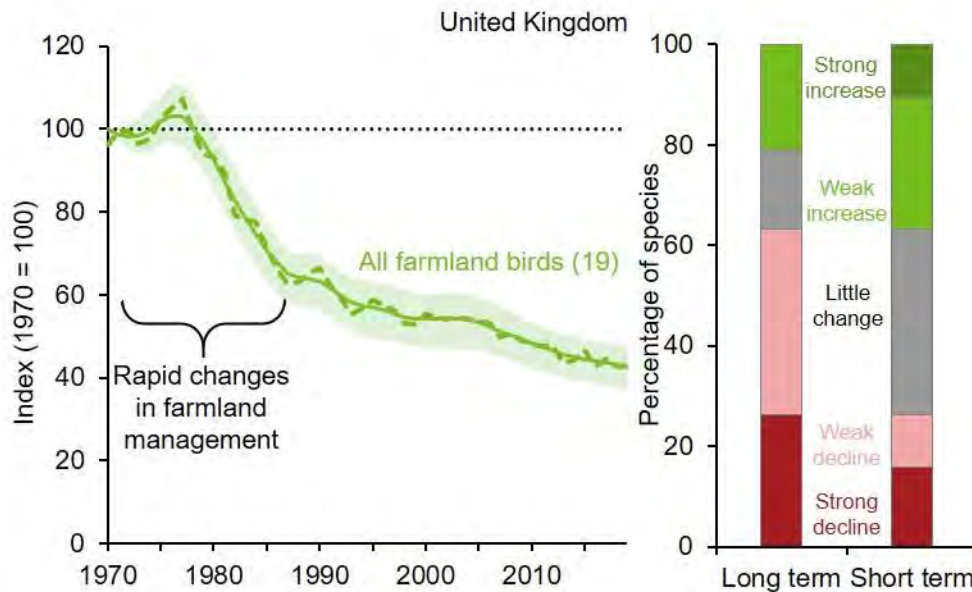
In 2018 to 2019, the wintering waterbird index was 88% higher than in 1975to 1976. Short term, between 2012/2013 and 2017/2018, the smoothed index decreased by 3%.

Figure C5ai   Breeding farmland birds in the UK, 1970 to 2019.
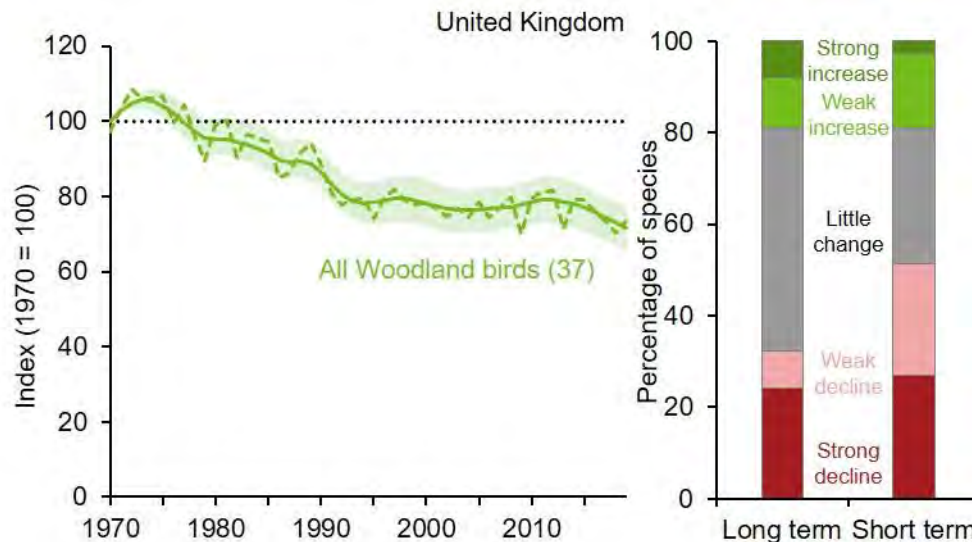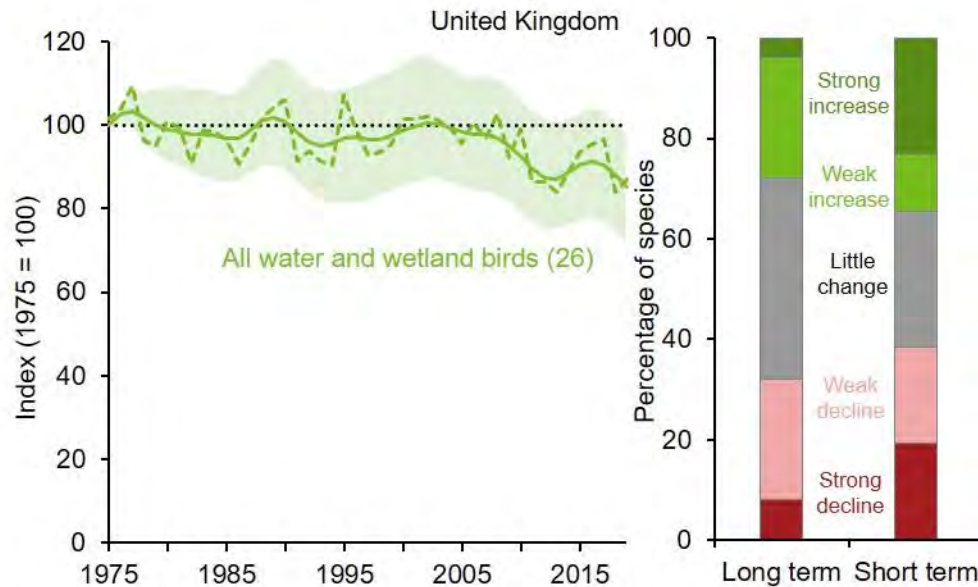

Notes:

1. The line graph shows the unsmoothed trend (dashed line) and smoothed trend (solid line) with its 95% confidence interval shaded.
2. The figure in brackets shows the number of species in the index.
3. The bar chart shows the percentage of species within the indicator that have increased, decreased, or shown little change, based on set thresholds of annual change.

Source: British Trust for Ornithology; Defra; Joint Nature Conservation Committee; Royal Society for the Protection of Birds.

Figure C5bi   Breeding woodland birds in the UK, 1970 to 2019.

Notes:

1. The line graph shows the unsmoothed trend (dashed line) and smoothed trend (solid line) with its 95% confidence interval shaded.
2. The figure in brackets shows the number of species in the index.
3. The bar chart shows the percentage of species within the indicator that have increased, decreased, or shown little change, based on set thresholds of annual change.

Source: British Trust for Ornithology; Defra; Joint Nature Conservation Committee; Royal Society for the Protection of Birds.

**Figure C5ci   Breeding water and wetland birds in the UK, 1975 to 2019.**

Notes:
1. The line graph shows the unsmoothed trend (dashed line) and smoothed trend (solid line) and its 95% confidence interval shaded.
2. The figure in brackets shows the number of species in the index.
3. The bar chart shows the percentage of species within the indicator that have increased, decreased, or shown little change, based on set thresholds of annual change.

Source: British Trust for Ornithology; Defra; Environment Agency; Joint Nature Conservation Committee; Royal Society for the Protection of Birds.

**Figure C5di   Breeding seabirds in the UK, 1986 to 2019.**
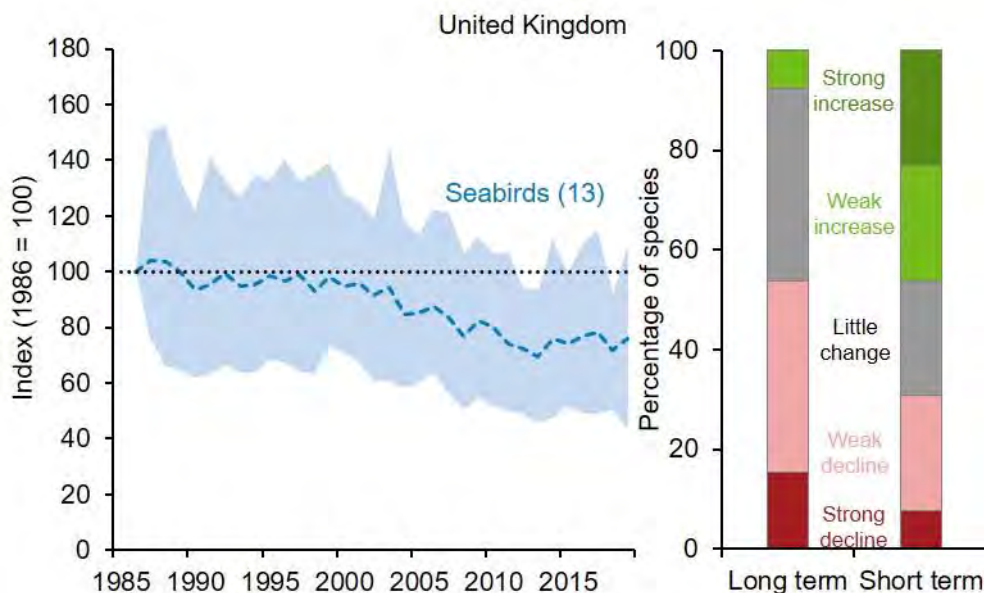
Notes:
1. The line graph shows the unsmoothed trend (dashed line) with its 95% confidence interval (shaded area) – no smoothed trend is available for seabirds, but this will be available in future publications.
2. The figure in brackets shows the number of species in the index.
3. The bar chart shows the percentage of species within the indicator that have increased, decreased, or shown little change, based on set thresholds of annual change.
4. The breeding seabird index has now been updated with data up to and including 2019. This follows a brief hiatus in updates since 2016 when the Seabird Monitoring Programme Steering Group made the

