UK Biodiversity Indicators 2020

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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

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UK Biodiversity Indicators 2020

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. The indicators may be subject to further review as necessary.

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 and implementation of the Strategic Plan for Biodiversity 2011-2020.

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 2020, 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. Many indicators have a single measure, but where data cannot be combined logically, the indicator will have more than one measure. Each measure is summarised or assessed separately using a set of 'traffic lights'. The traffic lights show 'change over time'. They do not show whether the measure has reached any published or implied targets, or indeed whether the status is 'good' or 'bad', although where targets have been set, these are identified in the indicator text.

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


Improving


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 commonly 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, 2 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.[1]

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.

[1] 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.

Overview of Assessment of change for all indicators

The table below summaries 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[2]	Short-term change[3]	Last Updated	Latest Data
A1. Awareness, understanding and support for conservation			2020	2018
A2. Taking action for nature: volunteer time spent in conservation	 2000–2018	 2013–2018	2020	2018
A3. Value of biodiversity integrated into decision making	Under development		2019	Not Applicable
A4. Global biodiversity impacts of UK economic activity / sustainable consumption	Under development		2020	Not Applicable

Indicator / measure(s)			Long-term change[2]	Short-term change[3]	Last Updated	Latest Data
A5. Integration of biodiversity considerations into business activity			1999–2017	2012–2017	2019	2017
B1. Agricultural and forest area under environmental management schemes	B1a. Area of land in agri-environment schemes		1992–2019	2014–2019	2020	2019
	B1b. Area of forestry land certified as sustainably managed		2001–2020	2015–2020	2020	2020
B2. Sustainable fisheries	B2a. Percentage of marine fish stocks harvested sustainably		1990–2018	2013–2018	2020	2018
	B2b. Biomass of marine fish stocks at full reproductive capacity		1990–2018	2013–2018	2020	2018
B3. Climate change adaptation			Under development		2019	Not Applicable
B4. Pressure from climate change (Spring Index)			Not Assessed	Not Assessed	2020	2019
B5. Pressure from pollution	B5a. Air pollution	B5a(i). Area affected by acidity	1996–2017	2012–2017	2020	2017
		B5a(ii). Area affected by nitrogen	1996–2017	2012–2017	2020	2017
	B5b. Marine pollution		1990–2018	2013–2018	2020	2018
B6. Pressure from invasive species	B6a. Freshwater invasive species		1960–2019	Not Assessed	2020	2019
	B6b. Marine (coastal) invasive species		1960–2019	Not Assessed	2020	2019
	B6c. Terrestrial invasive species		1960–2019	Not Assessed	2020	2019
B7. Surface water status			2009–2019	2014–2019	2020	2019
C1. Protected areas	C1a. Total extent of protected areas: on land		1950–2020	2015–2020	2020	2020
	C1b. Total extent of protected areas: at sea		1950–2020	2015–2020	2020	2020
	C1c. Condition of Areas/Sites of Special Scientific Interest		2005–2020	2015–2020	2020	2020

Indicator / measure(s)			Long-term change[2]	Short-term change[3]	Last Updated	Latest Data
C2. Habitat connectivity			Experimental Statistic – under review		2019	2012
C3. Status of European habitats and species	C3a. Status of UK habitats of European importance		2007–2019	2013–2019	2019	2019
	C3b. Status of UK species of European importance		2007–2019	2013–2019	2019	2019
C4. Status of UK priority species	C4a. Relative abundance		1970–2018	2013–2018	2020	2018
	C4b. Distribution		1970–2017	2012–2017	2020	2017
C5. Birds of the wider countryside and at sea	C5a. Farmland birds		1970–2017	2012–2017	2020	2018
	C5b. Woodland birds		1970–2017	2012–2017	2020	2018
	C5c. Wetland birds		1975–2017	2012–2017	2020	2018
	C5d. Seabirds		Not Assessed	Not Assessed	2020	2018
	C5e. Wintering waterbirds		1975/76–2016/17	2011/12–2016/17	2020	2017-18
C6. Insects of the wider countryside (butterflies)	C6a. Habitat specialists		1976–2019	2014–2019	2020	2019
	C6b. Species of the wider countryside		1976–2019	2014–2019	2020	2019
C7. Plants of the wider countryside			Experimental Statistic – under review		2020	2019
C8. Mammals of the wider countryside (bats)			1999–2018	2013–2018	2020	2019
C9. Genetic resources for food and agriculture	C9a. Animal genetic resources – effective population size of Native Breeds at Risk	C9a(i). Goat breeds	2004–2019	2014–2019	2020	2019
		C9a(ii). Pig breeds	2000–2019	2014–2019	2020	2019
		C9a(iii). Horse breeds	2000–2019	2014–2019	2020	2019
		C9a(iv). Sheep breeds	2000–2019	2014–2019	2020	2019
		C9a(v). Cattle breeds	2000–2019	2014–2019	2020	2019

Indicator / measure(s)		Long-term change[2]	Short-term change[3]	Last Updated	Latest Data
	C9b. Plant genetic resources – Enrichment Index	1960–2018	2013–2018	2018	2018
D1. Biodiversity and ecosystem services	D1a. Fish size classes in the North Sea	1983–2019	2014–2019	2020	2019
	D1b. Removal of greenhouse gases by UK forests	1990–2018	2013–2018	2020	2018
	D1c. Status of pollinating insects	1980–2017	2012–2017	2020	2017
E1. Biodiversity data for decision making	E1a. Cumulative number of records	2004–2020	2015–2020	2020	2020
	E1b. Number of publicly accessible records at 1km^2 resolution or better	2008–2020	2015–2020	2020	2020
E2. Expenditure on UK and international biodiversity	E2a. Public sector expenditure on UK biodiversity	2000/01–2018/19	2013/14–2018/19	2020	2018/19 financial year
	E2b. Non-governmental organisation expenditure on UK biodiversity		2013/14–2018/19	2020	2018/19 financial year
	E2c. UK public sector expenditure on international biodiversity	2001/02–2018/19	2013/14–2018/19	2020	2018/19 financial year

[2] 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.

[3] Short-term – an assessment of change over the latest five years. Indicators C3a and C3b have a six year short-term assessment.

Improving

Deteriorating

Little or no overall change

Insufficient or no comparable data

The individual assessments for each measure can be combined to produce an overall picture of progress made. The charts below display the numbers of measures that have shown an improvement (green traffic light), deterioration (red traffic light), little or no overall change (amber traffic light), or that have insufficient data for an assessment to be made (white traffic light).

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 2011-2020. The targets are known as 'Aichi Targets', after the province in Japan where they were agreed. The Strategic Plan has five goals (A–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.

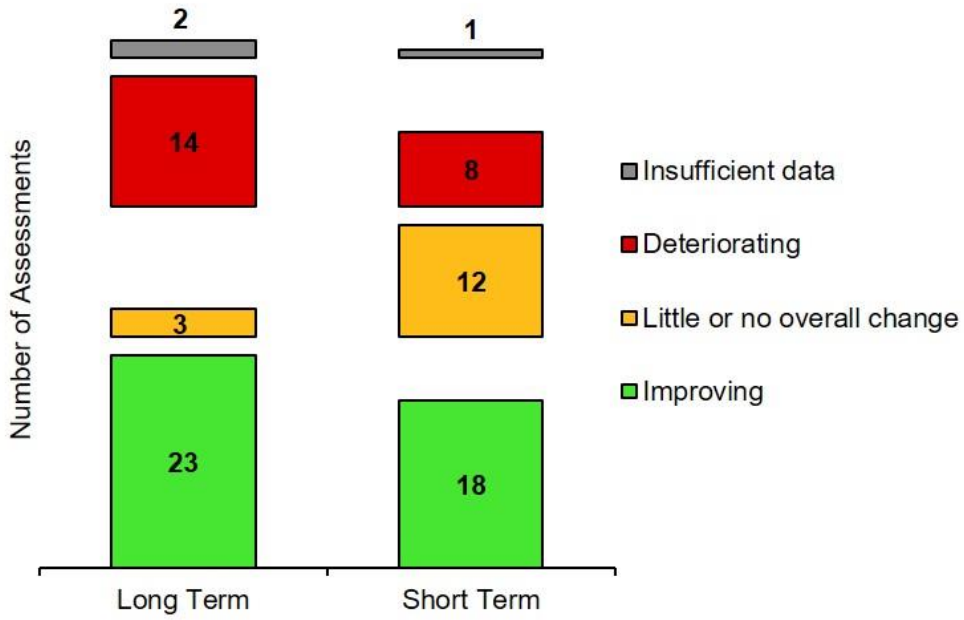
B. Reduce the direct **pressures** on biodiversity and promote sustainable use.

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.

Assessment of Change: all measures



The UK biodiversity indicators set comprises 24 indicators and 52 measures. Of these, ten measures are not assessed in the long-term, and thirteen in the short term, as the measures are either under development, or analytical methods for short-term assessment need to be refined. In this 2020 publication, 24 indicators have been updated.

Twenty-three of the 42 measures assessed over the long term show an improvement, compared to 18 of the 39 measures that are assessed over the short term. Fourteen measures show a decline in the long term, and eight 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.

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

i. Methodological changes to the Pressure from climate change – Spring Index indicator (B4) to allow more data to be used.

ii. Methodological changes to the Insects of the Wider Countryside indicator (C6), to take account of colonisation by species of new sites.

iii. Publication of a new plant indicator (C7, comprising four measures) based on the National Plant Monitoring Scheme.

A1. Awareness, understanding and support for conservation

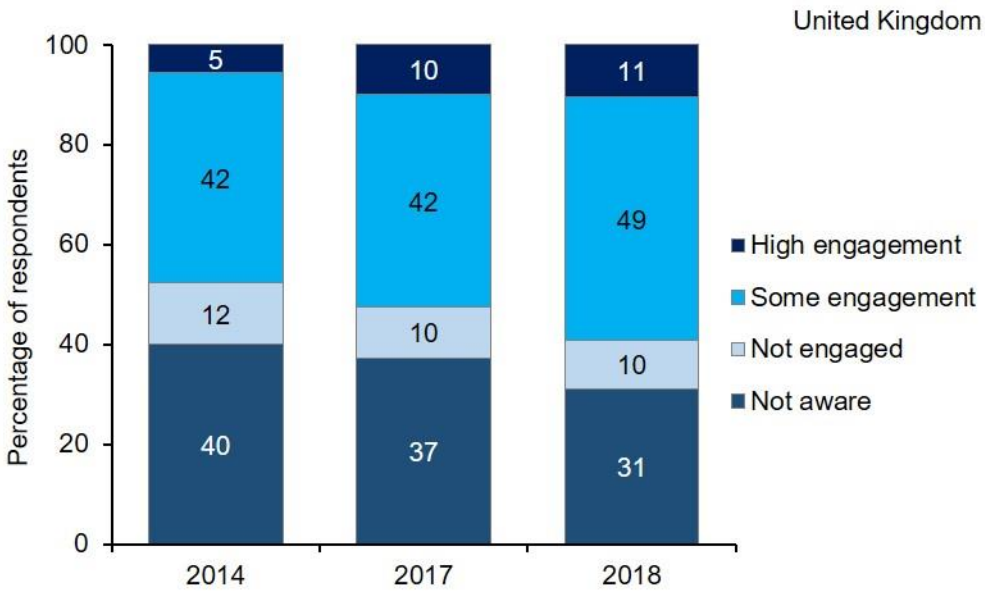
Type: Response indicator

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.

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 4 countries in the UK - which each run surveys in a slightly different manner. Some changes have occurred to the surveys over time.
   - England run the Monitor of Engagement in the Natural Environment survey annually.
   - Scotland run the Scottish Nature Omnibus Survey every 2 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 2015/16, so the data from the CHS 2014/15 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

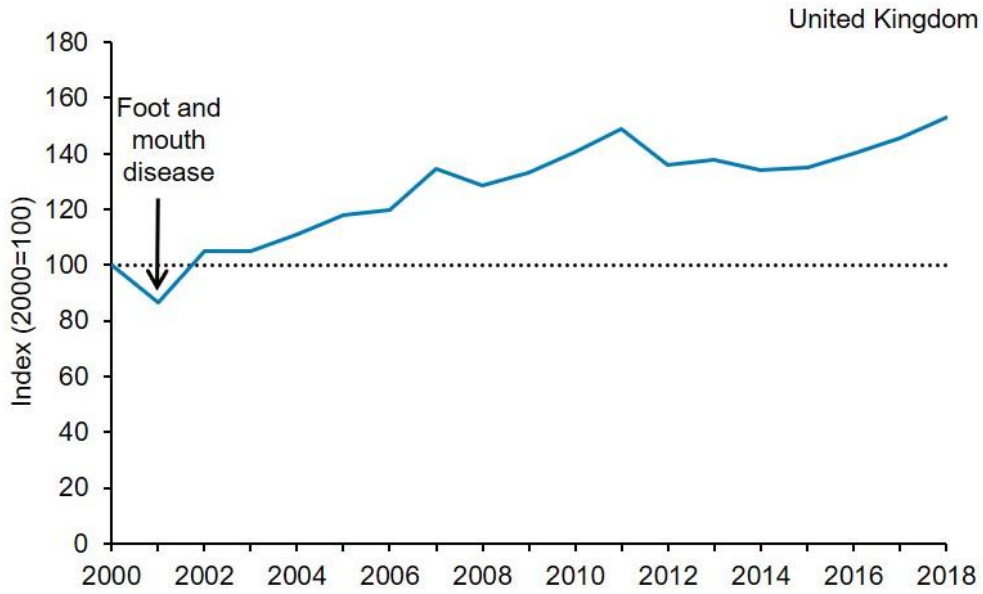
This indicator presents an index of the number of hours worked by volunteers for 14 UK conservation charities and public bodies (including National Parks England which represents all National Parks in England – see the indicator webpage). Conservation volunteering includes any voluntary activity for 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 2018, the amount of time volunteers contributed to conservation activities in the UK increased by 53%. It also increased by 11% in the 5 years to 2018 and by 5% 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 2018.



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, Royal Society for the Protection of Birds 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. 2018/19 data were allocated to 2018).
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, The Wildlife Trusts, Woodland Trust.

Assessment of change in volunteer time spent in conservation

	Long term	Short term	Latest year
Conservation volunteering	2000–2018	2013–2018	Increased (2018)

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

A3. Value of biodiversity integrated into decision making

Indicator under development – progress to date

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.

Key results

No change from the previous publication and there are no plans for further development of this indicator.

