UK Biodiversity Indicators 2019 *Revised*

Department for Environment Food & Rural Affairs

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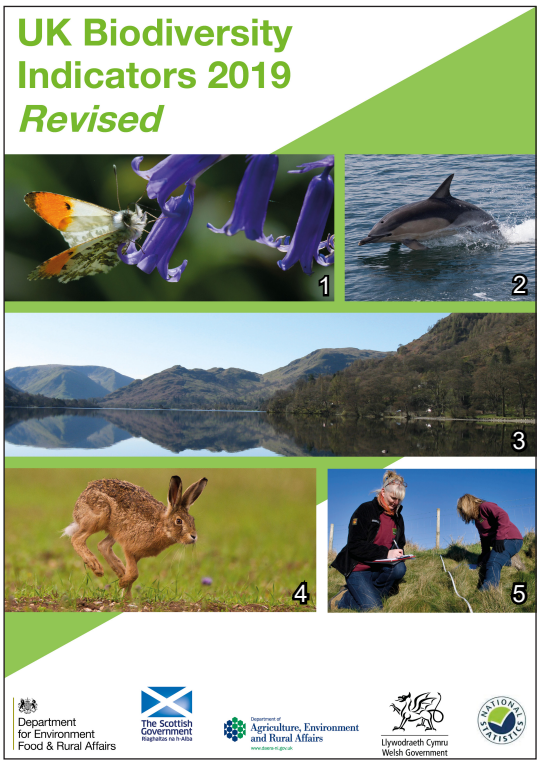

In December 2019 the following indicators were updated, leading to a revision of this Compendium document:

- A1 Awareness, understanding and support for conservation
- B5a Air pollution
- C3a and b, Status of European habitats and species

1. Orange-tip butterfly © Natural England/Allan Drewitt

2. Common dolphin © James West/Creative Commons License

3. Lake District landscape © James Williams

4. Brown Hare © Natural England/Allan Drewitt

5. Monitoring at Pewsey Downs NNR © Natural England/Tracy Rich

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Introduction

UK Biodiversity Indicators 2019

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 wellbeing, 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 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 Convention on Biological Diversity 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 Defra 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 2019 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 applied when there is sufficient confidence that the change has occurred and is not simply a product of random fluctuations.

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 is 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 six 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				2019	2017
A2. Taking action for nature: volunteer time spent in conservation		 2000–2017	 2012–2017	2019	2017
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		2019	Not Applicable
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	 1992–2018	 2013–2018	2019	2018
	B1b. Area of forestry land certified as sustainably managed 	 2001–2019	 2014-2019	2019	2019

Indicator / measure(s)			Long-term Change[2]	Short-term Change[3]	Last Updated	Latest Data
B2. Sustainable fisheries	B2a. Percentage of marine fish stocks harvested sustainably		1990–2017	2012–2017	2019	2017
	B2b. Biomass of marine fish stocks at full reproductive capacity		1990–2017	2012-2017	2019	2017
B3. Climate change adaptation			Under development		2019	Not Applicable
B4. Pressure from climate change (Spring Index)			Not Assessed	Not Assessed	2019	2018
B5. Pressure from pollution	B5a. Air pollution	B5a(i). Area affected by acidity	1996–2016	2011–2016	2019	2016
		B5a(ii). Area affected by nitrogen	1996–2016	2011–2016	2019	2016
	B5b. Marine pollution		1990–2017	2012–2017	2019	2017
B6. Pressure from invasive species	B6a. Freshwater invasive species		1960–2018	Not assessed	2019	2018
	B6b. Marine (coastal) invasive species		1960–2018	Not assessed	2019	2018
	B6c. Terrestrial invasive species		1960–2018	Not assessed	2019	2018
B7. Surface water status				2013–2018	2019	2018
C1. Protected areas	C1a. Total extent of protected areas: on land		1950–2019	2014–2019	2019	2019
	C1b. Total extent of protected areas: at sea		1950–2019	2014–2019	2019	2019
	C1c. Condition of Areas/Sites of Special Scientific Interest		2005–2019	2014–2019	2019	2019
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

Indicator / measure(s)			Long-term Change[2]	Short-term Change[3]	Last Updated	Latest Data
C4. Status of UK priority species	C4a. Relative abundance		1970–2016	2011–2016	2019	2016
	C4b. Distribution		1970–2016	2011–2016	2019	2016
C5. Birds of the wider countryside and at sea	C5a. Farmland birds		1970–2016	2011–2016	2019	2017
	C5b. Woodland birds		1970–2016	2011–2016	2019	2017
	C5c. Wetland birds		1975–2016	2011–2016	2019	2017
	C5d. Seabirds		Not Assessed	Not Assessed	2019	2015
	C5e. Wintering waterbirds		1975/76–2015/16	2010/11–2015/16	2019	2016-17
C6. Insects of the wider countryside	C6a. Habitat specialists		1976–2018	2013–2018	2019	2018
	C6b. Species of the wider countryside		1976–2018	2013–2018	2019	2018
C7. Plants of the wider countryside			Under development		2019	2007
C8. Mammals of the wider countryside (bats)			1999–2017	2012–2017	2019	2018
C9. Genetic resources for food and agriculture	C9a. Animal genetic resources – effective population size of Native Breeds at Risk	C9a(i). Goat breeds	2004–2018	2013–2018	2019	2018
		C9a(ii). Pig breeds	2000–2018	2013–2018	2019	2018
		C9a(iii). Horse breeds	2000–2018	2013–2018	2019	2018
		C9a(iv). Sheep breeds	2000–2018	2013–2018	2019	2018
		C9a(v). Cattle breeds	2000–2018	2013–2018	2019	2018
	C9b. Plant genetic resources – Enrichment Index		1960–2018	2013–2018	2018	2018