decision to put the analysis and publication of the annual SMP report on hold enabling staff time to be dedicated to the breeding seabird census, Seabirds Count.

Source: British Trust for Ornithology; Defra; Royal Society for the Protection of Birds; Seabird Monitoring Programme (co-ordinated by Joint Nature Conservation Committee).

Figure C5ei   Wintering waterbirds in the UK, 1975/76 to 2018/19.
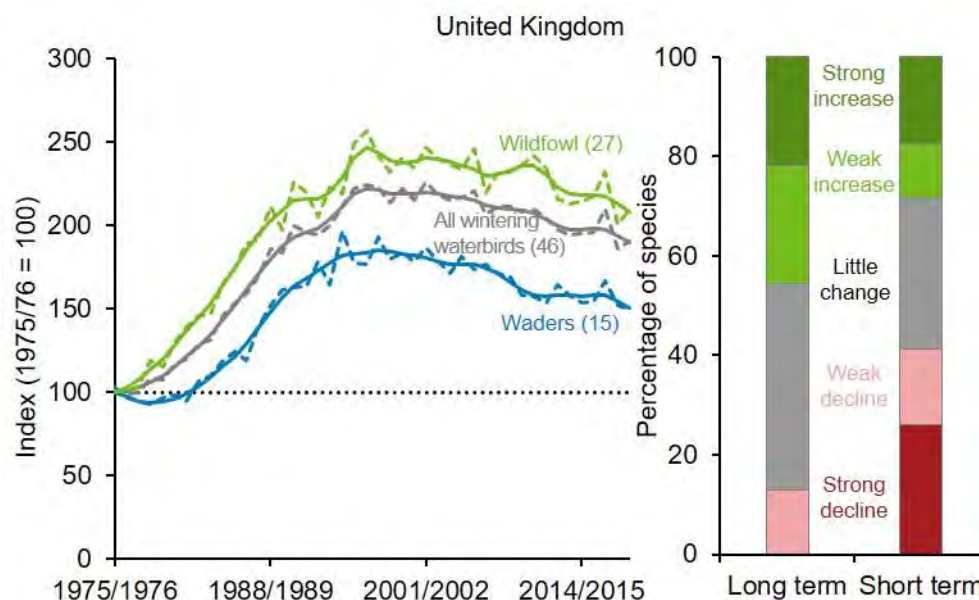
Notes:

1. The line graph shows the unsmoothed trend (dashed line) and smoothed trend (solid line).
2. The figure in brackets shows the number of species in the index.
3. The bar chart shows the percentage of species within the indicator that have increased, decreased, or shown little change, based on set thresholds of annual change.
4. Based on surveys during winters – so 1975/76 refers to the period from September 1975 to March 1976.
5. Data from wintering waterbirds monitoring schemes are based largely on full counts at colonies or at wetland and coastal sites of markedly varying size. This means that bootstrapping methods cannot be applied reliably and hence trends for these groups are currently presented without confidence intervals.

Source: British Trust for Ornithology; Defra; Joint Nature Conservation Committee; Royal Society for the Protection of Birds; Wildfowl and Wetlands Trust.

Assessment of change in bird populations

	Long term	Short term	Latest year
Farmland birds	❌ 1970 to 2018	❌ 2013 to 2018	No change (2019)
Woodland birds	❌ 1970 to 2018	❌ 2013 to 2018	Increased (2019)
Wetland birds	❌ 1975 to 2018	≈ 2013 to 2018	Increased (2019)
Seabirds	Not Assessed	Not Assessed	Not Assessed
Wintering waterbirds	✅ 1975/76 to 2017/18	≈ 2012/13 to 2017/18	Increased (2018/19)

Notes:

1. Whilst latest year percentage changes in these indices are reported based on the most recent unsmoothed data point (2019), the formal long-term and short-term assessments of the statistical significance of these changes are made using the smoothed data to 2018. This is because the most recent smoothed data point (2019) is likely to change in next year's update when additional data are included for 2020.

2. Analysis of the underlying trends is undertaken by the data providers. Smoothed data are available for farmland, woodland, wetland and wintering waterbirds, but not for seabirds.

3. The traffic light assessment for the seabirds measure has been removed until a way of assessing variability is devised. This follows recommendations in a quality assurance science panel report, dated January 2016.

C6. Insects of the wider countryside (butterflies)

a. Habitat specialists

b. Species of the wider countryside

Type: State indicator

This indicator consists of two measures of annual butterfly population abundance: the first for habitat specialist butterflies (species strongly associated with semi-natural habitats such as chalk downland) and the second for more widespread butterflies found in both semi-natural habitats and the wider countryside.

Butterflies are complementary to birds and bats as an indicator, especially the habitat specialists, because they use resources in the landscape at a much finer spatial scale than either birds or bats.

Key results

🦋 Since 1976, the unsmoothed habitat specialist butterfly index has fallen by 61% (Figure C6ia).

🦋 Over the same period, the unsmoothed index for species of the wider countryside has fallen by 22% (Figure C6ib).

🦋 Large fluctuations in numbers between years are a typical feature of butterfly populations, principally in response to weather conditions. Despite the sunniest spring on record, 2020 was only an average year for butterflies in the UK with more than half of species (32 from 58, or 55%) decreasing in annual abundance, after a summer which was duller and wetter than average.

🦋 The statistical assessment of change is made on an analysis of the underlying smoothed trends. Since 1976, populations of habitat specialists have declined significantly though species of the wider countryside show no significant change. Since 2015, both short-term trends show no significant change.