Aichi Target 2 is focussed on mainstreaming biodiversity into national- and local-level decision making processes. Indicator A3 could focus on a number of areas, including the extent of schemes involving payments for ecosystem services, and progress in developing ecosystem accounts within the national accounting framework.

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

Indicator under development – progress to date

Indicator under development. Production and consumption in the UK has an impact on the natural environment beyond our shores through the import and export of goods and services. A range of research work has been undertaken, and progress is being made towards developing an indicator.

Key results

Additional research work was undertaken in 2019/20. The next step is to develop a basic indicator and time series as an experimental statistic.

Research has been undertaken to (i) assess how patterns of UK consumption impact on the key drivers of biodiversity change overseas and (ii) identify options for mitigating those impacts. This research includes:

- Analysis and modelling of trade pathways and supply chains for goods and services in order to identify important sources of production; and

- Identification of the potential impact of key production systems and products on biodiversity.

During 2018/19, work was undertaken under contract to the Joint Nature Conservation Committee (JNCC) to review literature and test the extension of multi-regional input-output modelling to measure environmental impact. The aim was to develop an indicator to support the 25 Year Environment Plan. Characterisation factors from the European Commission's Life Cycle Impact project were used to convert several important pressures on biodiversity (land use, water use and nitrogen / phosphorous emissions) that are caused by UK consumption into the risk of biodiversity loss from each pressure. This was broken down by sector and by production country. This work has been peer reviewed and is awaiting publication.

During 2019/20, JNCC completed further research internally, which focused on:

- Setting the direction for building an overall footprint-style indicator to measure the total overseas environmental impacts of UK consumption (including biodiversity loss), which would ultimately respond to multiple policy levers;
- Providing a roadmap for developing evidence to support setting more specific targets for particular policy priorities and the relationship of this to an overall footprint indicator. It is envisaged that a 'second tier' of more detailed indicators will be needed to help track specific targets;
- Identifying the tools and techniques that can help a range of policy levers to reduce the environmental impacts of consumption, including risk of biodiversity loss.

The roadmap recommends that the indicator is developed in 2 phases. The first phase should focus on development of a basic indicator and time series as an experimental statistic, using the simplest and most readily available pressure metrics (such as land use and water use). The second phase should take place over a longer time period and incorporate more innovative impact metrics (such as deforestation and biodiversity loss) and improvement of the methodology, as well as consultation and investigation of how the indicator is interpreted.

A5. Integration of biodiversity considerations into business activity

Type: Response indicator

This indicator shows the number of ISO ('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

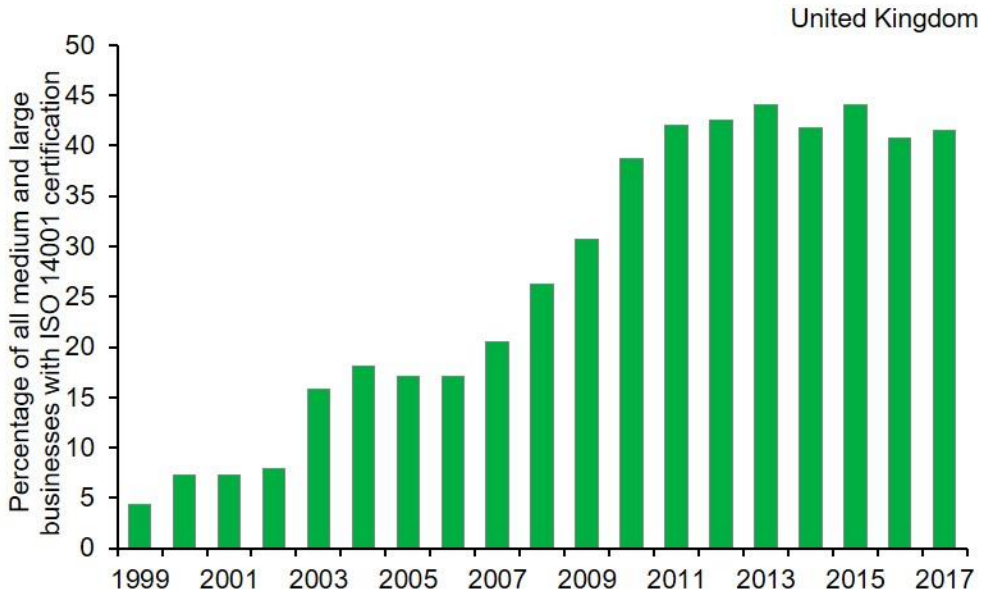
This indicator has not been updated for the 2020 publication. ISO, who provide the number of 14001 certifications, refined their 2018 survey and published 2018 results that are considered to be a better reflection of the situation of the market. However, they are not comparable to previous results due to adjustments made by some of the providers of data in relation to the number of certificates, sites and sectors. This indicator will be updated when more results from the refined survey become available.

In 2017, the number of ISO[4] ('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 41.5% (Figure A5).

[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.

This represents a long-term increase of more than 550% since the ISO Environmental Management System standard was first introduced in 1999; a small, short-term decrease of 3% since 2012; and a similarly small increase of 2% in the most recent year for which data are available.

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, 1999 to 2017.



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	1999–2017	2012–2017	Increased (2017)

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

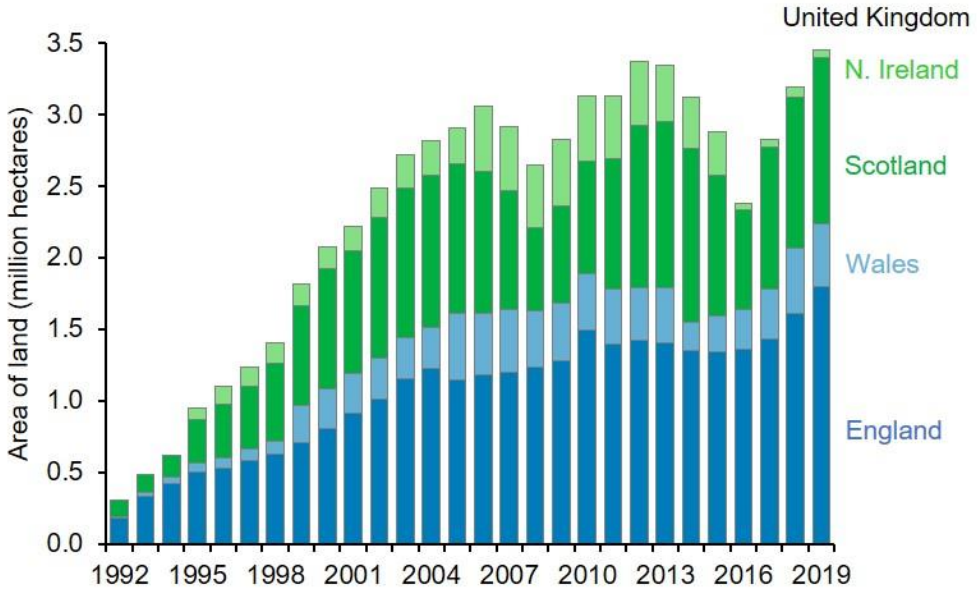
access and understanding of the countryside. The entry-level type schemes aim to encourage large numbers of land managers, to implement simple and effective environmental management on their land.

Key results

In 2019, the total area of land in higher-level or targeted agri-environment agreements in the UK was 3.5 million hectares: 1.8 million hectares in England; 0.4 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 until they expire.

Figure B1ai Area of land covered by higher-level or targeted agri-environment schemes, 1992 to 2019.



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). England Mid-Tier and Higher-Tier schemes of the new Countryside Stewardship both contribute to 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).

   N 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	1992–2019	2014–2019	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 3-year average. See Assessing Indicators.

b. Area of forestry land certified as sustainably managed

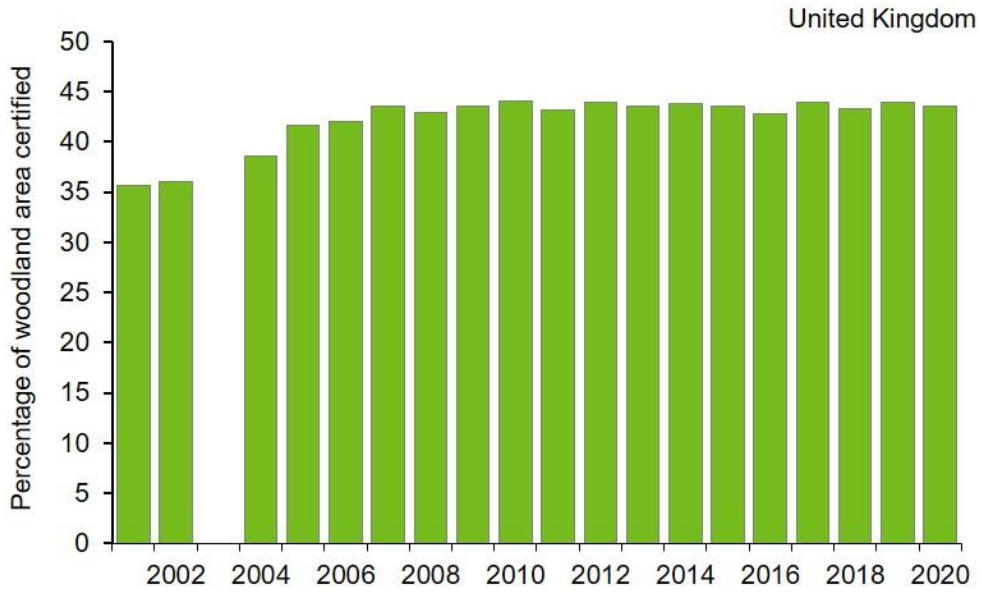
Type: Response indicator

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 2020, there were 1.4 million hectares of certified woodland across the UK, representing 43% of the total woodland area. The proportion of woodland certified as sustainably managed has remained stable at either 43% or 44% since 2007.

Figure B1bi Percentage of woodland area certified as sustainably managed, 2001 to 2020.



Notes: All figures relate to data at 31st March, apart from 2001 (31st December) and 2002 (30th September), with regular data collection from 2004.

Source: Forest Research.

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 43% in 2020. The percentage of woodland certified as sustainably managed in the UK remains relatively stable with a slight decrease in the latest year.

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.

Assessment of change in area of woodland certified as sustainably managed

	Long term	Short term	Latest year
Percentage of woodland certified	2001–2020	2015–2020	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 3-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.

The indicator comprises 2 measures assessed separately: a) the percentage of stocks fished at or below the level capable of producing Maximum Sustainable Yield (MSY); and b) the percentage of stocks with biomass above the level capable of producing MSY.

Key results

The percentage of fish stocks (including Norway lobster, *Nephrops norvegicus*) fished at or below levels capable of producing maximum sustainable yield (F_{MSY}) has increased from 9% in 1990 to 51% in 2018.

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 (i.e. MSY $B_{trigger}$). The percentage of stocks subject to quota management and achieving this goal has also increased, from 32% in 1990 to 61% in 2018.

Overall a positive trend towards a greater proportion of stocks fished sustainably and within safe biological limits is evident in both the long and short term.

Figure B2a **Percentage of marine fish (quota) stocks of UK interest harvested sustainably, 1990 to 2018.**

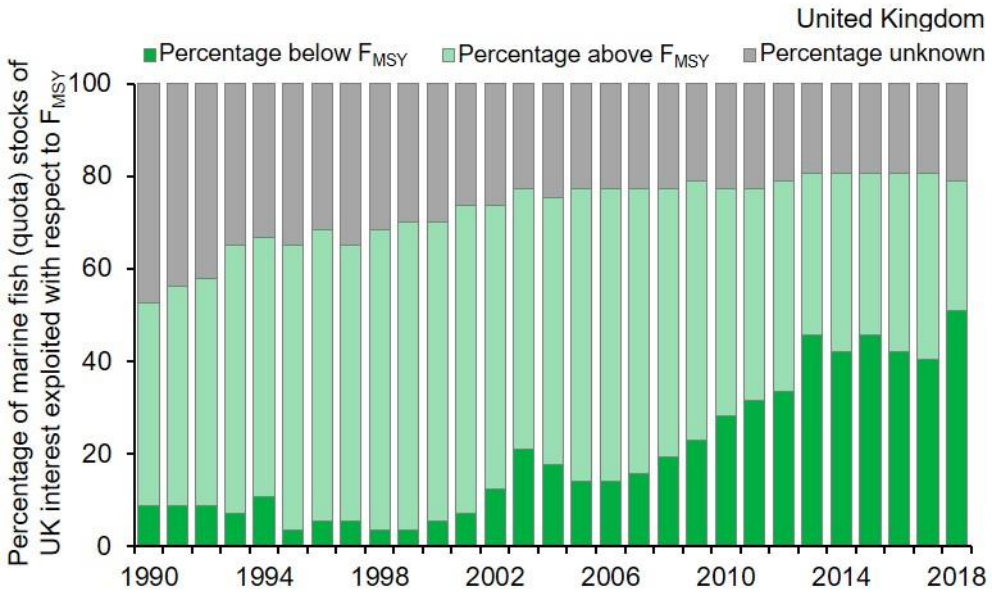
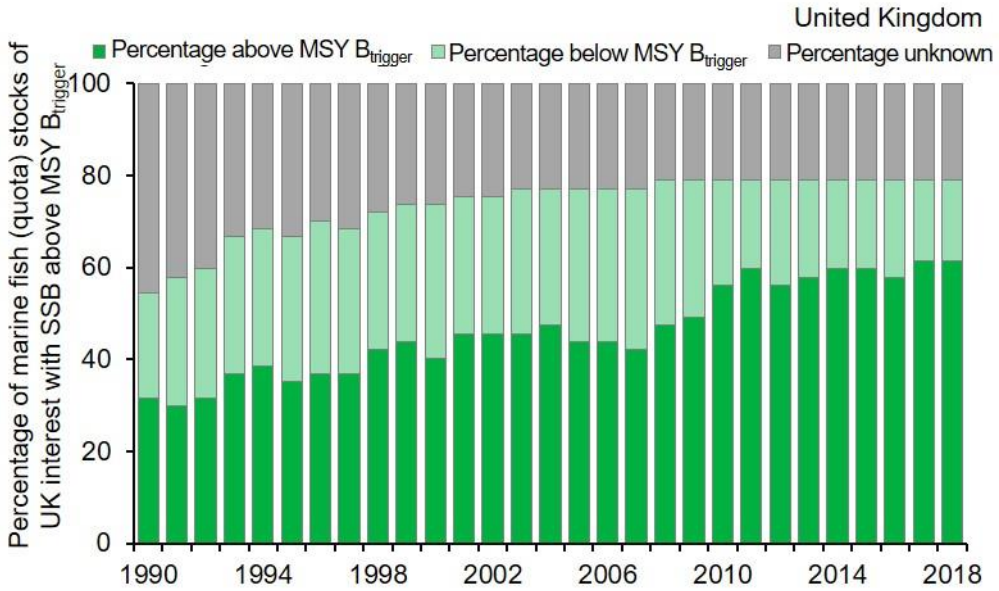


Figure B2b **Percentage of marine fish (quota) stocks of UK interest with biomass at levels that maintain full reproductive capacity, 1990 to 2018.**



Notes:

1. Based on 57 stocks for which data are available, derived from stock assessment reports.
2. The list of stocks used within the indicator was expanded in 2017, so publications of the indicator using data prior to 2017 are not directly comparable. Note that Defra first published this indicator using the expanded list of stocks in 2019.
3. The 2020 publication is not directly comparable with the previous publication: As data are added to time-series and stock assessment models are refit, small changes can occur in past estimates even if the model structure is not itself revised.