Indicator / measure(s)		Long-term Change[2]	Short-term Change[3]	Last Updated	Latest Data
D1. Biodiversity and ecosystem services	D1a. Fish size classes in the North Sea	1983–2017	2012–2017	2019	2017
	D1b. Removal of greenhouse gases by UK forests	1990–2017	2012–2017	2019	2017
	D1c. Status of pollinating insects	1980–2016	2011–2016	2019	2016
E1. Biodiversity data for decision making	E1a. Cumulative number of records	2004–2019	2014–2019	2019	2019
	E1b. Number of publicly accessible records at 1km^2 resolution or better	2008–2019	2014–2019	2019	2019
E2. Expenditure on UK and international biodiversity	E2a. Public sector expenditure on UK biodiversity	2000/01–2017/18	2012/13–2017/18	2019	2017/18 financial year
	E2b. Non-governmental organisation expenditure on UK biodiversity		2012/13–2017/18	2019	2017/18 financial year
	E2c. UK public sector expenditure on international biodiversity	2001/02–2017/18	2012/13–2017/18	2019	2017/18 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 chart below displays 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.

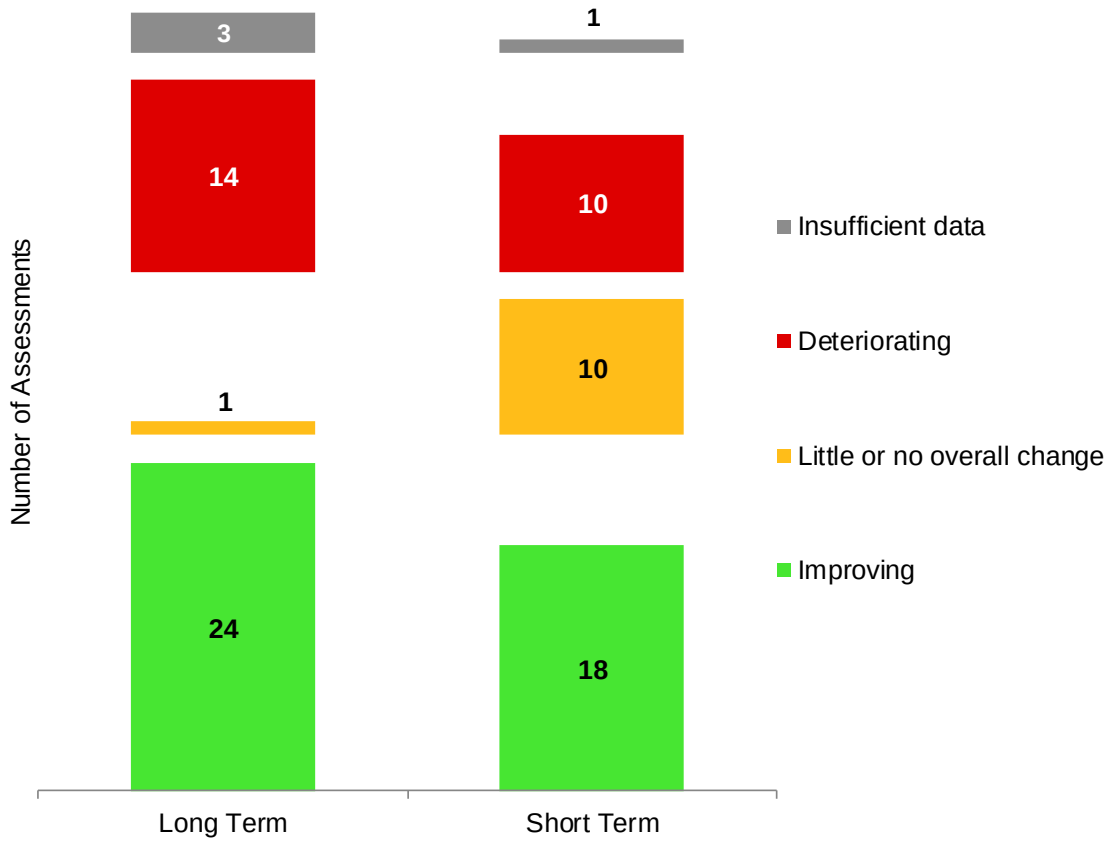
B. Reduce the direct **pressures** on biodiversity and promote sustainable use.

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 49 measures. Of these, eight measures are not assessed in the long-term, and eleven in the short term, as the measures are either under development, or analytical methods for short-term assessment need to be refined. In this 2019 publication, 22 indicators have been updated.

Twenty-four 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 ten a decline in the short term. Measures that improved or deteriorated in the long term have not necessarily continued to improve or deteriorate respectively in the short term.

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

i. Update of the Awareness indicator (A1) to include a second year and correct a previous error;

ii. A new indicator on the Integration of biodiversity considerations into business activity (A5);

iii. Refinements to the Sustainable fisheries and Large fish index indicators (B2 and D1a);

iv. Expansion of the coverage of the experimental statistic on Connectivity (C2) to include birds as well as butterflies;

v. Update of the indicators of the status of European habitats and species based on the 2019 UK Habitats Directive report (C3a and C3b);

vi. Refinements to the species coverage of the Priority species indicators (C4a and C4b), the Bats indicator (C8), and the Status of pollinating insects (D1c).

vii. Inclusion of trends for farmland and woodland butterflies at UK scale in the Butterflies fiche (C6);

viii. UK public expenditure on international biodiversity (E2c) refined to include a wider range of projects within Official Development Assistance funding.