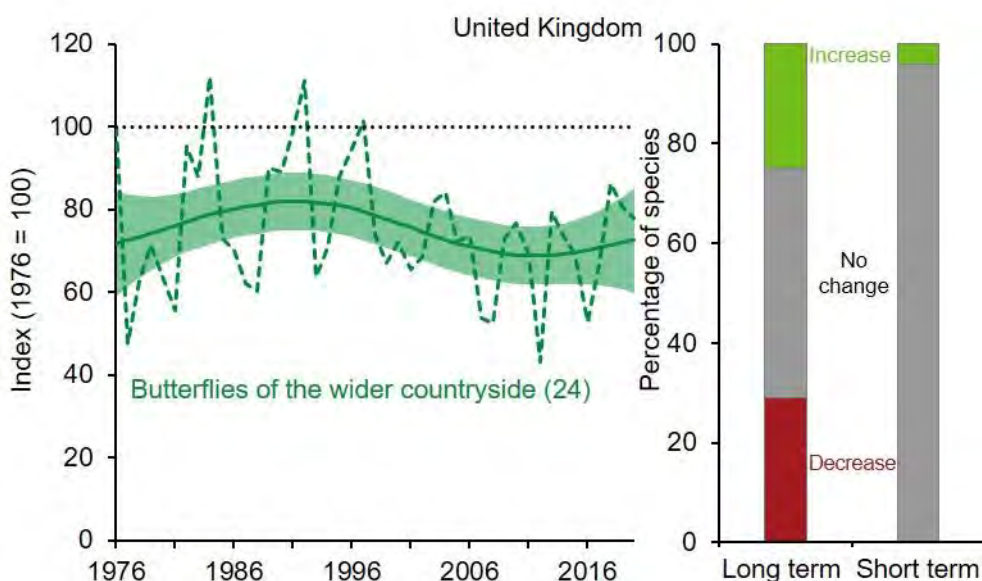**Figure C6ia   Trends for habitat specialist butterflies in the UK, 1976 to 2020.**
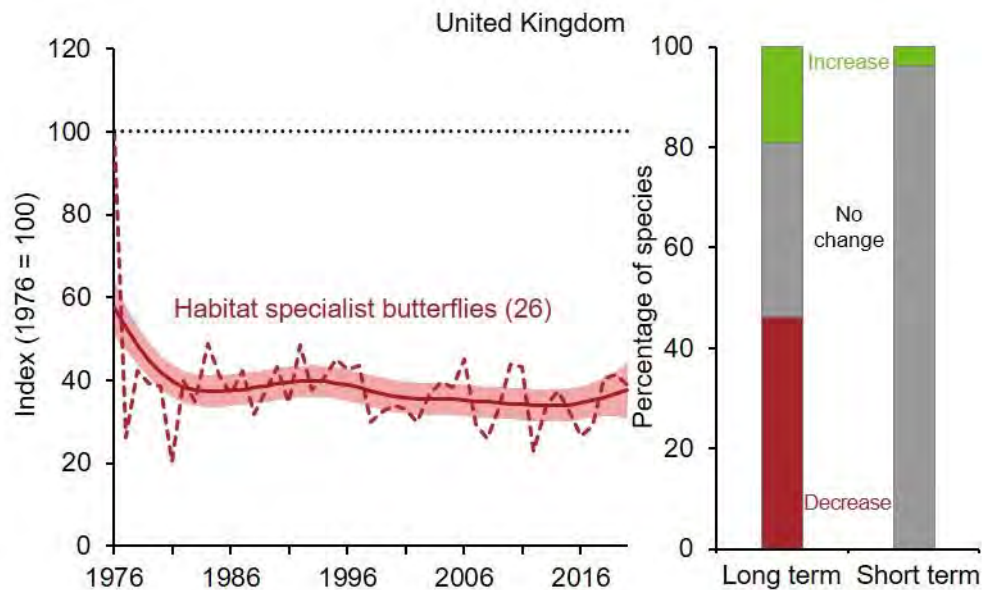
Notes:

1. The line graph shows the unsmoothed trend (dashed line) and the smoothed trend (solid line) together with its 95% confidence interval (shaded).
2. The figure in brackets shows the number of species included in the index.
3. The bar chart shows the percentage of species within the indicator that have shown a statistically significant increase, a statistically significant decrease or no statistically significant change (little change).
4. Since 2017, an improved analysis method has been used to derive the species indices and in 2020, improvements were made to better account for the colonisation of sites (see the indicator webpage). Therefore, the charts presented here are not directly comparable to those presented in releases prior to 2020.

Source: Butterfly Conservation; UK Centre for Ecology & Hydrology; Defra; British Trust for Ornithology; Joint Nature Conservation Committee.

Figure C6ib   Trends for butterflies of the wider countryside in the UK, 1976 to 2020.

Notes:

1. The line graph shows the unsmoothed trend (dashed line) and the smoothed trend (solid line) together with its 95% confidence interval (shaded).
2. The figure in brackets shows the number of species trends included in the index.
3. This indicator includes individual measures for 25 species of butterflies; the wider countryside index, however, only includes 24 trends. This is because an aggregate trend is used for small skipper (*Thymelicus lineola*) and Essex skipper (*Thymelicus sylvestris*) and has been retained for indicator consistency; these two species were combined due to historical difficulties with distinguishing between them in the field.
4. The bar chart shows the percentage of species trends within the indicator that have shown a statistically significant increase, a statistically significant decrease or no statistically significant change (little change).
5. Since 2017, an improved analysis method has been used to derive the species indices and in 2020, improvements were made to better account for the colonisation of sites (see the indicator webpage). Therefore, the charts presented here are not directly comparable to those presented in releases prior to 2020.

Source: Butterfly Conservation; UK Centre for Ecology & Hydrology; British Trust for Ornithology; Defra; Joint Nature Conservation Committee.

Assessment of change in butterfly populations

	Long term	Short term	Latest year
Habitat specialists	❌ 1976 to 2020	🟡≈ 2015 to 2020	Decreased (2020)
Species of the wider countryside	🟡≈ 1976 to 2020	🟡≈ 2015 to 2020	Decreased (2020)

Note: While percentage changes and latest year changes in these indices are reported based on the most recent unsmoothed data point (2020), the formal long-term and short-term assessments of the statistical significance of these changes are made using the smoothed data to 2020. Analysis of the underlying trends is performed by the data providers.

C7. Plants of the wider countryside

a. **Arable field margins**

b. **Bog and wet heath**

c. **Broadleaved woodland and hedges**

d. **Lowland grassland**

Experimental Statistic: – indicator under development. The UK biodiversity indicators project team would welcome feedback on the novel methods used in the development of this indicator. For example, does this new indicator measure something readers feel should be measured?, and how well does it measure plant abundance? As this is an experimental statistic it has not been assessed.

Type: State indicator

No update since the previous publication.

This indicator measures, in small plots, change in the abundance of plant species considered indicative of good habitat condition in the UK, using modelled abundance data from the National Plant Monitoring Scheme (NPMS). Plant populations form the environment in which most other species exist, as well as providing numerous ecosystem services. Drivers of change are well-understood for many UK habitats.

This indicator is presented for four UK broad habitat types: Arable field margins; Broadleaved woodlands and hedges; Bog and wet heath; and Lowland grassland. Within each habitat, plant species abundance trends indicative of good condition, are averaged to provide an indication of the habitat's current state.

Key results

The COVID-19 pandemic in 2020 meant it was necessary to pause collection of the NPMS data for the health and safety of survey volunteers. This was in line with the government guidance and restrictions and lockdowns were implemented in all UK countries. When restrictions were lifted in 2020, some data were collected, but in insufficient quantity to update the indicator.

In 2019, average indicator plant abundance for all four habitat types presented remains below the 2015 level (Figure C7i):

- arable field margins, while fluctuating annually, shows an overall decline of 27% between 2015 and 2019;

- bog and wet heath after an initial decline of 34% in 2016, shows a steady rise to 83% of the baseline;

- broadleaved woodland and hedges shows a decline of 18% before levelling off; and

- lowland grassland shows a decline followed by a gradual rise to 95% of the level in 2015.

Figure C7i   Abundance of plant species in four UK broad habitat types, 2015 to 2019.
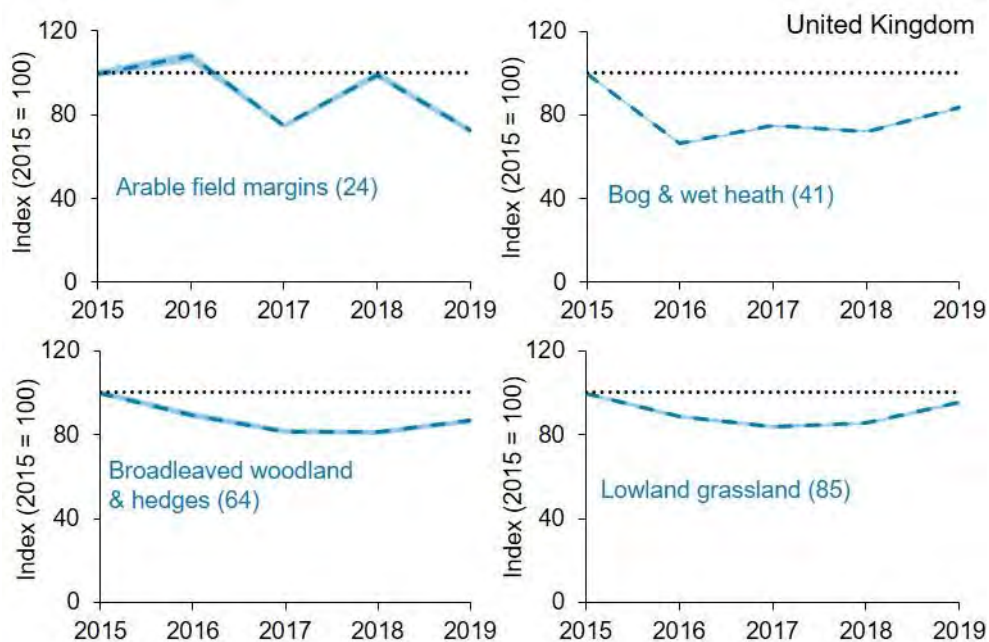
Notes:

1. The line graphs show the unsmoothed trends (dashed line); the variation around the lines shown (the shaded area) is the standard deviation of 1,000 simulated trend indices calculated according to the method of Soldaat, L.L., Pannekoek J., Verweij, R.J.T., Van Turnhout, C.A.M. and Van Strien, A.J. (2017). A Monte Carlo method to account for sampling error in multi-species indicators. *Ecological Indicators,* 81: 340 to 347 DOI:10.1016/j.ecolind.2017.05.033.