Source: Centre for Environment, Fisheries and Aquaculture Science; International Council for the Exploration of the Sea.

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

	Long term	Short term	Latest year
Percentage of fish stocks harvested sustainably	✓ 1990–2018	✓ 2013–2018	Increased (2018)
Biomass of stocks at full reproductive capacity	✓ 1990–2018	✓ 2013–2018	No change (2018)

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

B3. Climate change adaptation

Indicator under development – progress to date

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.

Key results

No change from the previous publication and there are no plans for further development of this indicator.

According to the UK Meteorological Office, the average temperature over the first decade of the 21st century was significantly warmer than any preceding decade in the series of records stretching back over 160 years. In the Climate Change 2014 Synthesis report Summary for Policymakers the Intergovernmental Panel for Climate change concluded in paragraph SPM 1.2 that '*Anthropogenic greenhouse gas emissions have increased since the pre-industrial era, driven largely by economic and population growth, and are now higher than ever. This has led to atmospheric concentrations of carbon dioxide, methane and nitrous oxide that are unprecedented in at least the last 800,000 years. Their effects, together with those of other anthropogenic drivers, have been detected throughout the climate system and are extremely likely to have been the dominant cause of the observed warming since the mid-20th century'.* Model simulations indicate that global surface temperature change by the end of the 21st century is likely to exceed 1.5 degrees Celsius relative to 1850.

The IPCC's Fourth Assessment Report defines climate change adaptation as 'adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities'. 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.

Climate change indicators potentially need to cover a breadth of issues. Previous work highlighted possibilities to develop measures relating to water stress in protected areas, and gains and losses in coastal habitats, but a number of technical issues have meant that it is not possible to collate and present UK-wide data as previously expected.

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 4 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*).

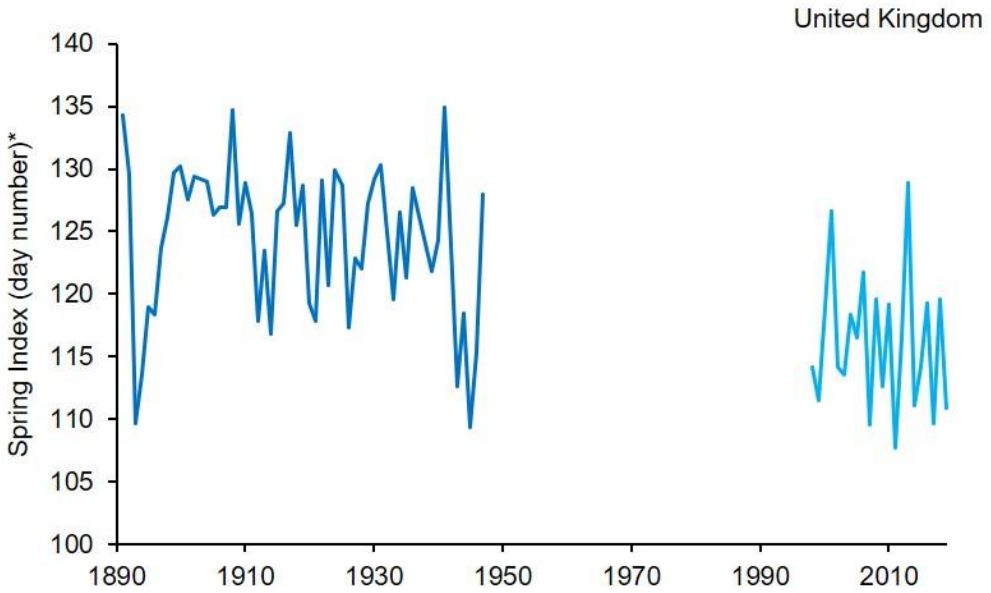
Until 2018 the overall index was compiled by calculating an annual mean across all sites where all 4 biological events were recorded. In order to include more data in the calculation the method was changed in 2019 and the overall index was compiled by calculating an annual mean for each species using all available data and averaging these four means (see the indicator webpage for further information). This new method of calculation has been applied to all previous years retrospectively.

Key results

Since 1998, the annual mean observation dates have been around 8 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 7 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 2019.**



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 2019 – 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 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

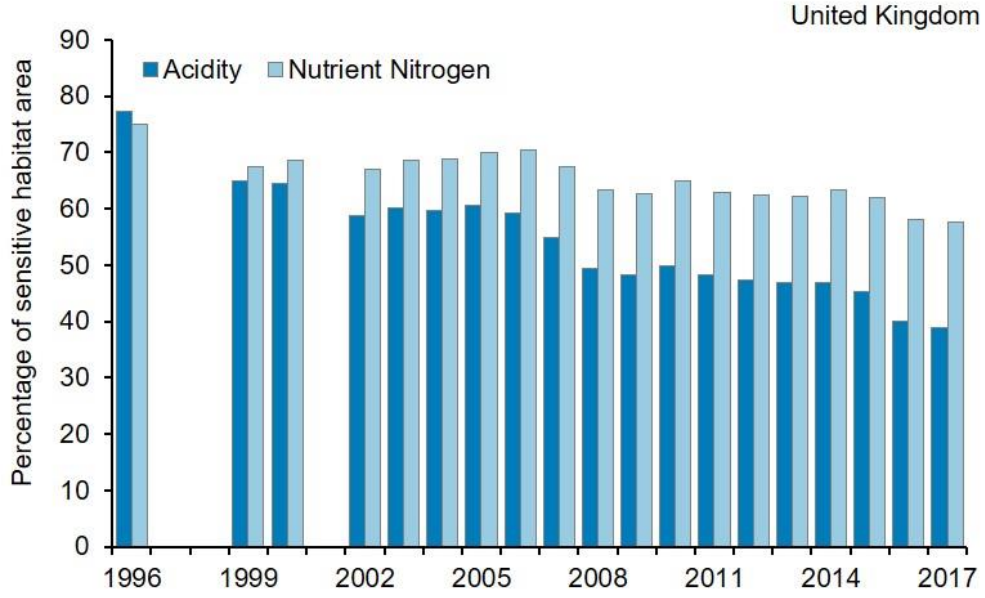
Type: Pressure indicator

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 is sensitive to acidification, and a third to eutrophication (with some areas 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[5], but there has been less change in the percentage of areas exceeding the critical load for nutrient nitrogen deposition (eutrophication). In 2017, acid deposition exceeded critical load in 39% of sensitive terrestrial habitats and nitrogen deposition exceeded critical load in 58% of sensitive habitats.

Figure B5ai Percentage area of sensitive terrestrial UK habitats exceeding critical loads for acidification and eutrophication, 1996 to 2017[5].



Notes:

1. Each bar represents a 3-year average of deposition data, to reduce year-to-year variability.
2. Since 2002, nitric acid has been included in the estimates of nitrogen deposition, and since 2003 aerosol deposition loads of sulphate, nitrate and ammonium have also been included. 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.
4. The method for calculating acid-sensitive habitat area has changed since the last edition of this publication. The area of acid-sensitive habitats now excludes catchments above acid-sensitive freshwater locations, which had led to overlaps. Numbers for all preceding years have been recalculated, so results and trends presented here are internally consistent but may differ from those in previous reports.

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	1996–2017	2012–2017	Decreased (2017)
Area affected by nitrogen	1996–2017	2012–2017	Decreased (2017)

[5] For ease of reference, time periods are usually referred to using the middle year of the 3 years used to calculate the mean. For example, “1996” refers to the time period 1995 to 1997. In figure B5ai “1996 to 2017” refers to the time period 1995-1997 to 2016-18.

Note: Long and short-term assessments are based on a direct comparison of the 2 relevant data points, using a 3% rule of thumb. See Assessing Indicators.

Critical loads are thresholds for the deposition of pollutants causing acidification and/or eutrophication above which significant harmful effects on sensitive habitats may occur. Approximately 70,000km^2 of UK terrestrial habitats is sensitive to acid deposition. About 73,000km^2 is sensitive to eutrophication; much of this is sensitive to both.

b. Marine pollution

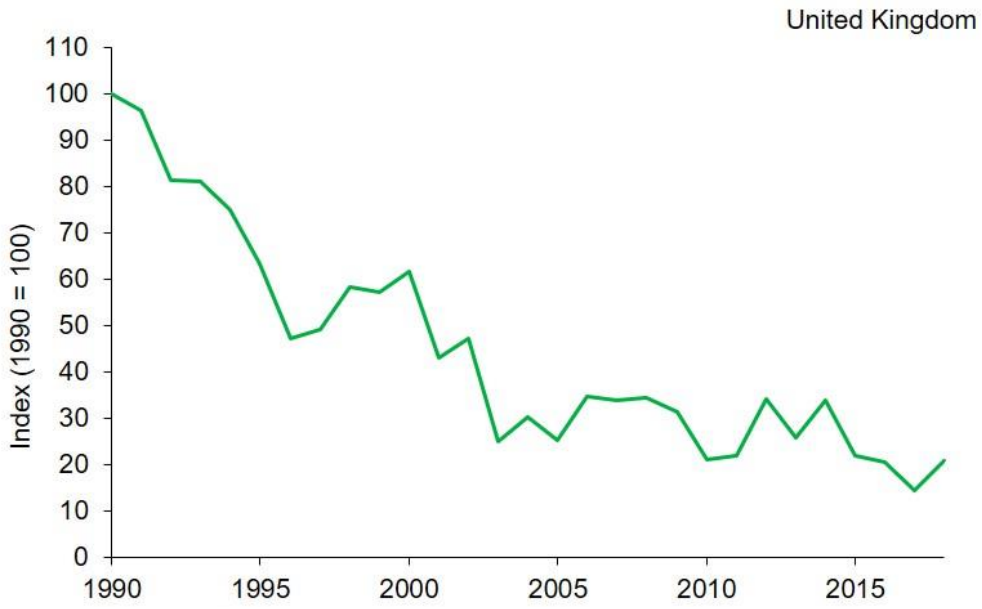
Type: Pressure indicator

The indicator shows the combined input of 6 of the most hazardous substances to the UK marine environment. The indicator is based on levels of 5 heavy metals (cadmium, mercury, copper, lead and zinc) and one organic compound (lindane). Pollution in the marine environment from these 6 substances should decrease to levels that are non-detrimental by 2020

Key results

The combined inputs of all 6 of the hazardous materials included within this indicator have shown a long-term decrease of 79% since 1990. In the short term (since 2013), inputs of 5 out of 6 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 2018.



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 6 substances declined over the period 1990 to 2018. The heavy metals, mercury, cadmium, lead, copper and zinc decreased by 92%, 89%, 67%, 60% and 53%, respectively. The organic compound lindane decreased by 84%. In the short term, the combined inputs of all 6 hazardous substances decreased by 33% from 2013 to 2018 (using a 3-year average for 2013). Inputs for 5 out of the 6 of the hazardous substances declined in the short term: lead had the highest percentage decrease (-49%), cadmium and mercury both decreased by 43%, lindane by 42%, and copper by 19%. By contrast, zinc increased by 7%.

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

	Long term	Short term	Latest year
Combined input of hazardous substances	1990–2018	2013–2018	Increased (2018)

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

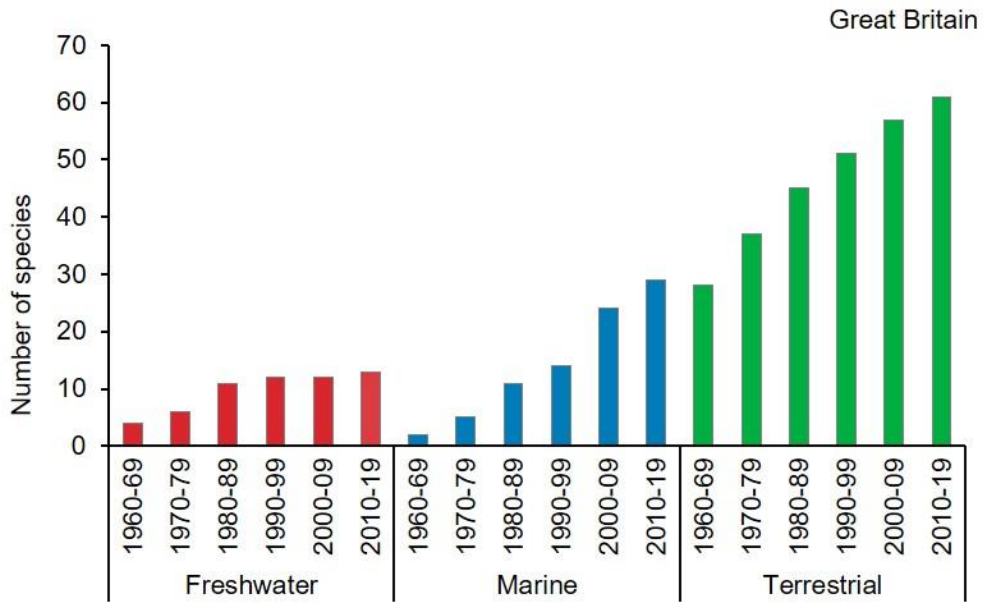
Key results

There are 3,224 non-native species in Great Britain, 2,010 of which are classified as established (reproducing in the wild). This indicator contains 193 non-native species that are considered to be exerting a negative impact on native biodiversity (46 freshwater species, 39 marine species and 108 terrestrial species). The majority (187) of these species are established; six[6] are long-term residents but not known to breed in the wild.

Over the period 1960 to 2019, 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).