A1. Awareness, understanding and support for conservation – revised

Type: Response indicator

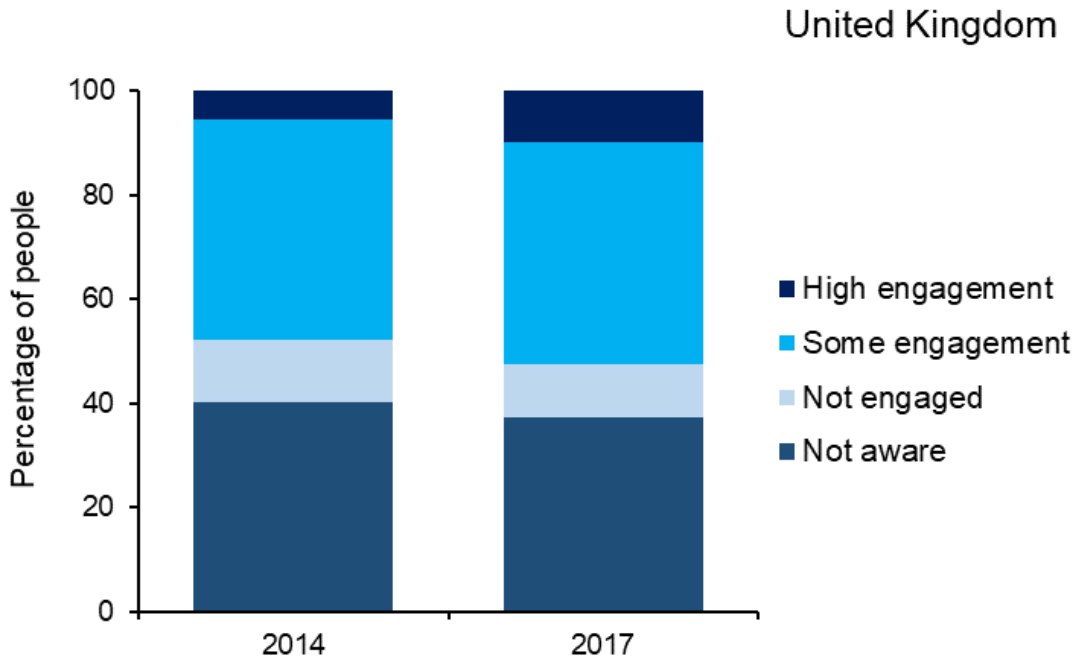
This indicator could not be updated in time for the 2019 publication (published on the 5th September 2019) as there was an inconsistency with the England data which needed investigation. This has now been resolved; the resulting changes have affected the 'not aware' and 'some engagement' categories. An error was discovered in the method used to assign records to one of the 5 discrete groups; not all of the responses were being accounted for, in particular some of those relating to the 'day to day' actions to support and protect biodiversity.

Indicator Description

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.

People who are highly engaged say that they are aware of the threat to biodiversity in the UK, they are concerned about the loss of biodiversity and they undertake actions that help to support and protect biodiversity. In 2017, 10% of people surveyed were highly engaged. At the other end of the scale, 37% of people surveyed said they were not aware of a threat to biodiversity in the UK.

Figure A1i. Public engagement with biodiversity loss: awareness, concern and action, 2014 and 2017.



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 in the online fiche.
2. Data are weighted based on the relative population size of each country.
3. Surveys are not run annually in every country. Therefore, data for Wales and Northern Ireland have been carried forward from 2014 to provide a UK total for 2017.

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

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

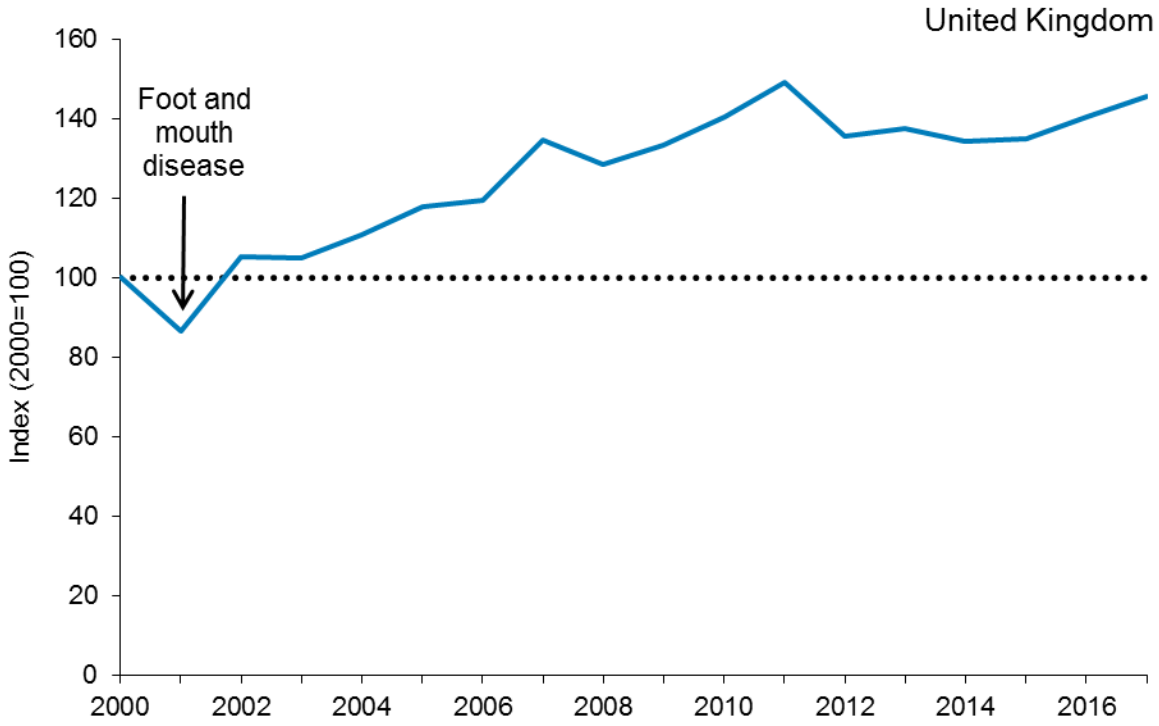
The amount of time people spend volunteering to assist with conservation in part reflects society's interest in and commitment to biodiversity.