2. Abundance is measured by the percentage area covered by a species within a plot.

3. The figures in brackets indicate the number of species or species aggregates included in the composite index for that particular habitat type.

Source: Botanical Society of Britain and Ireland; Joint Nature Conservation Committee; National Plant Monitoring Scheme; Plantlife; UK Centre for Ecology & Hydrology.

C8. Mammals of the wider countryside (bats)

Type: State indicator

This indicator shows changes in the relative abundance of 11 of the UK's 17 breeding bat species, based on data from transect surveys, roost counts and counts at hibernation sites. Whilst 11 species are included there are only 10 trends, as an aggregate trend is used for the whiskered bat (*Myotis mystacinus*) and Brandt's bat (*Myotis brandtii*); these two species are difficult to distinguish between in the field. Bat species make up a third of the UK's mammal fauna and occur in most lowland habitats across the UK.

Key results

The smoothed bat index has increased by 47% between 1999 and 2019. In the short term, between 2014 and 2019, the bat index has increased by 10%.

The bat index is a composite of 10 trends (11 species, two of which are combined in a single trend). Since 1999, six of the trends included in the index have increased and four have shown little or no change. The UK's rarer and more specialised bat species are not included in the index due to difficulties monitoring these species.

The increase in the index is underpinned by large statistically significant increases in populations of three species, greater horseshoe bat, lesser horseshoe bat and common pipistrelle. These increases indicate that some bat species are starting to recover after what are believed to have been major population declines during the 20th century.

Figure C8i   Trends in bat populations, 1999 to 2020.
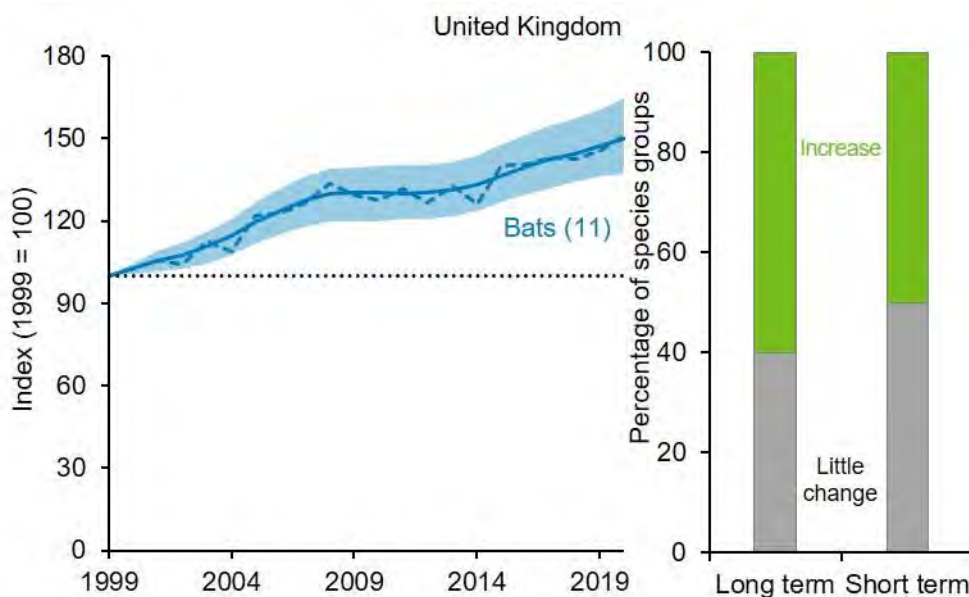
Notes:
1. The line graph shows the unsmoothed trend (dashed line) and smoothed trend (solid line) with its 95% confidence interval (shaded).
2. The figure in brackets shows the number of species in the index.
3. This indicator includes measures for 11 species of bats; however the index only includes 10 trends. This is because an aggregate trend is used for the whiskered bat (*Myotis mystacinus*) and Brandt's bat (*Myotis brandtii*); these two species have been combined due to difficulties distinguishing between them in the field.
4. The bar chart shows the percentage of species group trends which, over the time periods of the long-term and short-term assessments, have shown a statistically significant increase or decline, or little change.
5. Since 2018, this indicator has been extended to include 11 species instead of eight. The complete time series in the accompanying dataset was also updated to reflect these changes.

Source: Bat Conservation Trust.

Assessment of change in widespread bat populations

	Long term	Short term	Latest year
Bat populations	✅ 1999 to 2019	✅ 2014 to 2019	Increased (2020)

Note: Long-term and short-term assessments are made on the basis of smoothed trends to the penultimate year (2019) by the data providers. This is because the most recent smoothed data point (2020) is likely to change in next year's update when additional data are included for 2021. The latest year change is based on unsmoothed data.

C9. Genetic resources for food and agriculture

a. Animal genetic resources – effective population size of Native Breeds at Risk

i.   Goat breeds

ii. Pig breeds

iii. Horse breeds

iv. Sheep breeds

v.   Cattle breeds

Type: State / Benefit indicator

Genetic diversity is an important component of biological diversity. Rare and native breeds of farm animals are part of our cultural heritage, are often associated with traditional land management required to conserve important habitats, and may have genetic traits of value to future agriculture.

The genetic diversity in UK breeds can be assessed by the effective population size (N_e), which accounts for the total number of animals in a population and the relative numbers of sires and dams (male and female parents). A low effective population size signifies a greater likelihood of inbreeding and risk of loss of genetic diversity.

This indicator shows the change in the average effective population sizes for breeds of goats, pigs, horses, sheep and cattle classified by the UK Farm Animal Genetic Resources Committee as Native Breeds at Risk (NBAR).

Key results

The average effective population size of the native breeds at risk included in this indicator:

for pigs decreased from 177 in 2000 to 157 in 2015 and to 129 in 2020;

for horses decreased from 178 in 2000 to 94 in 2015 and to 75 in 2020;

for sheep increased from 245 in 2000 to 361 in 2015 and to 402 in 2020;

for cattle increased from 121 in 2000 to 287 in 2015 and to 334 in 2020;

for goats the dataset starts in 2004 when it was 63, increasing to 83 in 2015 and decreasing to 81 in 2020; prior to 2004, effective population size could only be calculated for one breed.

The *average* effective population sizes calculated between 2000 and 2020 for the native breeds at risk of goats, pigs, horses, sheep and cattle were each above 50, the figure set by the United Nations Food and Agriculture Organisation as a threshold for concern. However, in 2020, of the Native Breeds at Risk, one breed of goat (Old English Goats), four breeds of horse (British Percheron / Percheron, Cleveland Bay Horse, Eriskay Pony, and Suffolk Punch), one breed of sheep (Devon and Cornwall Longwool) and two breeds of cattle (Northern Dairy Shorthorn,

Vaynol), had a N_e less than or equal to 50. No breeds of pig had effective population sizes below the threshold in 2020.

There has been no reported UK extinction of any breeds of goats, pigs, horses, sheep or cattle since 1973.

Figure C9ai   Average effective population size (Ne) of Native Breeds at Risk, 2000 to 2020.
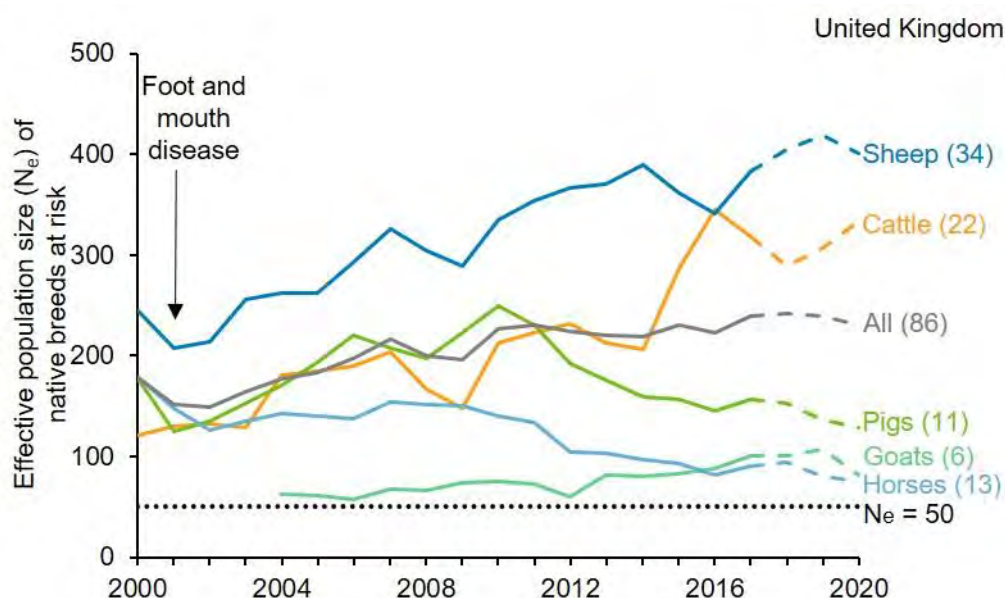
Notes:

1. The number of breeds included in the indicator varies year by year as a result of data availability for both sires and dams (data for both are needed to calculate effective population size). The maximum number of breeds included in each measure is shown in brackets after the species name in the legend. The annual data collection for the 2020 data accounts for 85% of the total breeds and these are for six goat breeds, 11 pig breeds, 13 horse breeds, 34 sheep breeds, and 22 cattle breeds. Further details of how many breeds are included in each year can be found on the indicator webpage.