[6] The 6 long-term resident species included the indicator are 2 species of terrapin (*Emys orbicularis* and *Trachemys scripta*) and 4 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 2019.**



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	1960–2019	Not assessed	Not assessed
Marine (coastal) invasive species	1960–2019	Not assessed	Not assessed
Terrestrial invasive species	1960–2019	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 (2010 to 2019) with the previous one (2000 to 2009), 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 freshwater environments (from 12 to 13 species) marine (from 24 to 29 species) and terrestrial environments (from 57 to 61 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 EU, through a 6-yearly cycle of planning and implementing measures to protect and improve the water environment. 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

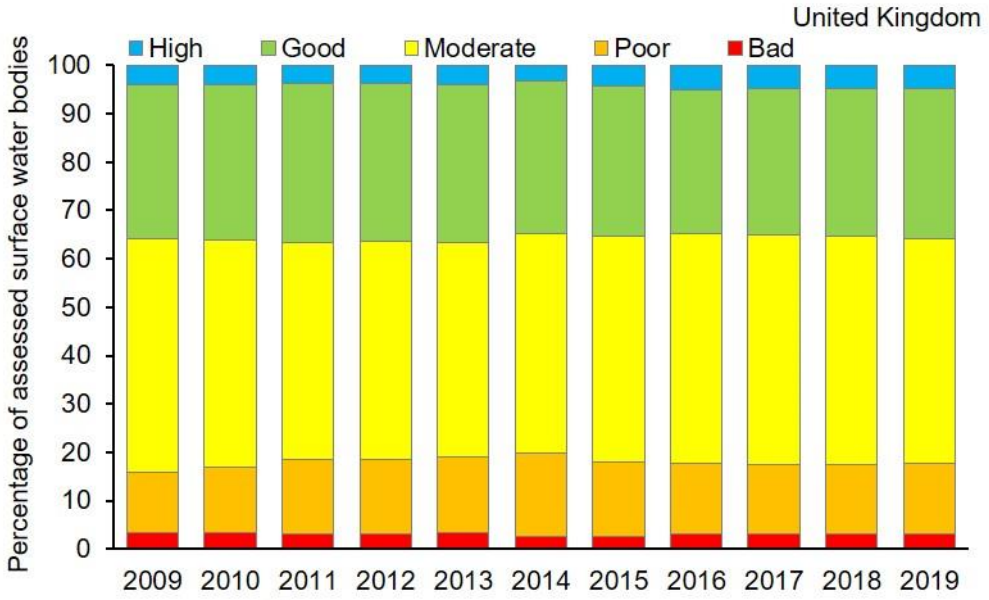
surface water status classification under the WFD. Around 10,000 water body assessments are included in the indicator each year; including rivers, canals, lakes, estuaries and coastal waters.

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 2014 and 2019 (Figure B7i).

In 2019, 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 2014.

Figure B7i Status classification of UK surface water bodies under the Water Framework Directive, 2009 to 2019.



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 3-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 will report next in 2021; England reported in 2016 and whilst due to report in 2020, the data was not available in time for inclusion in this publication. 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; and 9,301 in 2019.
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	2009–2019	2014–2019	No change (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 3-year average. See Assessing Indicators.

C1. Protected areas

a. Total extent of protected areas: on-land

b. Total extent 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 2 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.

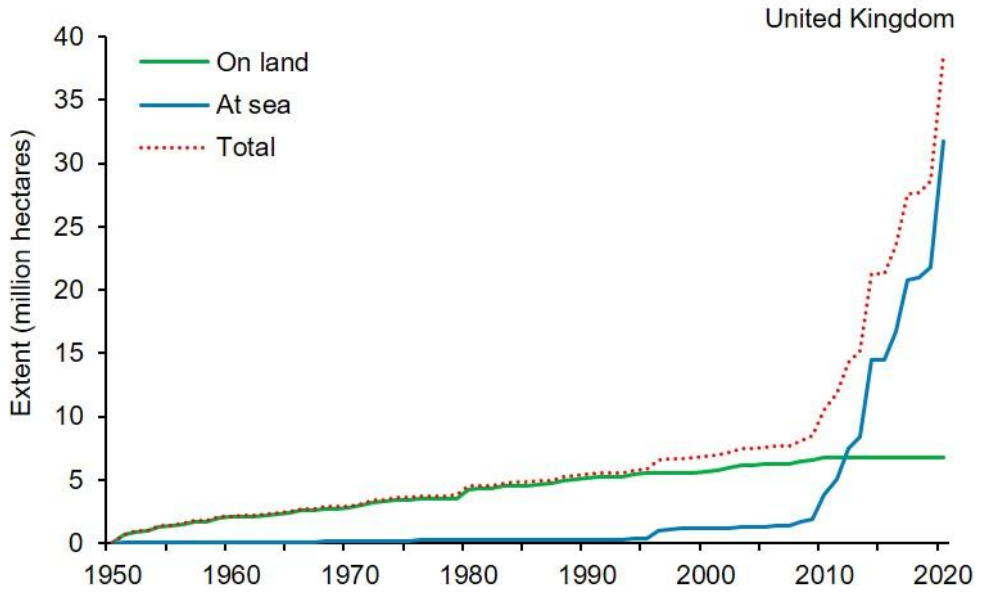
Key results

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 17.3 million hectares (MHa), from 21.3 MHa in December 2015 to 38.6 MHa as at 25 September 2020 (Figure C1i).

This increase is almost entirely down to the designation of inshore and offshore marine sites under the European Union (EU) Habitats Directive, the designation of Marine Conservation Zones (MCZ) in English, Welsh, and Northern Irish waters, and designation of Nature Conservation Marine Protected Areas (NCMPA) in Scottish waters. The extent of protected areas on land has increased by 14,462 hectares since 2015.

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 86% in 2015, and remained stable at 85% in 2020 (Figure C1ii). The proportion of features or area of land in unfavourable-recovering condition (the light blue part of Figure C1ii) has increased from 14% in 2005 to 35% in 2020. 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 2020.

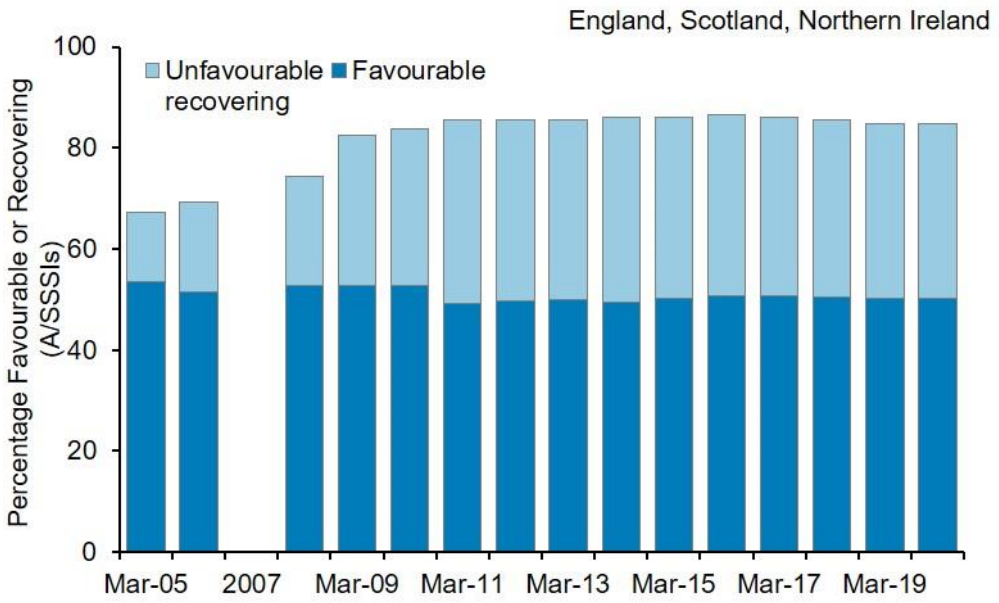


Notes:

1. The boundary between protected areas on land and at sea is mean high water (mean high water spring 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 2020, the data cut-off for terrestrial sites was 31 March with the exception of an extension to the Suffolk Coast and Heaths Area of Outstanding Natural Beauty calculated on 24 July 2020 and the cut-off for marine sites was 25 September due to the addition of a large Marine Protected Area in Scottish waters designated on 25 September but before publication of the 2020 UK Biodiversity Indicators.
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 for further details).
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, Northern Ireland Environment Agency, NatureScot.

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 2020.**



Notes:

1. England figures based on area. Scotland and Northern Ireland figures based on number of features.
2. 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.
3. Imputation has been used to calculate the breakdown between favourable and unfavourable-recovering for Northern Ireland for the years 2009 to 2011.
4. Figures exclude condition of Areas/Sites of Special Scientific Interest notified for geological features only.

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

Assessment of change in extent and condition of UK protected areas

	Long term	Short term	Latest year
Total extent of protected areas: on land	1950–2020	2015–2020	No change (2020)
Total extent of protected areas: at sea	1950–2020	2015–2020	Increased (2020)
Condition of A/SSSIs.	2005–2020	2015–2020	No change (2020)

Note: Assessment of this indicator is based on comparison of latest data point with a 3-year average from the baseline, using the 3 earliest consecutive years available. See Assessing Indicators.

C2. Habitat connectivity

Experimental Statistic: The UK biodiversity indicators project team would welcome feedback on the novel methods used in the development of this indicator.

Type: State indicator

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.

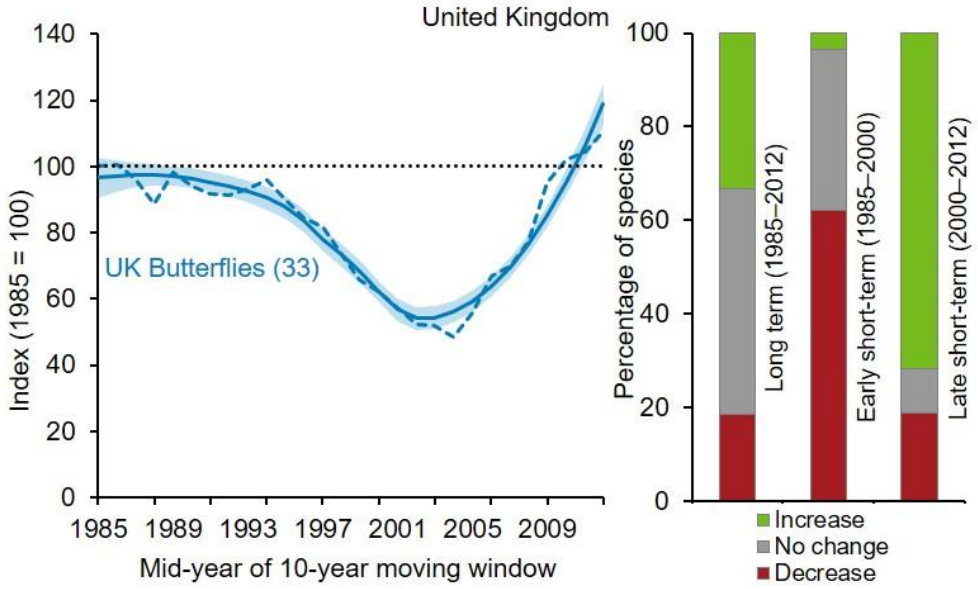
Key results

No change from the previous publication. This indicator is currently an experimental statistic and plans are ongoing to gain peer review.

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 base-line 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)[7], 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

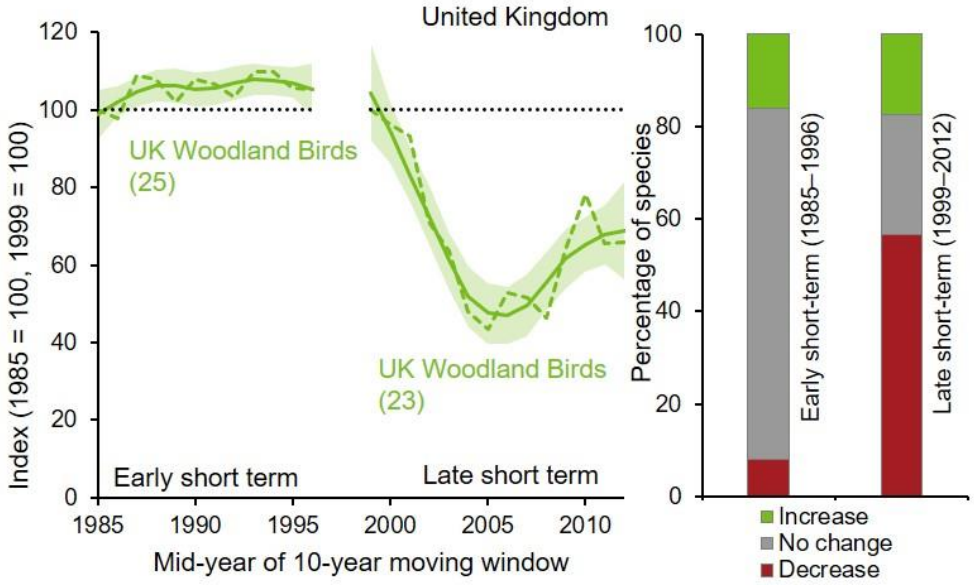
[7] There is no assessment of the long-term trend or the numbers of species that have increased, deceased or shown no change over the long term because of the break in the time series between 1996 and 1999.

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 3 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 3 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 2 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 2 time periods (early short term, 1985 to 1996; and late short term, 1999 to 2012).

Source: British Trust for Ornithology, University of Reading.

As this is an experimental statistic it has not been assessed. The UK biodiversity indicators project team would welcome views on whether Figure C2i and/or Figure C2ii should be the headline measure, together with comments on the value of this new indicator (i.e. is this measuring

something readers feel should be measured?) and the quality of the new indicator (i.e. how well does it measure connectivity?).

C3. Status of European habitats and species

a. Status of UK habitats of European importance

Type: State indicator

Member States of the European Union are required to report every 6 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 has European level conservation responsibilities.