Between 2000 and 2017, the amount of time volunteers contributed to conservation activities in the UK has increased by 46%. It also increased by 7% in the 5 years to 2017 and by 4% in the most recent year available.

Indicator Description

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 online fiche for a full list). 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.

Figure A2i. Index of volunteer time spent on conservation activities with selected environmental organisations in the UK, 2000 to 2017.



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. Further details are given in the background section.
3. Data provided by the Canal & River Trust (formerly British Waterways), The Conservation Volunteers, Loch Lomond & The Trossachs National Park Authority, National Parks England, Natural England, Pembrokeshire Coast National Park Authority, RSPB and The Wildlife Trusts were for financial years rather than calendar years. Financial year data have been assigned to the first calendar year (e.g. 2017/18 data were allocated to 2017).
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 online fiche for further details). 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 (formerly Botanical Society of the British Isles), British Trust for Ornithology, Butterfly Conservation, Canal & River Trust (formerly British Waterways), The Conservation Volunteers, Loch Lomond & The Trossachs National Park Authority, Natural England, National Parks England, Pembrokeshire Coast National Park Authority, Plantlife, RSPB, The Wildlife Trusts, Woodland Trust.

Assessment of change in volunteer time spent in conservation			
	Long term	**Short term**	**Latest year**
Conservation volunteering	2000–2017	2012–2017	Increased (2017)

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

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.

Indicator Description

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

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

Indicator under development – progress to date

Additional research work undertaken in 2018/19.

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.

Indicator Description

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, but it has not at present been possible to develop an indicator.

An assessment framework has been developed to provide information on the direct and indirect links between consumption of goods and services in the UK and the environmental impacts that occur due to the production of these goods and services in other countries. A global trade model that retains product-level production detail and quantitative links to associated environmental impacts has been developed to allow top-down assessment of potential impacts. This model facilitates the selection of priority commodities and regions which can then be investigated in more detail using a case-study approach. Further research was undertaken in 2014 to develop this approach at a Scotland level.

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. Results of the contract are being peer-reviewed.

A5. Integration of biodiversity considerations into business activity

Type: Response indicator

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).

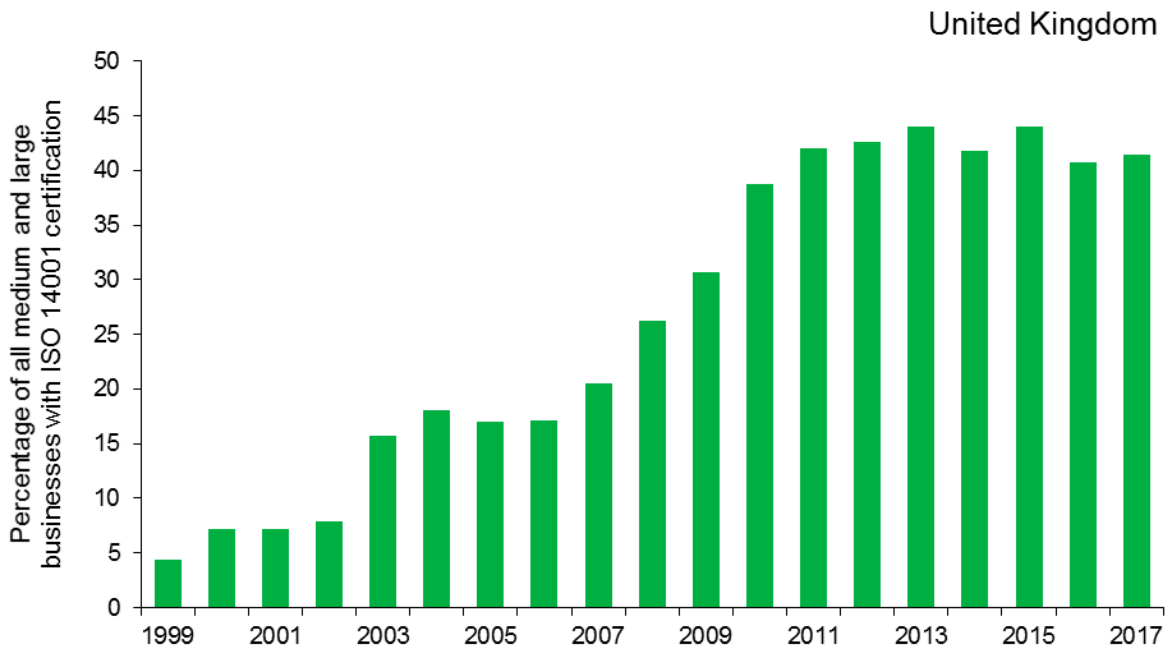
This represents a long-term increase of more than 550% since the ISO Environmental Management System standard was first introduced in 1999; a small, short-term decrease of 3% since 2012; and a similarly small increase of 2% in the most recent year for which data are available.

Indicator Description

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.

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.

[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.