2. Some of the breed data are collected through the three-yearly survey (most recently published October 2018). The next triennial survey will provide additional data for 2018, 2019 and 2020. Hence the last part of the lines are provisional, and shown as 'dashed'.

3. Based on data published in the UK Farm Animal Genetic Resources Breed Inventory published on 23 June 2021. https://www.gov.uk/government/statistics/uk-farm-animal-genetic-resources-fangr-breed-inventory-results.

4. Over the course of time, data for some breeds has been revised. . In 2021, four breeds of NBAR cattle (Aberdeen Angus (Original Population); British Friesian (Original); Dairy Shorthorn (Original Population); and Hereford Traditional / Original) were merged with their associated larger non-NBAR populations, this was to ensure there was no duplication of data for these breeds. In addition, one sheep breed Badger Face Welsh (Torddu and Torwen) was split into two separate breeds, resulting in a recalculation of the entire data series. Therefore, this indicator is not directly comparable with previous publications

5. The dotted black line shows effective population size (N_e) equal to 50; the level set by the United Nations Food and Agriculture Organisation as a threshold for concern. The dark grey line is an average of all 86 Native Breeds at Risk for which N_e could be calculated; this is included to provide context but is not assessed.

Source: British Pig Association; Defra; Grassroots Systems Ltd.; Rare Breeds Survival Trust; and

participating breed societies.

Assessment of change in effective population size of Native Breeds at Risk

	Long term	Short term	Latest year
Goat breeds	✓ 2004 to 2020	≈ 2015 to 2020	Decreased (2020)
Pig breeds	✗ 2000 to 2020	✗ 2015 to 2020	Decreased (2020)
Horse breeds	✗ 2000 to 2020	✗ 2015 to 2020	Decreased (2020)
Sheep breeds	✓ 2000 to 2020	✓ 2015 to 2020	Decreased (2020)
Cattle breeds	✓ 2000 to 2020	✓ 2015 to 2020	Increased (2020)

Note: Long- and short-term assessments are based on a 5% rule of thumb. Where possible, the base years for these assessments use a three-year average. See Assessing Indicators.

b. Plant genetic resources – Enrichment Index

Type: State / Benefit indicator

No update since the previous publication.

As a result of discussions in the UK Plant Genetic Resources Group, a revised indicator is being considered; whilst development is underway it is not ready for publication.

Seed banks provide an insurance policy against the extinction of plants in the wild. They complement *in situ* conservation methods, which conserve plants and animals directly in the wild. The indicator is based on an enrichment Index developed by the United Nations Food and Agriculture Organisation (FAO 2010) to assess the genetic diversity held in gene banks. The method factors in duplication and similarity to existing accessions. An upward trending line indicates diversity is being added to collections – the steeper the line, the greater the diversity being incorporated. An accession is a collection of plant material from a particular location at a point in time.

Key results

There is considerable annual variability in the number of new accessions into UK germplasm collections. The total number of accessions has risen since 1960, totalling 93,786 accessions by June 2018.

There was a 15% increase in the Enrichment Index between 2013 and 2018. A rapid rise in the Enrichment Index since 2000 can be attributed to a concerted collection effort by the Millennium Seed Bank.

Figure C9bi   Cumulative Enrichment Index of plant genetic resource collections held in the UK and annual number of accessions, 1960 to 2018.
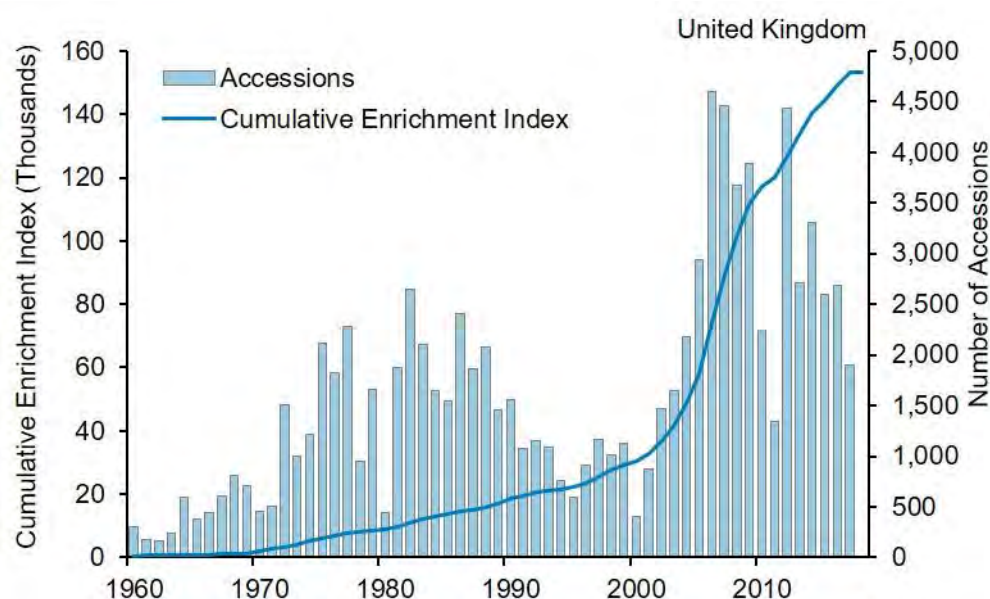
Notes:

1. Data were obtained from EURISCO, which collates information across Europe from national germplasm collections, including the UK National Inventory of Plant Genetic Resources. The UK National Inventory includes food crop genetic resources such as crops, forages, wild and weedy species (including crop wild relatives), medicinal and ornamental plants, but does not include forest genetic resources.

2. The UK 2018 update of EURISCO includes information which had previously not been submitted as a result of improvements within the holding institutes to catalogue their holdings. The indicator is therefore not directly comparable with the versions previously published.

Source: EURISCO Catalogue; date of data download 7 June 2018; based on UK contributions from: Genetic Resources Unit, Aberystwyth; Heritage Seed Library, Garden Organic; Commonwealth Potato Collection, The James Hutton Institute; Germplasm Resources Unit, John Innes Centre; Nottingham Arabidopsis Stock Centre; Millennium Seed Bank Partnership; Science and Advice for Scottish Agriculture, Scottish Government; Warwick Crop Centre, Genetic Resources Unit.

**Assessment of change in status
of ex situ conservation of cultivated plants and their wild relatives**

	Long term	Short term	Latest year
Cumulative Enrichment Index	✅ 1960 to 2018	✅ 2013 to 2018	No change (2018)

Note: Assessment of this indicator is based on comparison of latest data point with a three-year average from the baseline, using the three earliest consecutive years available. See Assessing Indicators.

D1. Biodiversity and ecosystem services

a.   Fish size classes in the North Sea

Type: State / Benefit indicator

No update since the previous publication.

The indicator shows changes in the proportion, by weight, of large individuals equal to or over 50 cm in length in demersal (bottom-dwelling) fish populations in the North Sea. Changes in the size structure of fish populations and communities reflect changes in the state of the fish community. Fluctuations in values

between years are expected given inter-annual fluctuations in the distribution and abundance of North Sea fish populations and sampling variation.

Key results

In 2019, large fish in the North Sea survey made up 6% of the weight of the fish community. This is below the value of 15% recorded in 1983, but above the low of 2% in 2001. There was a clear decline in the indicator from 1983 to 2001, followed by a rapid recovery to 13% in 2015 and a dramatic fall between 2018 and 2019.