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

Key results

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

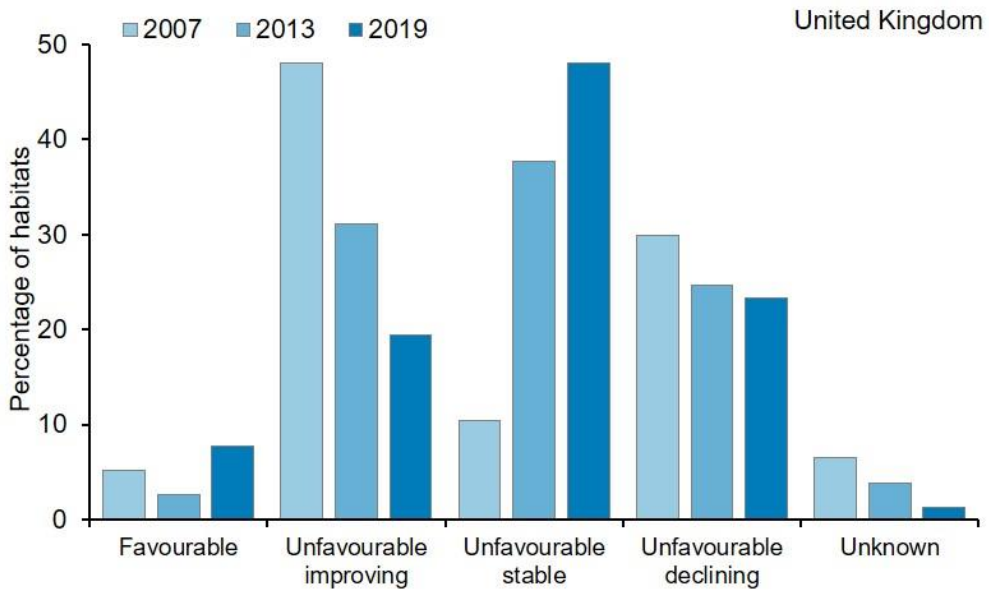
In 2007, 5% of UK habitats listed in Annex I of the EU Habitats Directive were in favourable conservation status, this figure decreased to 3% in 2013 before increasing again to 8% in 2019 (Figure C3ai).

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 and 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 habitats of European importance

	Long term	Short term	Latest year
Percentage of UK habitats of European importance in favourable or improving conservation status	2007–2019	2013–2019	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 6 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

Member States of the European Union are required to report every 6 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 has European level conservation responsibilities.

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

Key results

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

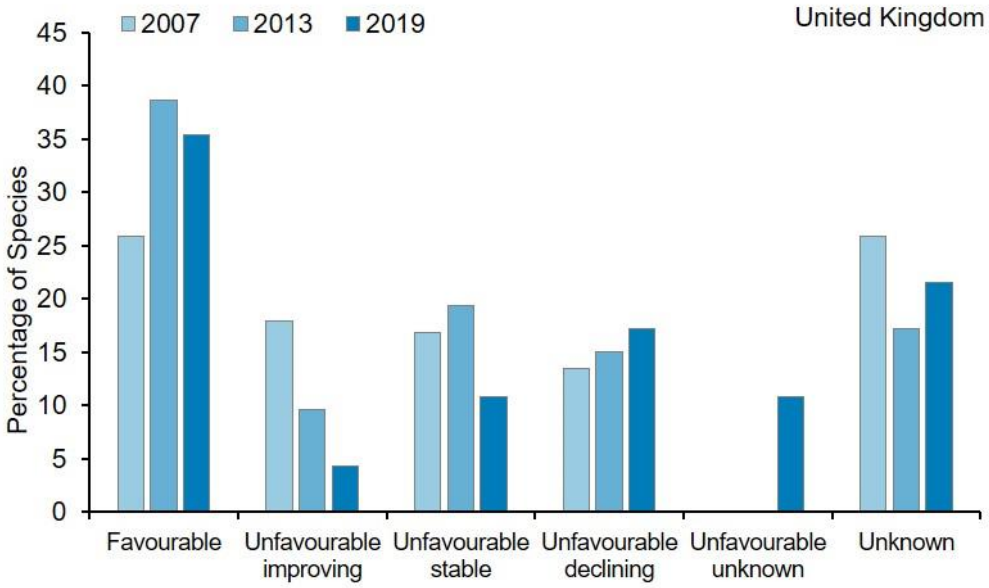
In 2007, 26% of UK species listed in Annexes II, IV or V of the Habitats Directive were in favourable conservation status, this figure increased to 39% in 2013 before decreasing again to 35% in 2019 (Figure C3bi).

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 habitats and 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	2007–2019	2013–2019	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 6 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. The relative abundance of each priority species in this indicator is the estimated population (abundance) of that species in the latest year of the time series taken as a percentage of its estimated population in the earliest year of the time series (i.e. the base year). 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.

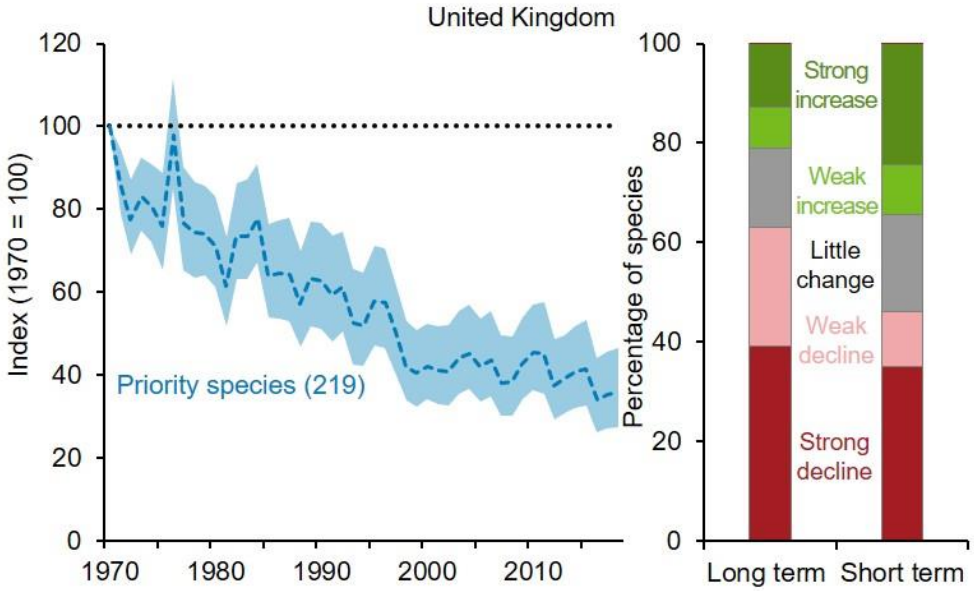
Key results

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 219 species for which abundance trends are available.

By 2018, the index of relative abundance of priority species in the UK had declined to 36% 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 63% showed a strong or weak decline.

Between 2013 and 2018, the indicator did not change significantly, with species on average declining 7% between 2013 and 2018. Over this short-term period, 34% of species showed a strong or weak increase and 46% showed a strong or weak decline.

Figure C4ai Change in the relative abundance of priority species in the UK, 1970 to 2018.



Notes:

1. The line graph shows the unsmoothed trend (dashed line) with its 95% confidence interval (shaded area).
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 to 219.

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, Rothamsted Research, Royal Society for the Protection of Birds.

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

	Long term	Short term	Latest year
Priority species – Relative abundance	 1970–2018	 2013–2018	Increased (2018)

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

Of the 2,890 species in the combined priority species list, the 219 for which robust quantitative time series of relative species abundance are available are included in the indicator. These 219 species include birds (103), butterflies (23), mammals (13) and moths (80). This selection is taxonomically limited at present; 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 1km 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. 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

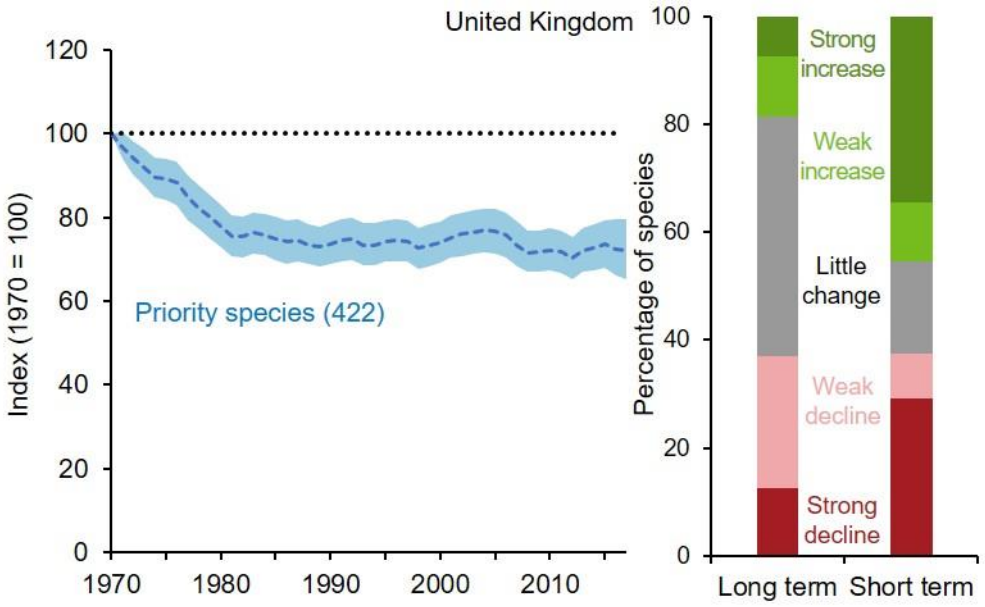
Since the 2019 publication, the Biological Records Centre has received additional data for Ants, Bees, Wasps, Spiders and Dragonflies. These data are included in this year's indicator.

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.

Between 1970 and 2017, 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 28%.

The index was 3% higher in 2017 than in 2012, with 45% of species showing an increase and 38% showing a decline. However, this short-term increase was not significant, and therefore the short-term assessment is stable.

Figure C4bi Change in distribution of UK priority species, 1970 to 2017.



Notes:

1. The line graph shows the unsmoothed trend (dashed line) with variation around the line (shaded area) within which users can be 90% confident that the true value lies (credible interval).
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. These charts are not directly comparable to previous versions of the indicator. Inclusion of new data has increased the number of species that can be included in the indicator from 395 in 2019, to 422 in 2020.

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	1970–2017	2012–2017	No change (2017)

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

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 2018 the UK farmland bird index was 45% of its 1970 value. Short term, between 2012 and 2017 the smoothed index decreased by 6%.

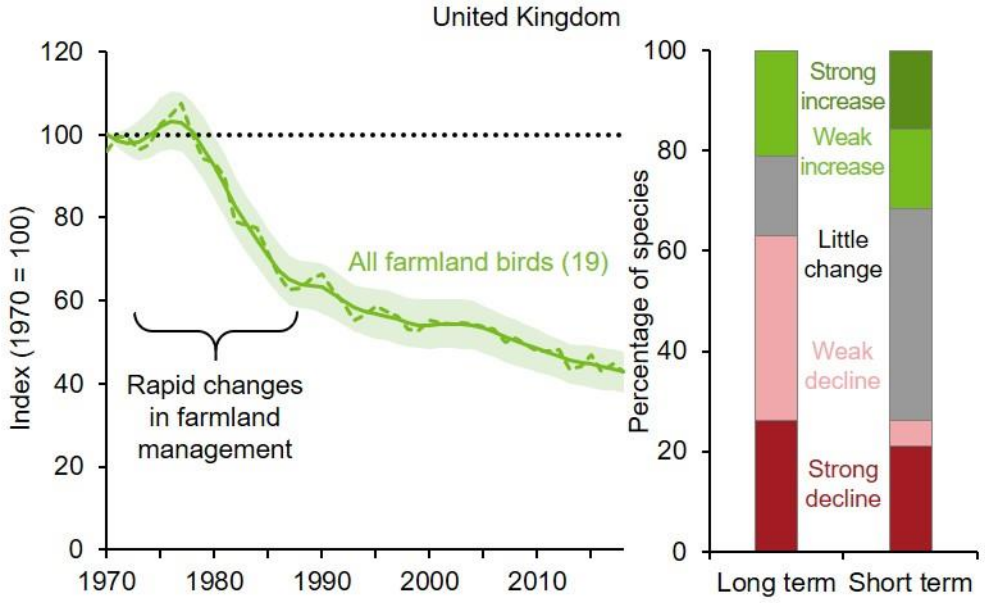
In 2018 the UK woodland bird index was 29% below its 1970 value. Short term, between 2012 and 2017, the smoothed index decreased by 8%.

In 2018 the water and wetland bird index was 17% lower than in 1975. However, more recently the smoothed index increased, but not significantly, by 3% between 2012 and 2017.

In 2018, the breeding seabird index in the UK was 28% lower than in 1986, slightly above the lowest level ever recorded (of 29% lower than 1986, recorded in 2013). Short term, between 2012 and 2017 the index increased by 7%

In 2017/18, the wintering waterbird index was 82% higher than in 1975/76. Short term, between 2011/12 and 2016/17, the smoothed index decreased by 3%.

Figure C5ai Breeding farmland birds in the UK, 1970 to 2018.

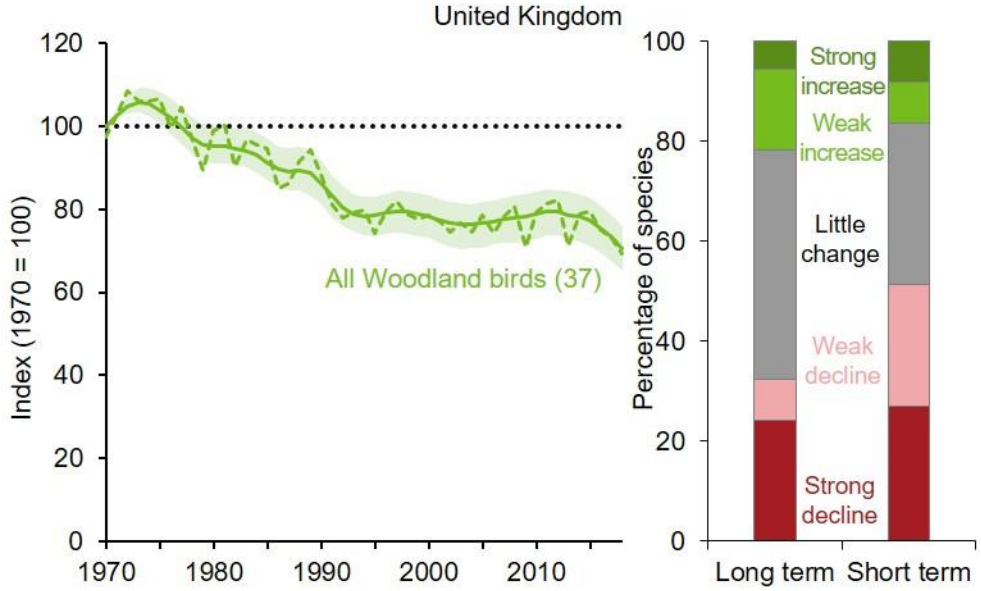


Notes:

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 2018.