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

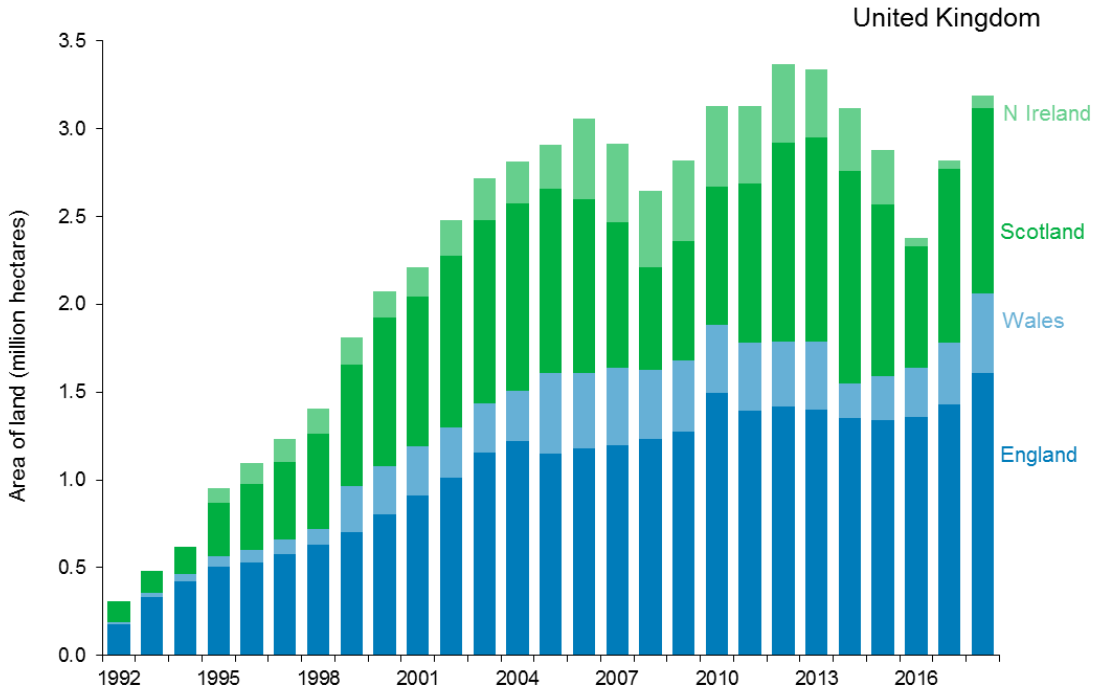
In 2018, the total area of land in higher-level or targeted agri-environment agreements in the UK was 3.2 million hectares: 1.6 million hectares in England; 0.5 million hectares in Wales; 1.1 million hectares in Scotland; and 0.1 million hectares in Northern Ireland.

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.

Indicator Description

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.

Figure B1ai. Area of land covered by higher-level or targeted agri-environment schemes, 1992 to 2018.



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

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

Assessment of change in area of land covered by agri-environment schemes			
	Long term	Short term	Latest year
Higher-level or targeted schemes	1992–2018	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.

b. Area of forestry land certified as sustainably managed

Type: Response Indicator

In March 2019, there were 1.4 million hectares of certified woodland across the UK, representing 44% of the total woodland area. The proportion of woodland certified as sustainably managed has remained stable at either 43% or 44% since 2007.

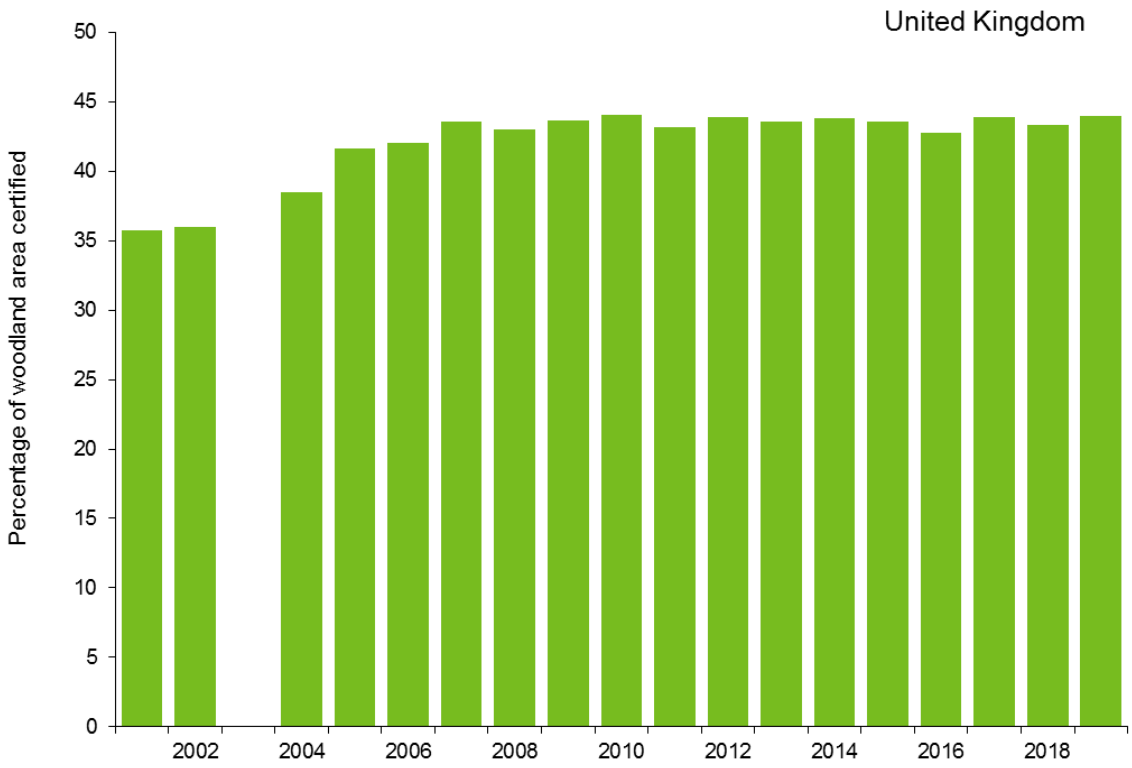
Indicator Description

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.

Certification of woodlands promotes responsible forest management to safeguard forests' natural heritage and protect threatened species. Since 2001, the percentage of woodland certified as sustainably managed in the UK has increased from 36% to 44% in 2019. The percentage of woodland certified as sustainably managed in the UK remains relatively stable with a slight increase 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.