Figure D1ai   **Percentage of large fish (equal to or larger than 50 cm), by weight, in the North Sea, 1983 to 2019.**
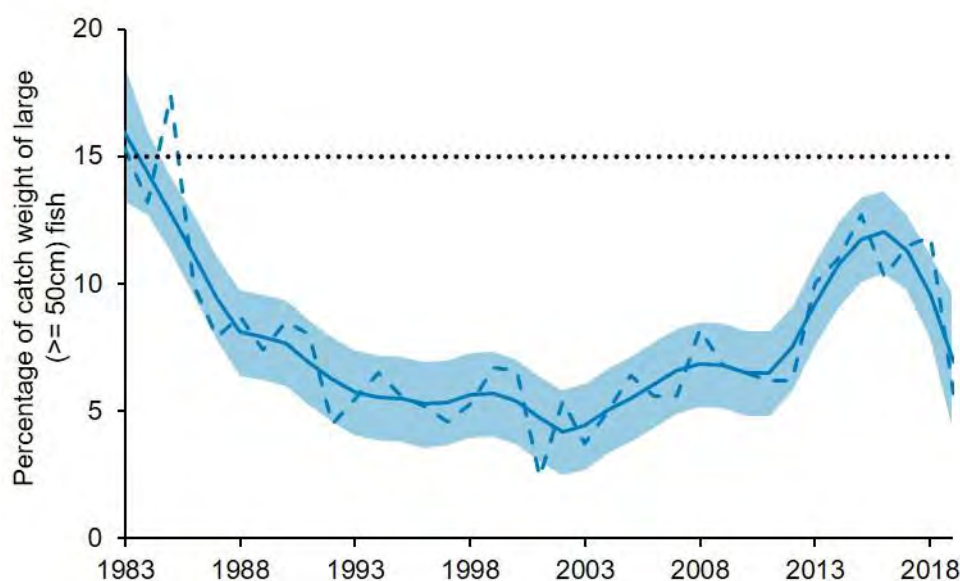
Notes:
1. The line graph shows the unsmoothed trend (dashed line) and a LOESS smoothed trend (solid line) with the shaded area showing the 95% confidence intervals around the smoothed trend.
2. The black horizontal dashed line shows the assessment target from OSPAR (2017).
3. LOESS is a non-parametric regression method; it may be understood as standing for "LOcal regrESSion".

Source: Centre for Environment, Fisheries and Aquaculture Science; Marine Scotland.

Assessment of change in the proportion of large fish, by weight (North Sea)

	Long term	Short term	Latest year
Fish size classes in the North Sea	❌ 1983 to 2019	❌ 2014 to 2019	Decreased (2019)

Note: The long-term and short-term assessments have been made by the Centre for Environment, Fisheries and Aquaculture Science (Cefas) by assessing change in the fitted LOESS smoothed trend.

b. Removal of greenhouse gasses by UK forests

Type: Benefit indicator

Forests are a large store of carbon and also act as an active carbon 'sink', removing carbon dioxide (CO_2), a greenhouse gas (GHG), from the atmosphere and storing it as carbon in living biomass, leaf litter and forest soil. This sequestration of CO_2 is an essential ecosystem service. This indicator shows the cumulative net
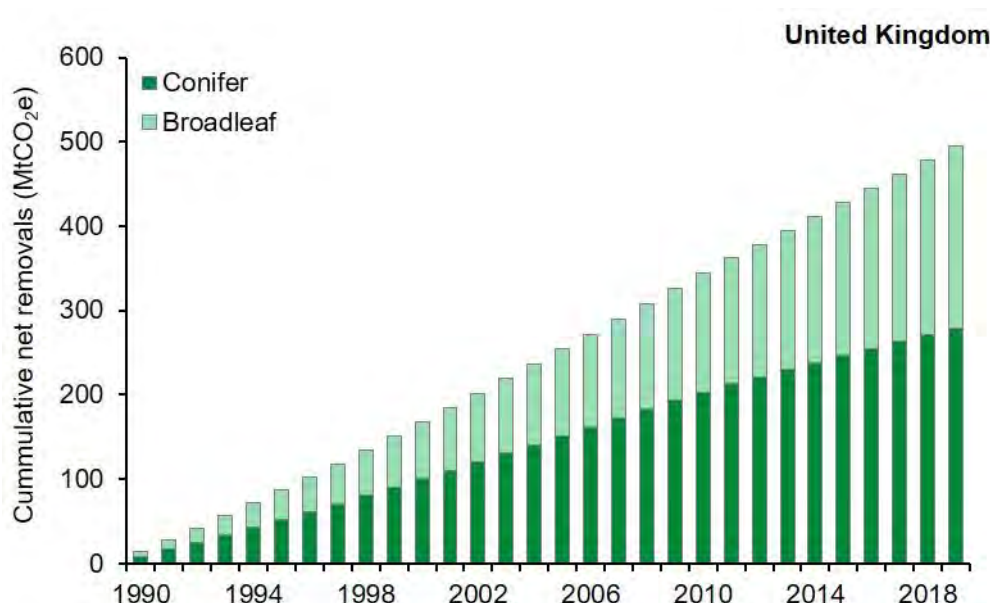
removal of greenhouse gases from the atmosphere by UK forests since 1990. It is split between type of woodland (conifer and broadleaf). Showing greenhouse gas removals by type of woodland is interesting from a biodiversity perspective as it allows a clearer presentation of the contribution made to greenhouse gas removals by broadleaf woodland, most of which constitutes priority habitat.

Key results

It is estimated that since 1990, forests in the UK have (cumulatively) removed the equivalent of 495 million tonnes of carbon dioxide (Mt CO_2e) from the atmosphere (Figure D1bi). In 2019, UK forests are estimated to have removed 16 Mt CO_2e.

The proportion of greenhouse gases removed from the atmosphere by broadleaf woodland has increased since the time series began, accounting for 53% (9.0 Mt CO_2e) of the estimated annual removals in 2019 compared to 39% (5.3 Mt CO_2e) of removals in 1990.

Figure D1bi   Cumulative net removals of greenhouse gases by UK forests, 1990 to 2019.

Notes:

1. Estimated cumulative net removals of greenhouse gases (carbon dioxide (CO_2), methane (CH_4) and nitrous oxide (N_2O)) from the atmosphere by forests in the UK, expressed as million tonnes of CO_2 equivalent (Mt CO_2e).
2. Revised in 2015 to reflect improved modelling of greenhouse gas emissions and removals.
3. Revised in 2019, 2020 and 2021 due to further improvements in the CARBINE model and forest planting and harvesting statistics in all three years and implementation of peatlands research in 2021 (see the indicator webpage).
4. These results are therefore not directly comparable with those in previous publications.

Source: Department of Business, Energy & Industrial Strategy – Land Use, Land Use Change and Forestry (LULUCF) greenhouse gas inventory.

Assessment of change in cumulative net removal of greenhouse gases

	Long term	Short term	Latest year
Removal of greenhouse gases by UK forests	✔️ 1990 to 2019	✔️ 2014 to 2019	Increased (2019)

Note: Long- and short-term assessments are based on a 3% rule of thumb. The base years for these assessments use a three-year average. See Assessing Indicators.

c. Status of pollinating insects

Type: State / Benefit indicator

This indicator indicates changes in pollinator distribution (bees and hoverflies) in the UK. The indicator is based on 377 species (148 species of bee and 229 species of hoverfly), and measures change in the number of 1 km grid squares across the UK in which they were recorded in any given year: this is referred to as the 'occupancy index'. Many insect species are involved in pollination but bees and hoverflies are known to be important and are presented here as an indicator of overall pollinator trend.

Key results

The headline indicator for 'all pollinators' and the index for hoverflies have not been updated since the 2020 publication. However, the indicator time series for wild bees has been extended by one additional year (to 2019).

There was an overall decrease in the pollinator indicator from 1987 onwards. In 2017, the indicator had declined by 30% compared to its value in 1980. The long-term trend was assessed as declining (Figure D1ci).

Between 2012 and 2017, the indicator showed a decrease of 2%; as a result, the short-term trend was assessed as little change.

Over the long term, 19% of pollinator species became more widespread (7% showed a strong increase), and 49% became less widespread (24% showed a strong decrease). By contrast, over the short term, a greater proportion of species were increasing (46%, with 34% exhibiting a strong increase) than decreasing (43%, with 36% exhibiting a strong decrease).