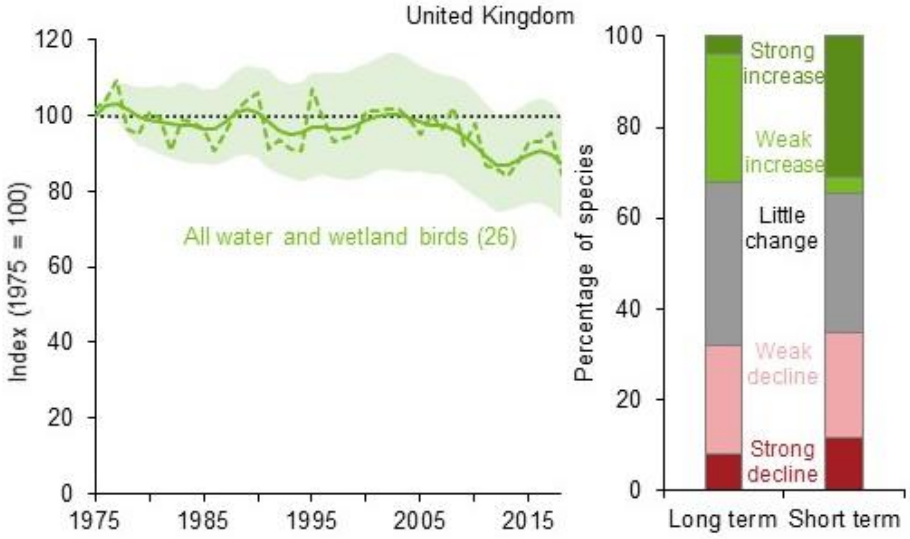


Notes:

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 2018.

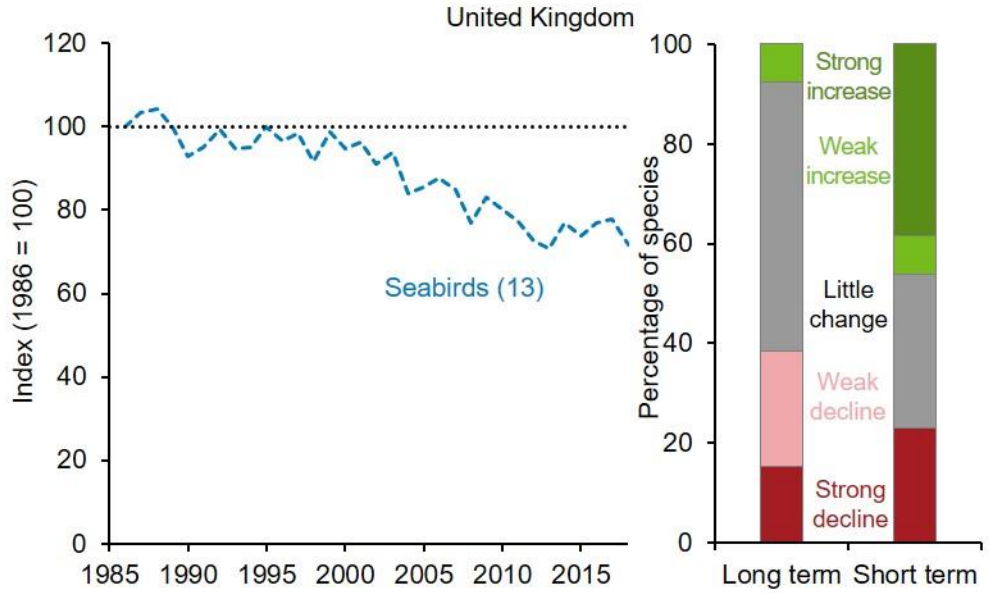


Notes:

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 2018.

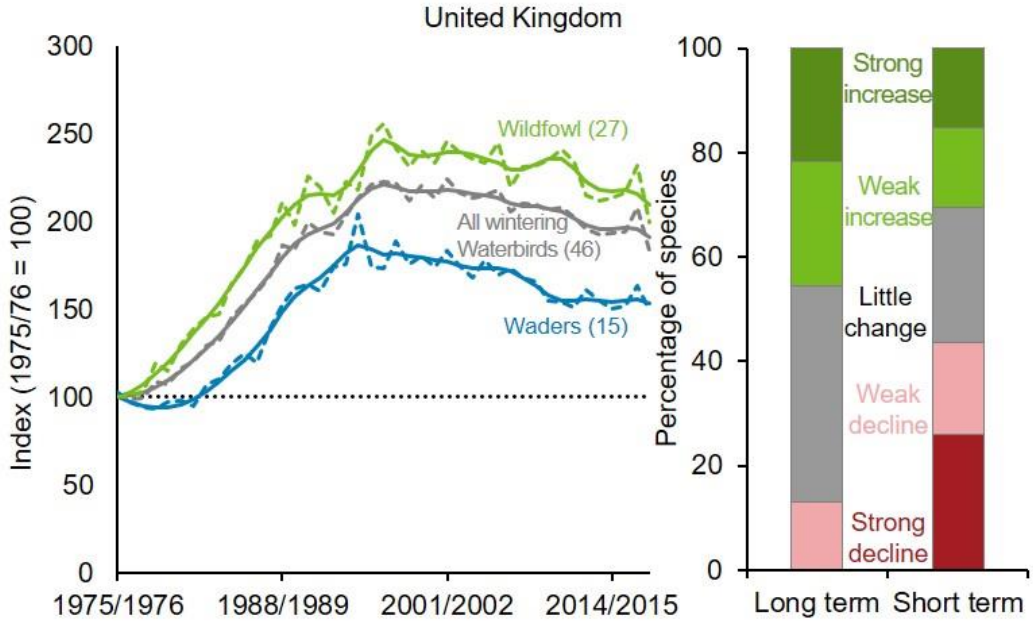


Notes:

1. The line graph shows the unsmoothed trend (dashed 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. The breeding seabird index has now been updated with data up to and including 2018. 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 2017/18.



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.

4. Based on financial years.
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	1970–2017	2012–2017	No change (2018)
Woodland birds	1970–2017	2012–2017	No change (2018)
Wetland birds	1975–2017	2012–2017	Decreased (2018)
Wintering waterbirds	1975/76–2016/17	2011/12–2016/17	Decreased (2017/18)

Notes:

1. Whilst latest year percentage changes in these indices are reported based on the most recent unsmoothed data point (2018), the formal long-term and short-term assessments of the statistical significance of these changes are made using the smoothed data to 2017. This is because the most recent smoothed data point (2018) is likely to change in next year's update when additional data are included for 2019.
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

Methodological Note

Improvements were made to the analytical techniques in 2020 to better account for the colonisation of sites. The change has been to add pre-colonisation zero abundance counts for species at sites they have colonised, where the site was being monitored prior to colonisation. In general, the effect of these changes has been most notable for expanding species whereby there has been a slight reduction in their population indices for the earlier years, relative to the latter years. This analysis improvement has coincided with relatively favourable recent years for butterflies. The combination of the relative reductions in the indices of earlier years for colonising species with the relatively high indices in recent years have resulted in the current

indicator assessment differing from previous assessments to a greater extent than in previous updates. Further details can be found in the online Technical background document.

This indicator consists of 2 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 of these groups.

Key results

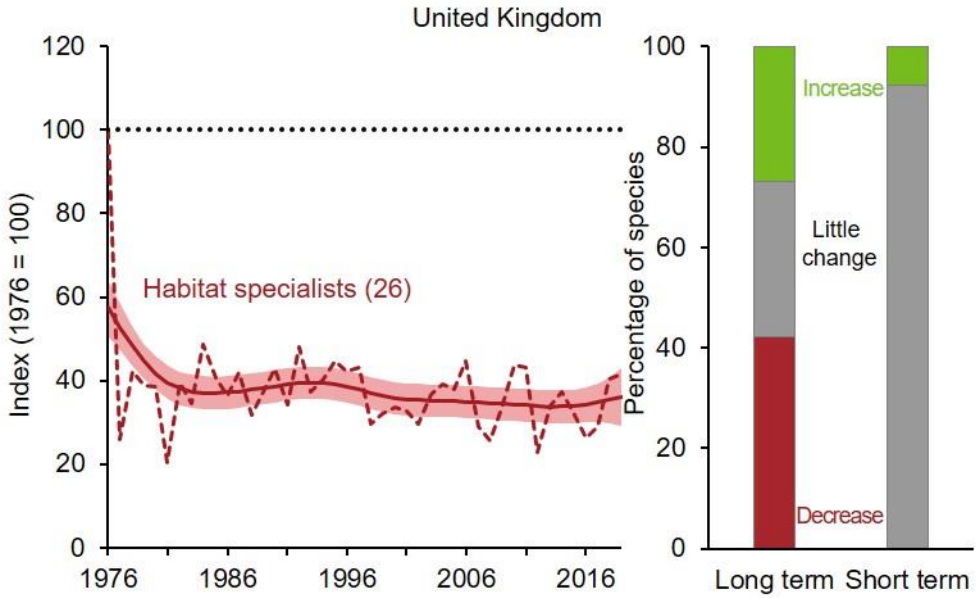
Since 1976, the unsmoothed habitat specialist butterflies index has fallen by 59% (Figure C6a).

Over the same period, the unsmoothed index for species of the wider countryside has fallen by 20% (Figure C6b).

Large fluctuations in numbers between years are a typical feature of butterfly populations, principally in response to weather conditions. With warmer than average spring and summer temperatures, 2019 was a good year for butterflies in the UK; with more than half of species (53%) increasing in annual abundance.

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 change. Since 2014, both trends show no significant change.

Figure C6a Trends for habitat specialist butterflies in the UK, 1976 to 2019.



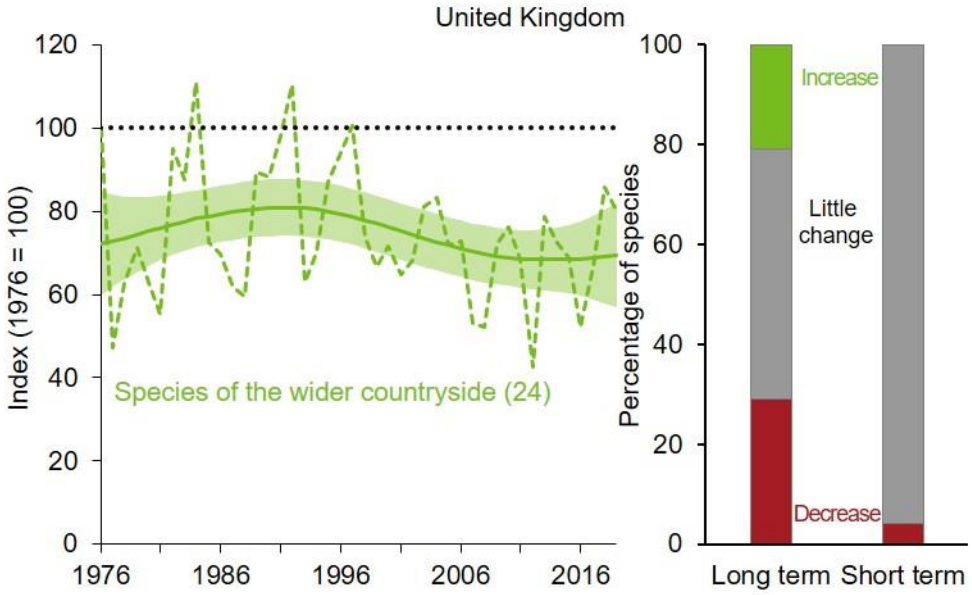
Notes:

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 (see the indicator webpage for further information).
5. Further improvements were made to the analytical techniques in 2020 to better account for the colonisation of sites. The change has been to add pre-colonisation zero abundance counts for species at sites they have colonised, where the site was monitoring prior to colonisation. In general, the effect of these changes has been most notable for expanding species whereby there has been a slight reduction in their population indices for the earlier years, relative to the latter years. This analysis improvement

has coincided with relatively favourable recent years for butterflies. The combination of the relative reductions in the indices of earlier years for colonising species with the relatively high indices in recent years have resulted in the current indicator assessment differing from previous assessments to a greater extent than in previous updates. Further details can be found in the online Technical background document.

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

Figure C6b Trends for butterflies of the wider countryside in the UK, 1976 to 2019.



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. 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 2 species were combined due to historical difficulties with distinguishing between them in the field.
4. 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).
5. Since 2017, an improved analysis method has been used to derive the species indices (see the indicator webpage for further information).
6. Further improvements were made to the analytical techniques in 2020 to better account for the colonisation of sites. The change has been to add pre-colonisation zero abundance counts for species at sites they have colonised, where the site was monitoring prior to colonisation. In general, the effect of these changes has been most notable for expanding species whereby there has been a slight reduction in their population indices for the earlier years, relative to the latter years. This analysis improvement has coincided with relatively favourable recent years for butterflies. The combination of the relative reductions in the indices of earlier years for colonising species with the relatively high indices in recent years have resulted in the current indicator assessment differing from previous assessments to a greater extent than in previous updates. Further details can be found in the online Technical background document.

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	1976–2019	2014–2019	Increased (2019)
Species of the wider countryside	1976–2019	2014–2019	Decreased (2019)

Note: While 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 2019. Analysis of the underlying trends is undertaken by the data providers.

C7. Plants of the wider countryside

a. Arable field margins

b. Bog and wet heath

c. Broadleaved woodland & hedges

d. Lowland grassland

Experimental statistic: The UK biodiversity indicators project team would welcome feedback on the novel methods used in the development of this indicator.

Type: State indicator

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. 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 4 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.