Figure B1bi. Percentage of woodland area certified as sustainably managed, 2001 to 2019.



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: Forestry Commission.

Assessment of change in area of woodland certified as sustainably managed			
	Long term	**Short term**	**Latest year**
Percentage of woodland certified	2001–2019	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.

B2. Sustainable fisheries

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

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

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

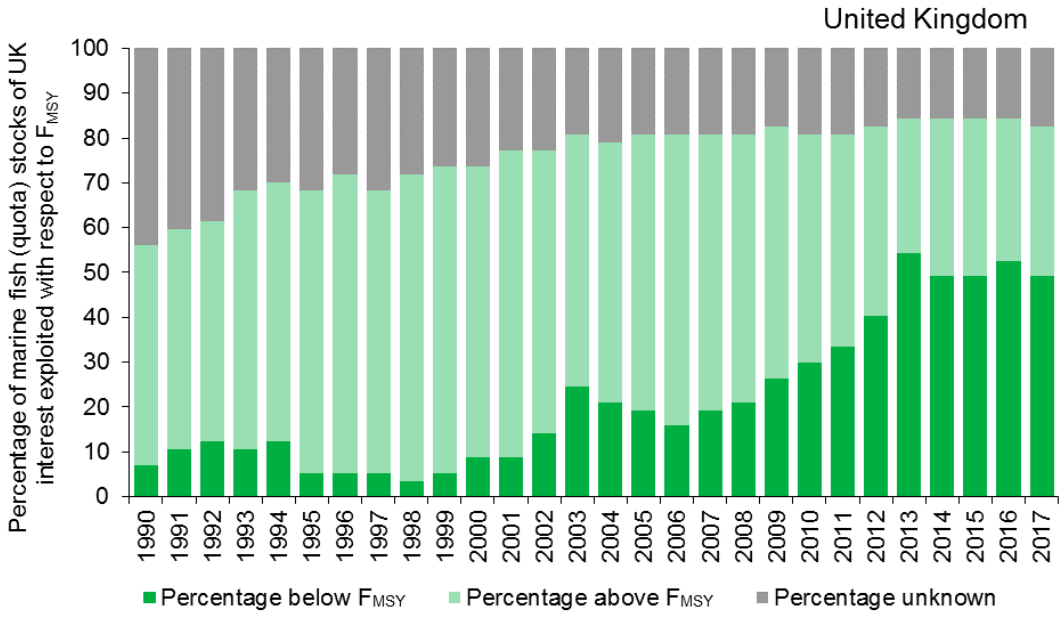
Following on from the previous publication, the indicator uses quota-fish assessments for UK good environmental status (GES) developed to meet the needs of the Marine Strategy Framework Directive (MSFD). Data have been updated to 2017 for both fishing pressure and spawning stock biomass.

Indicator Description

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

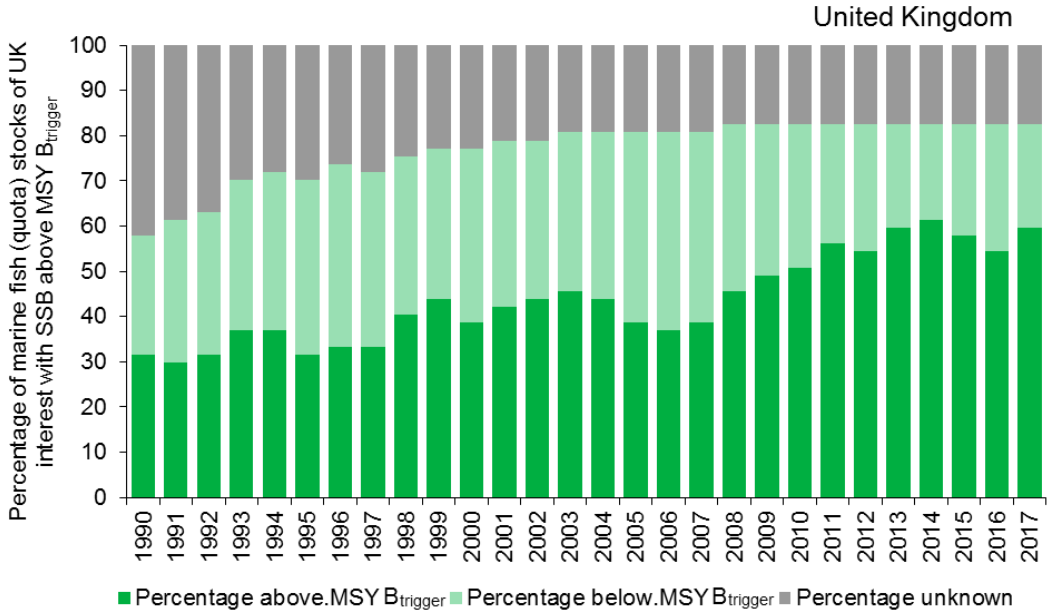
The indicator comprises 2 measures assessed separately: a) the percentage of stocks fished at or below the level capable of producing Maximum Sustainable Yield (MSY); and b) the percentage of stocks with biomass above the level capable of producing MSY.

Figure B2a. Percentage of marine fish (quota) stocks of UK interest harvested sustainably, 1990 to 2017.



The percentage of fish stocks (including *Nephrops*) fished at or below levels capable of producing maximum sustainable yield (F_{MSY}) has increased from 7% in 1990 to 49% in 2017. 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 increased from 32% in 1990 to 60% in 2017. In the final year (2017) there was a 6.7% decrease in the percentage of stocks with fishing pressure < F_{MSY} due to data availability and consequently more stocks classified as "unknown". 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 B2b. Percentage of marine fish (quota) stocks of UK interest with biomass at levels that maintain full reproductive capacity, 1990 to 2017.