Figure D1ci Change in the distribution of UK pollinators, 1980 to 2017.
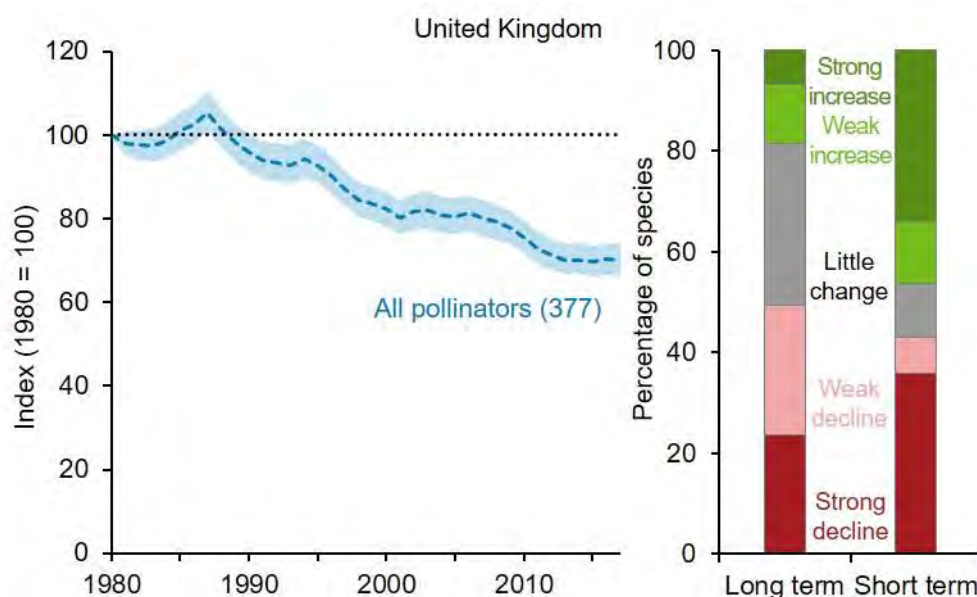
Notes:
1. The line graph shows the unsmoothed composite indicator trend with variation around the line (shaded) within which users can be 90% confident that the true value lies (credible interval).
2. The figure in brackets shows the total number of species included in the index (148 wild bee and 229 hoverfly species); the number of species can vary between years.
3. The bar chart shows the percentage of species within the indicator that have increased, decreased or shown little change in occupancy, based on set thresholds of change (see supporting technical document).
4. This indicator has not been updated since the 2020 publication.

Source: Bees, Wasps & Ants Recording Society; Biological Records Centre (supported by UK Centre for Ecology & Hydrology and Joint Nature Conservation Committee); Hoverfly Recording Scheme.

Assessment of change in the distribution of pollinators in the UK

	Long term	Short term	Latest year
Distribution of UK pollinators	❌ 1980 to 2017	😐 2012 to 2017	No change (2017)

Note: Analysis of the underlying trends is carried out by the data providers. See Assessing Indicators.

E1. Biodiversity data for decision making

a.   **Cumulative number of records**

b.   **Number of publicly accessible records at 1 square kilometre resolution or better**

Type: State indicator

Good policy making and evaluation is based on evidence. Millions of biological observations (records) have been recorded in the UK over the past century by a wide variety of organisations and individuals. This indicator provides an evaluation of the number of records added to the National Biodiversity Network (NBN) Atlas (which replaced the NBN Gateway) in a particular year, and the resolution of those data, as a proxy for the evidence available to underpin conservation decision making.

Key results

The number of records within the National Biodiversity Network (NBN) Gateway increased from 15 million at the start of 2004 to 83 million at the start of 2013, and to 131.3 million at the end of March 2017, at which time the Gateway closed and was replaced by the NBN Atlas. Since the start of the NBN Atlas in April 2017 there has been an increase of 66.1 million records to the end of June 2021. At the end of June 2021 there were 197.4 million records in the NBN Atlas.

The number of publicly accessible records which are at 1 square kilometre resolution or better increased from 10.5 million at the start of January 2010, to 35.2 million at the end of March 2017 in the National Biodiversity Network Gateway. The NBN Atlas which started in April 2017 has just under 107.9 million records at the end of June 2021 which are at 1 square kilometre resolution or better – an increase of 72.6 million since the start of the NBN Atlas.

Figure E1i   **Records added to the National Biodiversity Network, 2004 to 2021.**
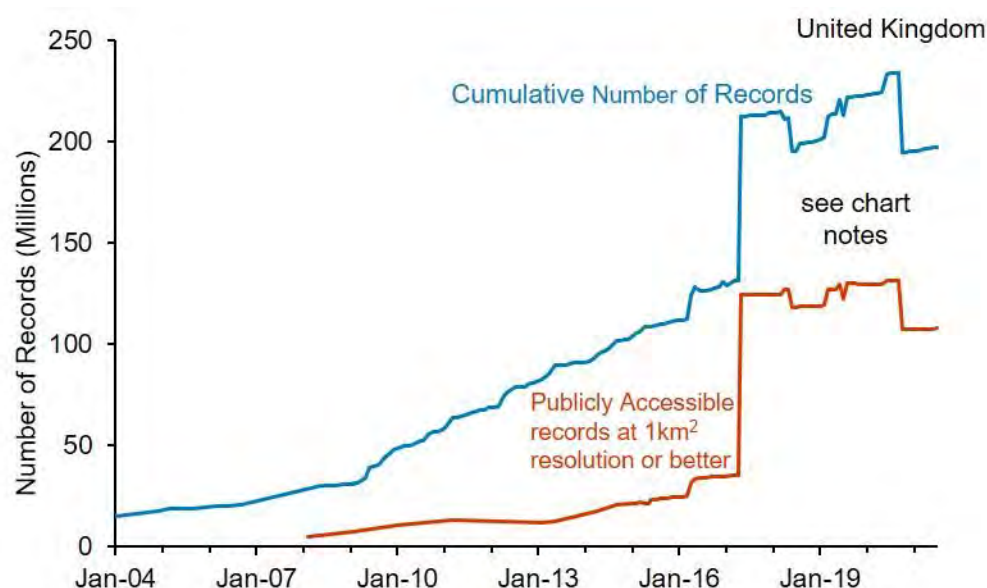
Notes:

1. The step change observed in both time series in 2017 is due to the move from the NBN Gateway to the NBN Atlas and the addition of 10 large datasets by the British Trust for Ornithology (see indicator webpage).
2. The number of records dropped in May 2018 as a result of the system behind the NBN Atlas not saving the date (timestamp field) of when the records were first created. In addition to this there were also technical challenges between the transfer of data from the Gateway to the NBN Atlas, where the NBN have had to delete records first before they are updated. Both of these problems have now been resolved.
3. The number of records dropped in September 2020 as a result of the BTO updating their datasets and aggregating many records.
4. Data available to 30 June 2021.

Source: National Biodiversity Network.

Assessment of change in data for decision making

	Long term	Short term	Latest year
Cumulative number of records	✅ 2004 to 2021	✅ 2016 to 2021	Decreased (2021)
Number of publicly accessible records at 1 km² resolution or better	✅ 2008 to 2021	✅ 2016 to 2021	Decreased (2021)

Note: Long- and short-term assessments are based on a 3% rule of thumb. Where possible, the base years for these assessments use a three-year average. See Assessing Indicators.

E2. Expenditure on UK and International biodiversity

a. Public sector expenditure on UK biodiversity

b. Non-governmental organisation expenditure on UK biodiversity

c. UK public sector expenditure on international biodiversity

Type: Response indicator

The first part of this indicator provides real-term, public sector spending on biodiversity in the UK alongside spending by non-governmental organisations (NGOs) with a focus on biodiversity and/or nature conservation. Spending is just one way of assessing the government's commitment to biodiversity.

The second part of this indicator provides real-term UK public sector spending on global biodiversity. Funding for international biodiversity is essential for the implementation of the Convention on Biological Diversity in developing countries, along with other international biodiversity policy commitments.

All total expenditure figures in this indicator are presented as financial year data and 2019/20, for example, refers to the period April 2019 to March 2020.

Key results

In 2019/20, £502 million of UK public sector funding was allocated to biodiversity in the UK. This figure equates to real-term increases of 74% since the time series began in 2000/01 and 2% in the latest year for which data have been compiled, and a real-term decrease of 25% over the last five years (Figure E2i).

Since 2000/01, public sector funding for UK biodiversity relative to gross domestic product (GDP) has fluctuated between 0.018% and 0.038%. In 2019/20, it amounted to 0.023% of UK GDP.

Spending on biodiversity in the UK by non-governmental organisations (NGOs) with a focus on biodiversity and/or nature conservation was £266 million (net of government funding) in 2019/20.

This figure represents real-term increases of 1% since 2018/19, 17% over the last five years and 34% since the indicator was first compiled in 2010/11.