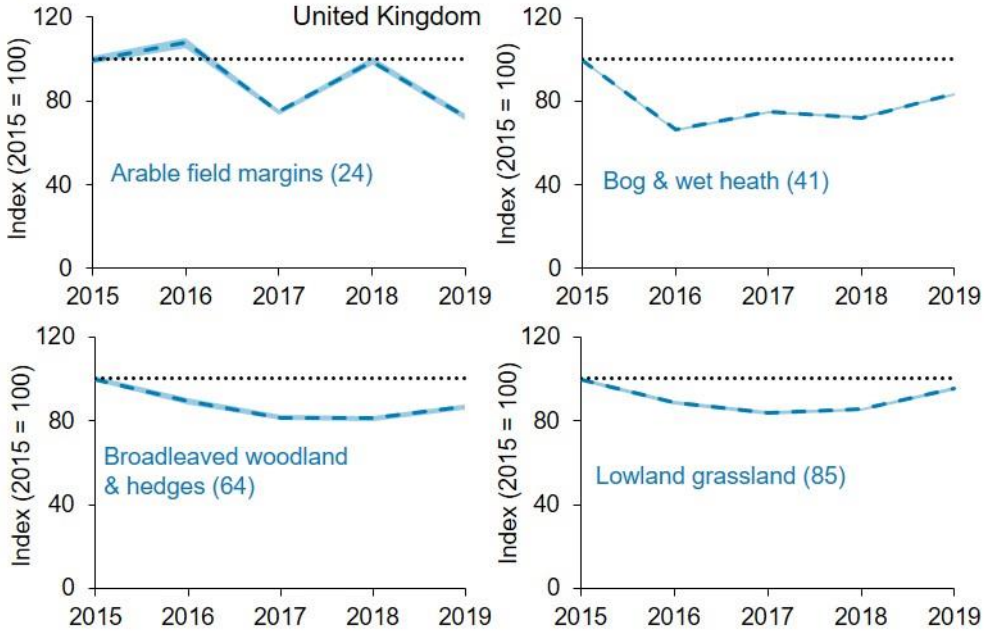
Key results

In 2019, average indicator plant abundance for all 4 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.

As this is an experimental statistic it has not been assessed. The UK biodiversity indicators project team would welcome views on the value of this new indicator (i.e. is this measuring something readers feel should be measured?) and the quality of the new indicator (i.e. how well does it measure plant abundance?).

Figure C7i Abundance of plant species in 4 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 (see indicator webpage for details).
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 species trends, as an aggregate trend is used for the whiskered bat (*Myotis mystacinus*) and Brandt's bat (*Myotis brandtii*); these 2 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.

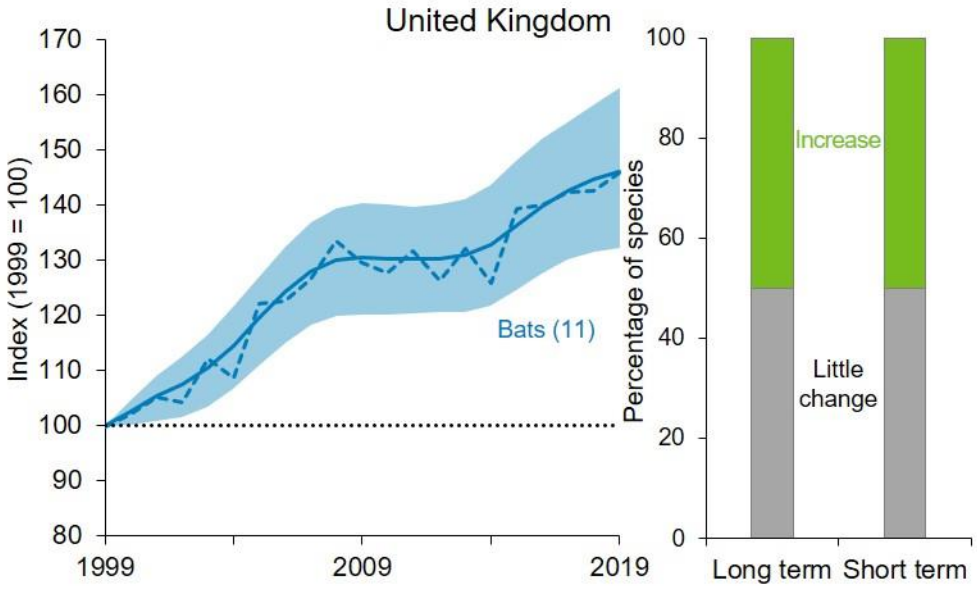
Key results

The bat index has increased by 45% between 1999 and 2018. In the short term, between 2013 and 2018, the bat index has increased by 10%.

The bat index is a composite of 10 species trends (11 species, 2 of which are combined). Since 1999, 5 of the bat species trends included in the index have increased and 5 have shown little 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 3 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 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. This indicator includes measures for 11 species of bats; 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 2 species have been combined due to difficulties with distinguishing between them in the field.
4. The bar chart shows the percentage of species 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 8. 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	1999–2018	2013–2018	No change (2019)

Note: Long-term and short-term assessments are made on the basis of smoothed trends to the penultimate year (2018) by the Bat Conservation Trust. 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. 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 176 in 2000 to 159 in 2014 and to 135 in 2019;

 for horses decreased from 178 in 2000 to 96 in 2014 and to 97 in 2019;

 for sheep increased from 245 in 2000 to 407 in 2014 and to 424 in 2019;

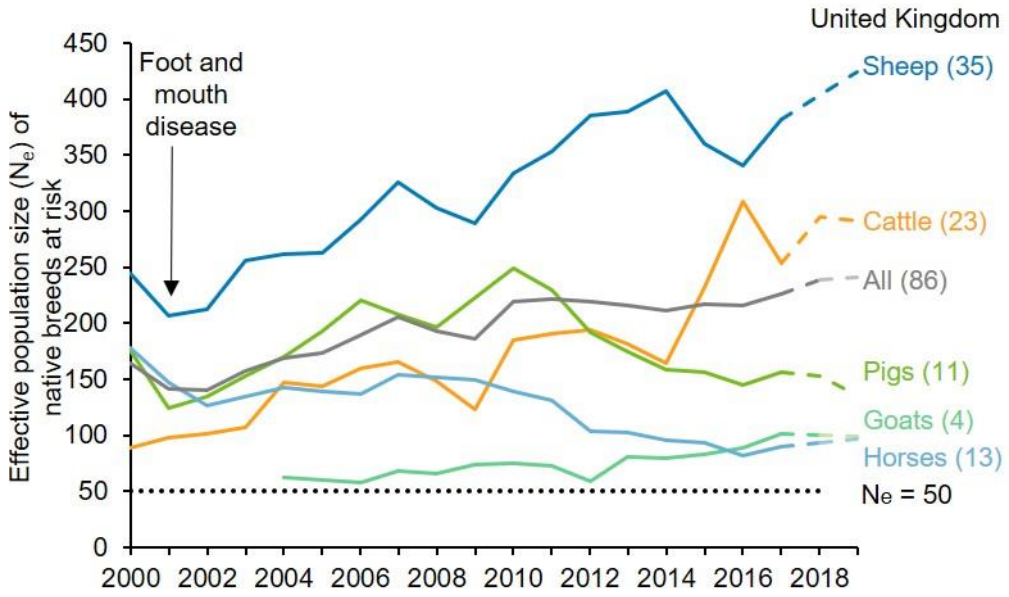
 for cattle increased from 88 in 2000 to 164 in 2014 and to 291 in 2019;

 for goats the dataset starts in 2004 when it was 62, increasing to 79 in 2014 and increasing to 99 in 2019; prior to 2004, effective population size could only be calculated for one breed.

The *average* effective population sizes calculated between 2000 and 2019 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 2019, of the Native Breeds at Risk, 2 breeds of goat (Saanen and Toggenburg), 4 breeds of horse (Cleveland Bay Horse, Eriskay Pony, Hackney, and Suffolk Punch), and one breed of cattle (Vaynol), had a N_e less than or equal to 50. No breeds of sheep or pig had effective population sizes below the threshold in 2019.

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 2019.



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 2019 data accounts for 74% of the total breeds and these are for 4 goat breeds, 11 pig breeds, 12 horse breeds, 31 sheep breeds, and 18 cattle breeds. Further details of how many breeds are included in each year can be on the indicator webpage.
2. Data for two thirds of the breeds data was collected through the 3-yearly survey in October 2018. Therefore, data for 2018 and 2019 are provisional, hence the last part of the lines are showed as 'dashed'. It is expected that the 2018 and 2019 data can be confirmed in late 2021 when the next triennial exercise has taken place.
3. Based on data in the UK Farm Animal Genetic Resources Breed Inventory published on 7 May 2020.
4. Due to a clerical error, Shetland pony was previously classed incorrectly as a NBAR and has been removed in the 2019 inventory update. This error first appeared in the 2014 inventory which was published in 2015. Over the course of time, historic data for some breeds has been revised. Therefore, this indicator is not directly comparable with previous publications. The Breed Inventory Results published on 7 May 2020 can be accessed through the following link: https://www.gov.uk/government/statistics/uk-farm-animal-genetic-resources-fangr-breed-inventory-results. The Excel dataset provides information on revisions.
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	2004–2019	2014–2019	Decreased (2019)
Pig breeds	2000–2019	2014–2019	Decreased (2019)
Horse breeds	2000–2019	2014–2019	Increased (2019)
Sheep breeds	2000–2019	2014–2019	Increased (2019)
Cattle breeds	2000–2019	2014–2019	Decreased (2019)

Note: Long and short-term assessments are based on a 5% rule of thumb. Where possible, the base years for these assessments use a 3-year average. See Assessing Indicators.

b. Plant genetic resources – Enrichment Index

Type: State / Benefit indicator

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

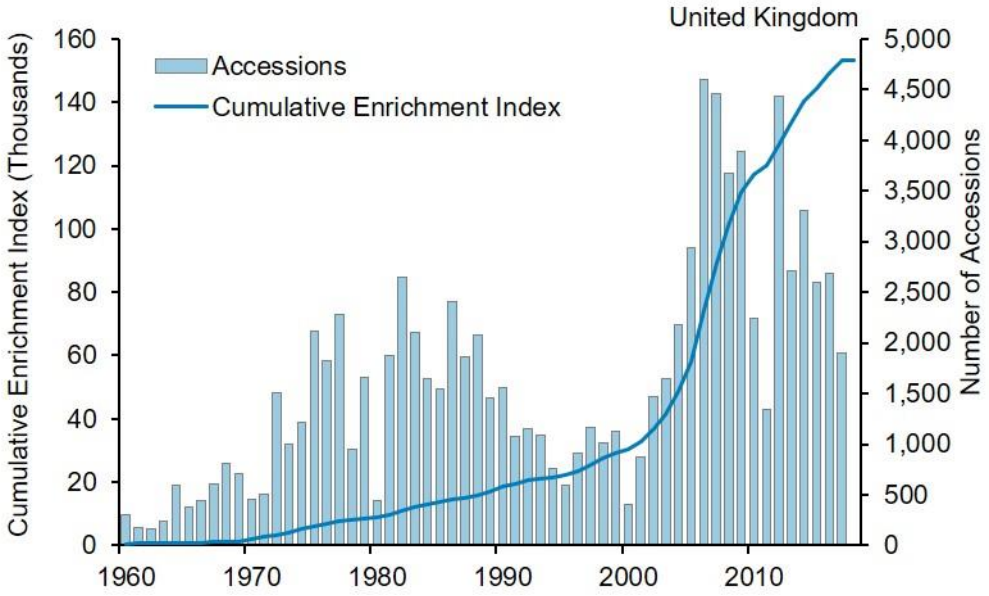
No update since previous publication.

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.

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 was 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 http://eurisco.ipk-gatersleben.de/apex/f?p=103:1; 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	1960–2018	2013–2018	No change (2018)

Note: Assessment of this indicator is based on comparison of latest data point with a 3-year average from the baseline, using the 3 earliest consecutive years available. See Assessing Indicators.

D1. Biodiversity and ecosystem services

a. Fish size classes in the North Sea

Type: State / Benefit indicator

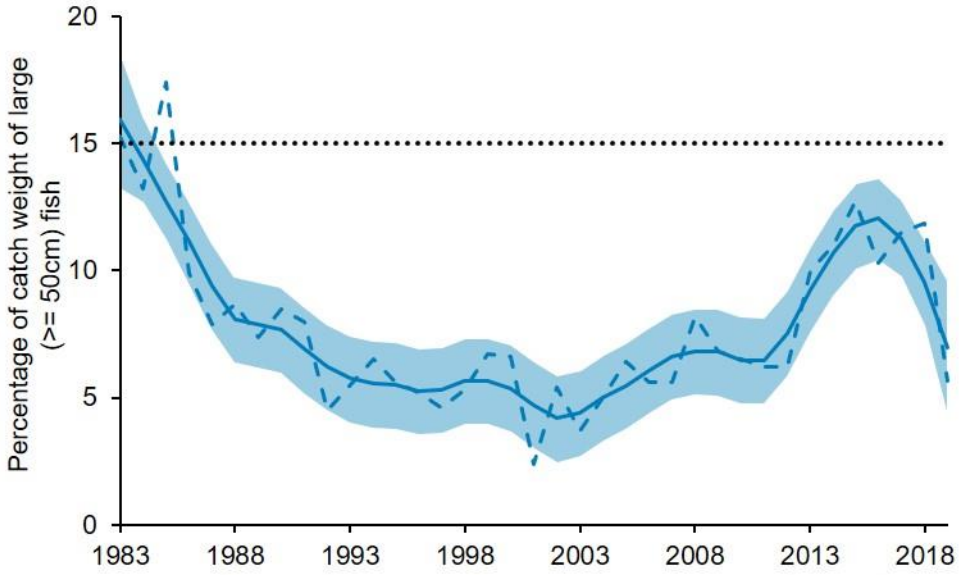
The indicator shows changes in the proportion, by weight, of large individuals equal to or over 50 cm in length in demersal (bottom-dwelling) fish populations in the North Sea. Changes in the size structure of fish populations and communities reflect changes in the state of the fish community. Fluctuations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

Since the previous publication additional data have been provided for the North Sea. No updates have been provided for the Scottish Continental Shelf, Irish Sea and the Celtic Sea.