Notes:

1. Based on 57 stocks for which data are available, derived from stock assessment reports.
2. The data series has been updated to 2017 and are different to the previous publication. When new stock assessment data are incorporated into the model to compile this time series, all data are subject to minor revisions.

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 marine fish stocks harvested sustainably	✓ 1990–2017	✓ 2012–2017	Decreased (2017)
Biomass of marine fish stocks at full reproductive capacity	✓ 1990–2017	✓ 2012–2017	Increased (2017)

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.

B3. Climate change adaptation

Indicator under development – progress to date

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

Indicator Description

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.

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 September 2013, the Intergovernmental Panel on Climate Change (IPCC) concluded that it was 95% certain that humans are the "dominant cause" of global warming since the 1950s, and that warming is projected to continue under all scenarios. 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

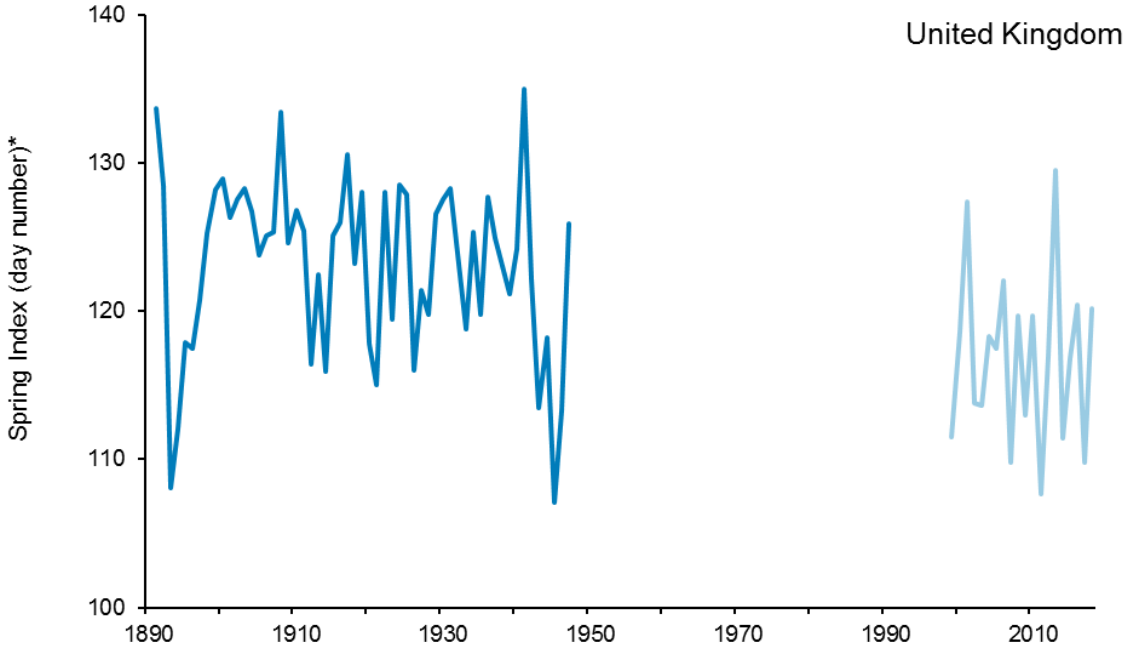
Since 1999, the annual mean observation dates have been around 6 days in advance of the average dates in the first part of the 20th century.

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.

Indicator Description

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*).

Figure B4i. Index of the timing of biological spring events (number of days after 31 December) in the UK, 1891 to 1947, and 1999 to 2018.



Notes: * Number of days after 31 December (e.g. day 121 = 1 May).

Source: 1891 to 1947 – Royal Meteorological Society; 1999 to 2018 – UK Phenology Network.

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 1999 biological events in the spring have occurred around 6 days in advance of the average dates in the period 1891 to 1947 (Figure B4i). The figures published since 2015 are slightly different to those published previously as a result of data correction in the underpinning database.

The advancement of spring events is strongly linked to warmer temperatures in March and April. The mean observation dates in 2011 were the second 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 – revised

i. Area affected by acidity

ii. Area affected by nitrogen

Type: Pressure Indicator

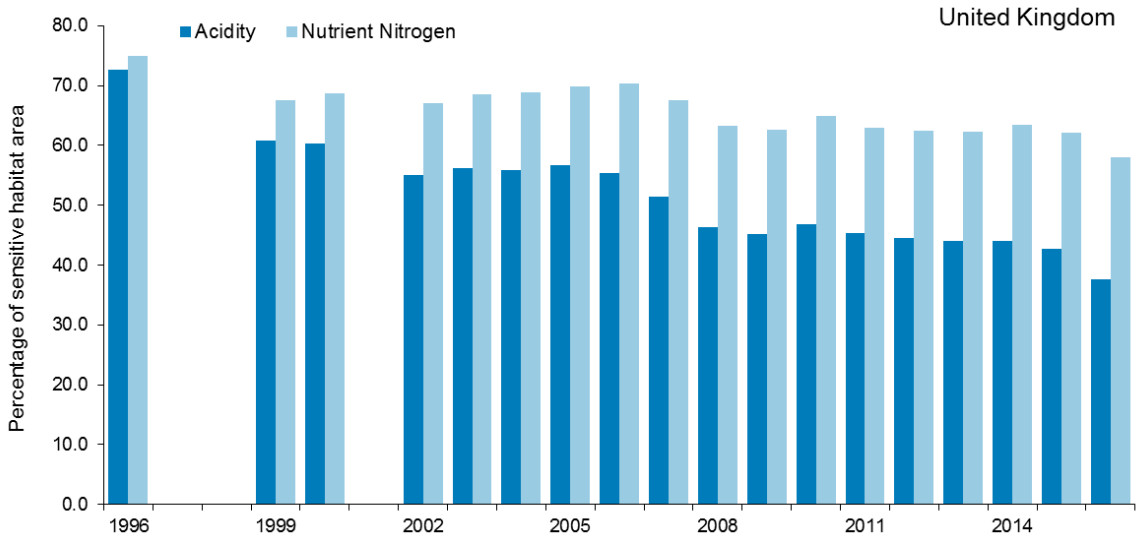
This indicator has been updated with the 2016 data which due to timing could not be included in the UK Biodiversity Indicators document published on 5th September 2019.