Figure E2i   **Expenditure on biodiversity in the UK, 2000/01 to 2019/20.**
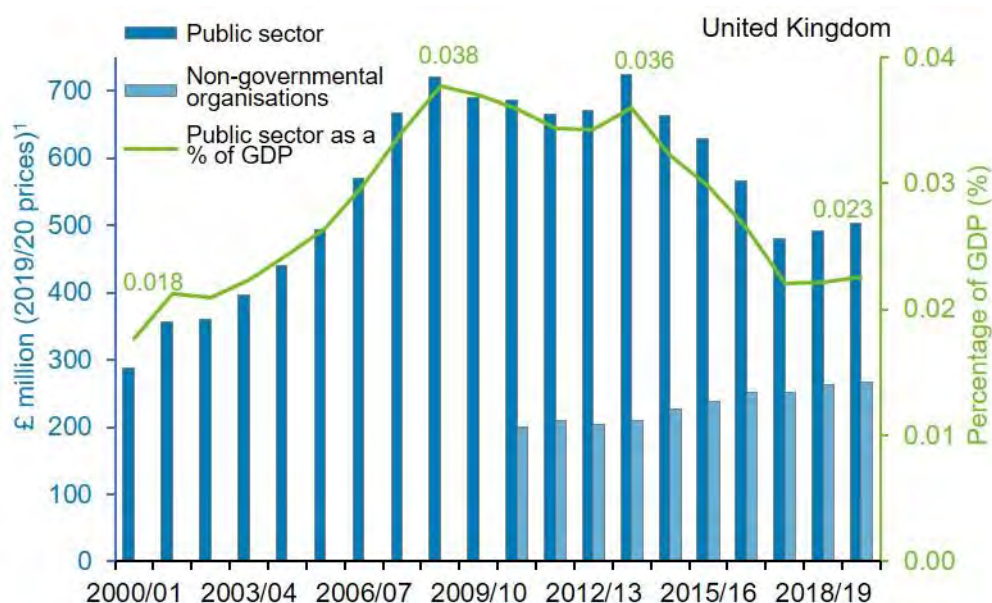
Notes:
1. Deflated using UK Gross Domestic Product (GDP) deflator. Data presented here are not directly comparable to those in previous publications because a new deflator is used to prepare each annual update.
2. Wherever possible, NGO spend is net of government funding.
3. There may be some inconsistencies in the reporting of expenditure on UK biodiversity from one year to the next (see the indicator webpage).
4. Revisions to past data series resulting from improved methodology or access to additional data can mean the chart (and figures) are not directly comparable to those presented in previous publications.

Source: Defra; HM Treasury.

In 2019/20, UK public sector funding for international biodiversity totalled £175 million. This figure equates to a real-term increase of 91% since the time series began in 2001/02 and 14% in the latest year for which data have been compiled, and a real-term decrease of 16% over the last five years (Figure E2ii). Annual changes in this measure are influenced greatly by the irregular nature of (i) contributions to the Global Environment Facility (GEF) and (ii) other Official Development Assistance (ODA) funding.

Figure E2ii   UK public sector expenditure on international biodiversity, 2001/02 to 2019/20.
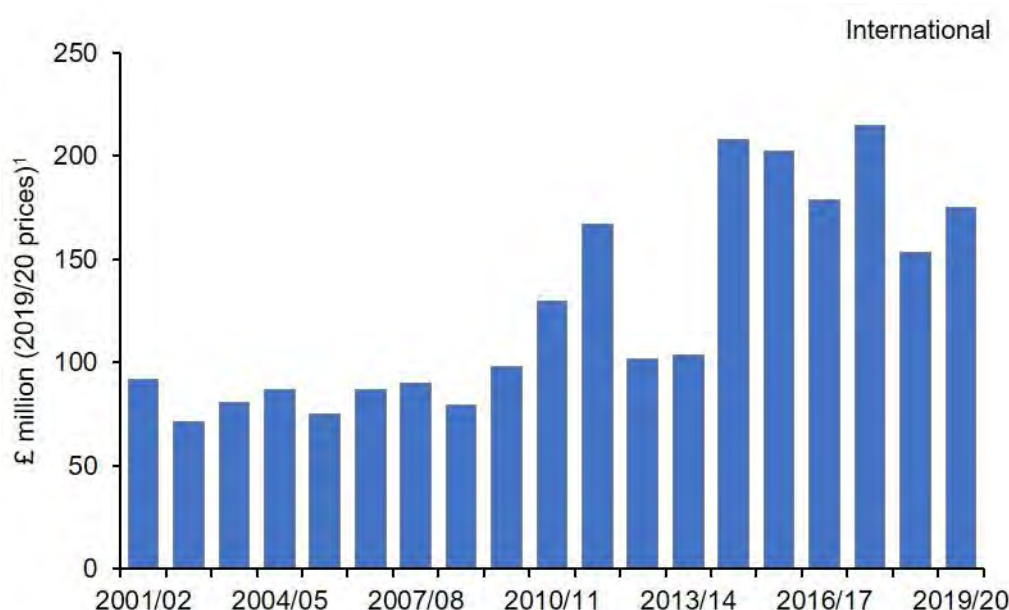

Notes:

1. Deflated using UK Gross Domestic Product (GDP) deflator. Data presented here are not directly comparable to those in previous publications because a new deflator is used to prepare each annual update.
2. There may be some inconsistencies in the reporting of expenditure on international biodiversity from one year to the next (see the indicator webpage).
3. The large fluctuations between years are mostly due to the irregular nature of (i) contributions to the Global Environment Facility (GEF) and (ii) other Official Development Assistance (ODA) funding.
4. The step change in 2014/15 is due to increased ODA funding for biodiversity related projects.
5. GEF and other ODA expenditure are reported by calendar year; they have been allocated to the financial year beginning in each relevant calendar year, for example, 2019 data are included in 2019/20.
6. Revisions to past data series resulting from improved methodology or access to additional data can mean the chart (and figures) are not directly comparable to those presented in previous publications.

Source: Defra; HM Treasury.

Assessment of change in public expenditure on biodiversity

	Long term	Short term	Latest year
Public sector expenditure on biodiversity in the UK	✓ 2000/01 to 2019/20	✗ 2014/15 to 2019/20	Increased (2019/20)
Non-governmental organisation spending on biodiversity in the UK	⋯	✓ 2014/15 to 2019/20	No change (2019/20)
UK public sector expenditure on international biodiversity	✓ 2001/02 to 2019/20	≈ 2014/15 to 2019/20	Increased (2019/20)

Note: The long-term and short-term assessment of these measures is based on a 3% rule of thumb. The base years for these assessments use a three-year average. See Assessing Indicators.

Enquiries

Enquiries about the biodiversity indicators or this publication (2021)

This publication has been produced by the Environmental Indicators, Statistics and Reporting team (Defra) working with the Joint Nature Conservation Committee (JNCC).

To allow for a thorough review of these indicators it is anticipated that there will be a pause in publication in 2022, with the next update in 2023. We are keen to know the likely impact on users so please let us have your views by emailing enviro.statistics@defra.gov.uk*. In addition, please let us know if you have any feedback you would like us to consider as part of our review or if you would like to be contacted in order to contribute directly.*

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Defra: Clare Betts, Simon Hatfield, Christine Holleran, Elaine Richards, and Karen Thomas.

JNCC: Pauline Burke, Emma Durham, Cathy Gardner, Maddy Long, Sarah Scott, and James Williams.

The UK Biodiversity Indicators Steering Group membership is drawn from the following organisations:

Centre for Environment, Fisheries and Aquaculture Science; Defra (Chair); Joint Nature Conservation Committee; Natural England; Natural Resources Wales; Northern Ireland Environment Agency; RSPB on behalf of Wildlife and Countryside Link; Scottish Government; NatureScot; and Welsh Government.

Responsible statistician:

Christine Holleran (Defra).

We would welcome feedback on this publication. If you have any comments or questions about the published biodiversity indicators please contact

- E-mail: enviro.statistics@defra.gov.uk
- Address: Biodiversity and Ecosystems Evidence and Analysis, Defra, 2nd Floor, Foss House, Kings Pool, 1-2 Peasholme Green, York YO1 7PX.

Information on other environmental statistics is also available on Defra's webpages.

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Christine Holleran at Christine.Holleran@defra.gov.uk / 0208 026 6180.

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

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 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 Experimental 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.

UK Biodiversity

Indicators 2021

JNCC

Northern Ireland
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Agency
www.ni-environment.gov.uk

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Scotland's Nature Agency
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**Cyfoeth
Naturiol**
Cymru
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