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

	Long term	Short term	Latest year
North Sea	⊗ 1983–2019	⊗ 2014–2019	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 gases by UK forests

Type: Benefit indicator

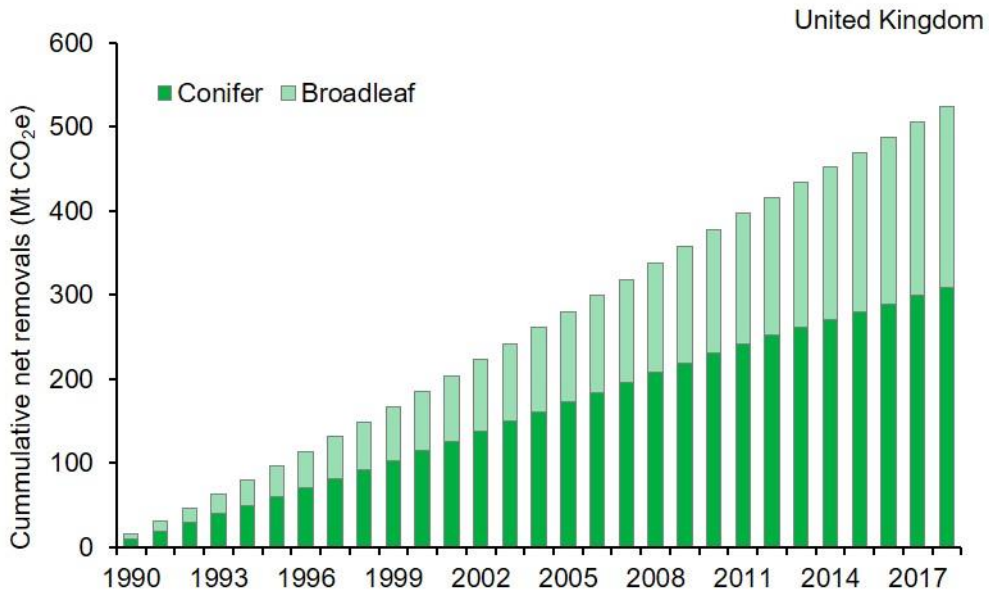
Forests are a large store of carbon and also act as an active carbon 'sink', removing carbon dioxide (CO_2), a greenhouse gas, from the atmosphere and storing it as carbon in living biomass, leaf litter and forest soil. This sequestration of CO_2 is an essential ecosystem service. This indicator shows 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 525 million tonnes of carbon dioxide (Mt $C0_2e$) from the atmosphere (Figure D1bi). In 2018, UK forests are estimated to have removed 18 Mt CO_2e.

The proportion of greenhouse gases removed from the atmosphere by broadleaf woodland has increased since the time series began, accounting for 50% (9.0 Mt CO_2e) of the estimated annual removals in 2018 compared to 37% (5.6 Mt CO_2e) of removals in 1990 (See the indicator webpage for details).

Figure D1bi Cumulative net removals of greenhouse gases by UK forests, 1990 to 2018.



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. There were revisions to the forest category of LULUCF between the 1990 to 2017 and 1990 to 2018 inventories (see the indicator webpage for more detail).
4. Revised in 2019 and 2020 due to further improvements in the CARBINE model and forest planting and harvesting statistics (see the indicator webpage for more details).
5. 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
Cumulative net removal of greenhouse gases by forests	1990–2018	2013–2018	Increased (2018)

Note: Long and short-term assessments are based on a 3% rule of thumb. The base years for these assessments use a 3-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 1km 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

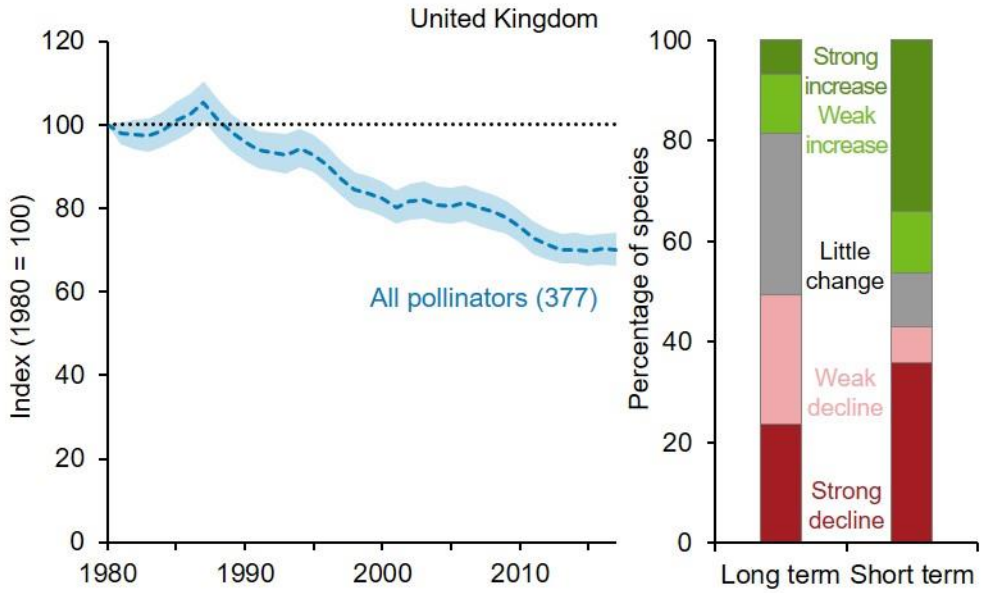
This indicator has been updated since the 2019 publication by the inclusion of additional data to 2017 for hoverflies and to 2018 for bees.

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 is not directly comparable with the previous publication. An additional 12 species of bee and 6 species of hoverfly now meet the criteria for inclusion, whereas 6 species have been removed due to taxonomic issues, resulting in a net increase of 11 species of bee and 1 species of hoverfly.

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	1980–2017	2012–2017	No change (2017)

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

E1. Biodiversity data for decision making

a. cumulative number of records

b. Number of publicly accessible records at 1km^2 resolution or better

Type: State indicator

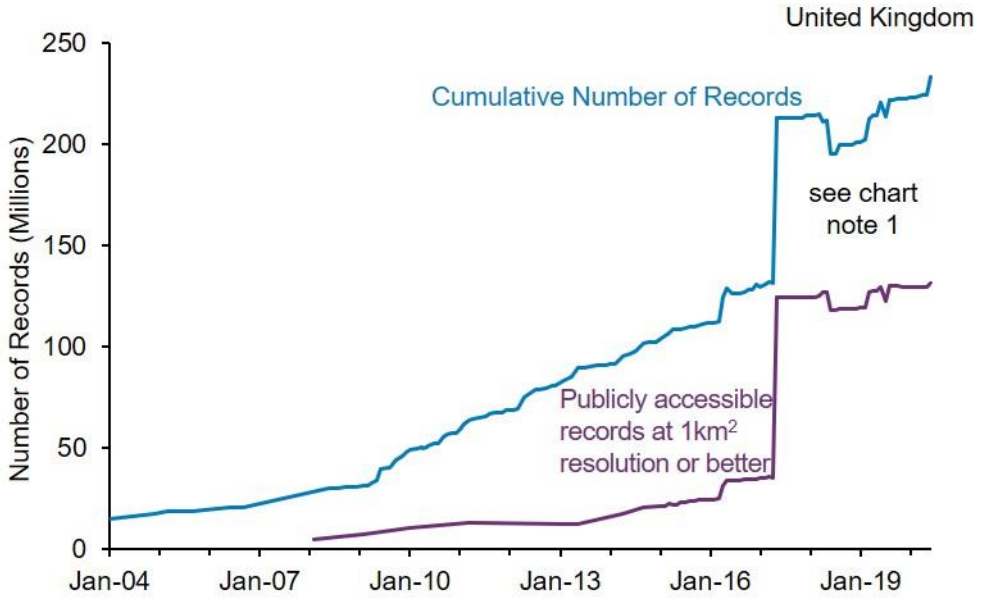
Good policy making and evaluation is based on evidence. Millions of biological observations (records) have been recorded in the UK over the past century by a wide variety of organisations and individuals. This indicator provides an evaluation of the number of records added to the National Biodiversity 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 102.0 million records to the end of May 2020. At the end of May 2020 there were 233.4 million records in the NBN Atlas.

The number of publicly accessible records which are at 1km^2 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 131.5 million records at the end of May 2020 which are at 1km^2 resolution or better – an increase of 96.2 million since the start of the NBN Atlas.

Figure E1i Records added to the National Biodiversity Network, 2004 to 2020.



Notes:

1. 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.
2. 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 the Indicator webpage for further details).
3. Data available to 31 May 2020.

Source: National Biodiversity Network.

Assessment of change in data for decision making

	Long term	Short term	Latest year
Cumulative number of records	✓ 2004–2020	✓ 2015–2020	Increased (2020)
Number of publicly accessible records at 1km^2 resolution or better	✓ 2008–2020	✓ 2015–2020	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 3-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.

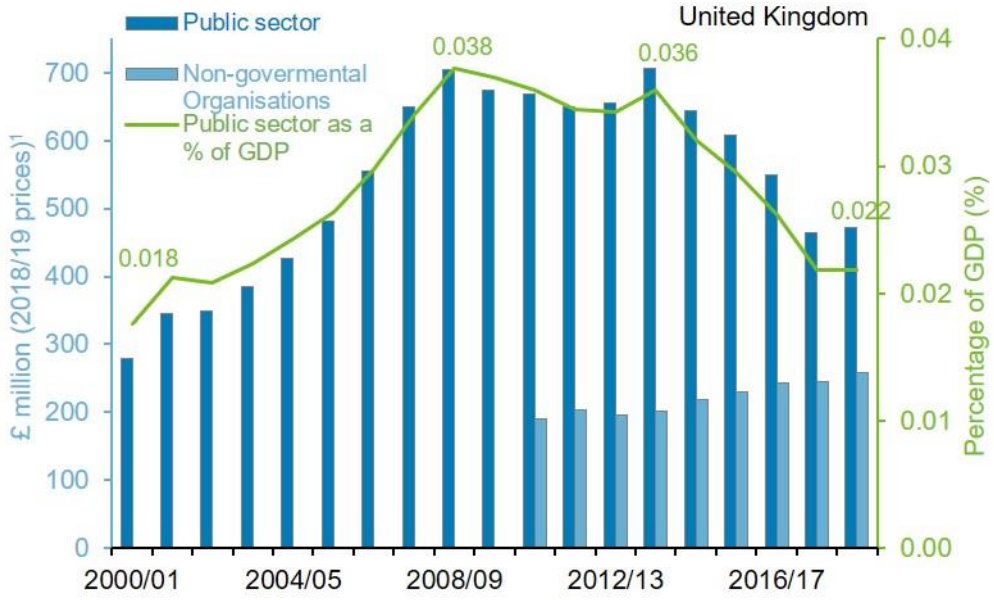
Key results

In 2018/19, £473 million of UK public sector funding was allocated to biodiversity in the UK; real-term increases of 69% since the time series began in 2000/01 and 2% since 2017/18, and a real-term decrease of 33% over the last 5 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 2018/19, it amounted to 0.022% of UK GDP.

Spending on biodiversity in the UK by non-governmental organisations (NGOs) with a focus on biodiversity and/or nature conservation was £258 million (net of government funding) in 2018/19. This figure represents real-term increases of 5% since 2017/18, 28% over the last 5 years and 36% since the indicator was first compiled in 2010/11.

Figure E2i Expenditure on biodiversity in the UK, 2000/01 to 2018/19.



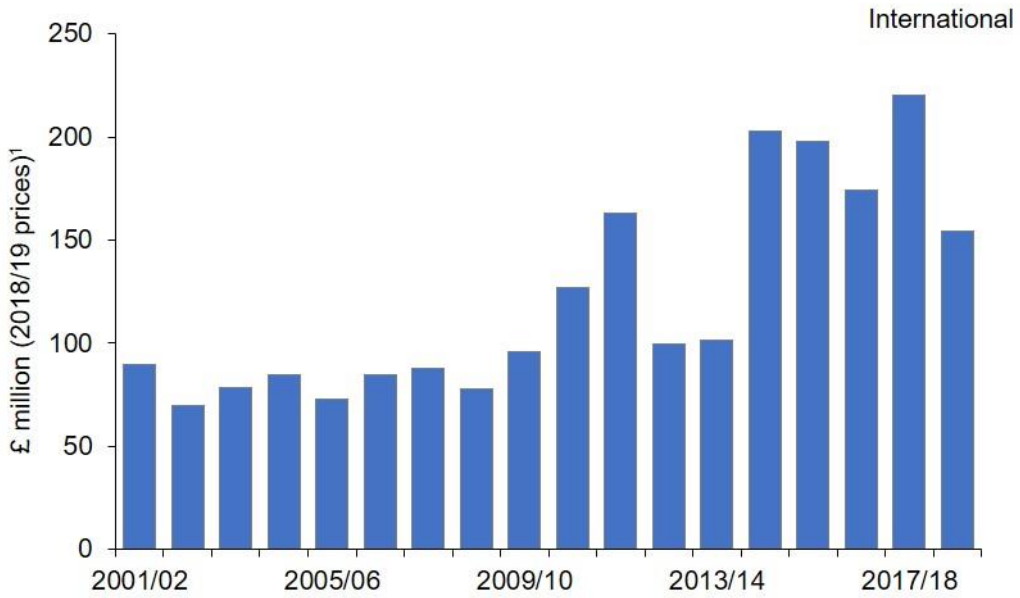
Notes:

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 for further details).
4. Revisions to past data series as a result of 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 2018/19, UK public sector funding for international biodiversity totalled £154 million; a real-term increase of 72% since the time series began in 2001/02. Funding for international biodiversity has also increased by 52% over the last 5 years but decreased by 30% in the latest year for which data have been compiled (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. The majority of the latest-year reduction is accounted for by a 50% real-term decrease in ODA funding for forestry related projects in 2018/19.

Figure E2ii UK public sector expenditure on international biodiversity, 2001/02 to 2018/19.



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 for further details).
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, e.g. 2017 data are included in 2017/18.
6. Revisions to past data series as a result of 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 – 2018/19	2013/14 – 2018/19	Increased (2018/19)
Non-governmental organisation spending on biodiversity in the UK		2013/14 – 2018/19	Increased (2018/19)
UK public sector expenditure on international biodiversity	2001/02 – 2018/19	2013/14 – 2018/19	Decreased (2018/19)

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 3-year average, see Assessing Indicators.

Enquiries about the biodiversity indicators or this publication

Enquiries about the biodiversity indicators or this publication (2020)

This publication has been produced by the Biodiversity and Ecosystems Evidence and Analysis team (Defra) working with the Joint Nature Conservation Committee (JNCC).

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Centre for Environment, Fisheries and Aquaculture Science, Defra (Chair), Joint Nature Conservation Committee, Natural England, Natural Resources Wales, NatureScot, Northern Ireland Environment Agency, Royal Society for the Protection of Birds on behalf of Wildlife and Countryside Link, Scottish Government 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

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Information on other environmental statistics is also available on Defra's webpages at: https://www.gov.uk/government/organisations/department-for-environment-food-rural-affairs/about/statistics.

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

Annex: National 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.

UK Biodiversity Indicators 2020

JNCC

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

NatureScot
Scotland's Nature Agency
Buidheann Nàdair na h-Alba

Cyfoeth Naturiol Cymru
Natural Resources Wales

NATURAL ENGLAND