Indicator Description

The air pollutants sulphur dioxide, nitrogen oxides and ammonia can contribute to acidification, and nitrogen oxides and ammonia can 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, so statistics on critical load exceedance indicate the risk of damage.

The percentage of sensitive 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 2016, acid deposition exceeded critical load in 38% of sensitive habitats, and nitrogen deposition exceeded critical load in 58% of sensitive habitats.

Figure B5ai. Area of sensitive UK habitats exceeding critical loads for acidification and eutrophication, 1996 to 2016[5]



Notes:

1. Each column represents critical load exceedances based on 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

Source: 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	1996–2016	2011–2016	Decreased (2016)
Area affected by nitrogen	1996–2016	2011–2016	Decreased (2016)

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 UK habitats may occur. Approximately 78,000km^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.

[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 2016” refers to the time period 1995-1997 to 2015-17.

In 1996, acid deposition exceeded critical loads in 73% of the area of sensitive habitats. This declined to 38% in 2016. The short-term trend between 2011 and 2016 (using a 3-year average for years 2010 to 2012 and comparing with 2016) has showed a 17% decrease in the area affected by acidity. In 2016, nitrogen deposition exceeded critical loads in 58% of sensitive habitats. This was a decrease from a level of 75% in 1996. In the short term, nitrogen deposition has decreased by 8% (using a 3-year average for years 2010 to 2012 and comparing with 2016).

Based on these figures the habitat areas at risk from acid and nitrogen deposition has declined over the long term (1996 to 2016), however, reducing deposition below the critical loads does not necessarily mean that ecosystems have recovered, as there can be a time-lags before the chemical environment and the flora and fauna recover.

b. Marine pollution

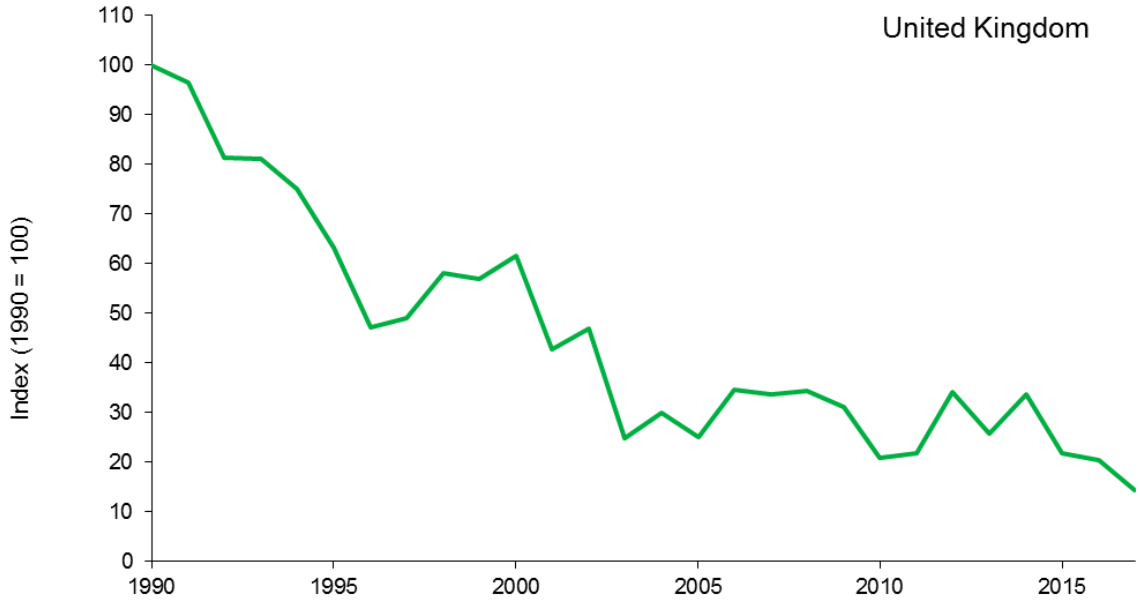
Type: Pressure indicator

The combined inputs of all 6 hazardous materials into marine environments have shown a long-term decrease of 86% since 1990. Inputs of all 6 of these substances show decreases in the short term since 2012.

Indicator Description

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.

Figure B5bi. Combined input of hazardous substances to the UK marine environment, as an index of estimated weight of substances per year, 1990 to 2017.



Source: Defra Marine Strategy and Evidence Division, using data provided by: Environment Agency, Northern Ireland Environment Agency, Scottish Environment Protection Agency.

Levels of all 6 substances declined over the period 1990 to 2017: lindane by 97%; both mercury and cadmium by 91%; zinc by 71%; copper by 68% and lead by 58%.

In the short term, inputs of hazardous substances decreased by 47% from 2012 to 2017 (using a 3-year average for 2012). Inputs of all 6 hazardous substances declined in the short term: lindane

had the highest percentage decrease (-89%), followed by cadmium which decreased by 33%, and then lead (-30%), both mercury and zinc decreased by -28%, and copper by 25% since 2012.

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	1990–2017	2012–2017	Decreased (2017)

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

There are 3,208 non-native species in Great Britain, 2,005 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 2018, 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, terrestrial and marine (coastal) environments, thereby increasing the likely pressure on native biodiversity (Figure B6i).

Indicator Description

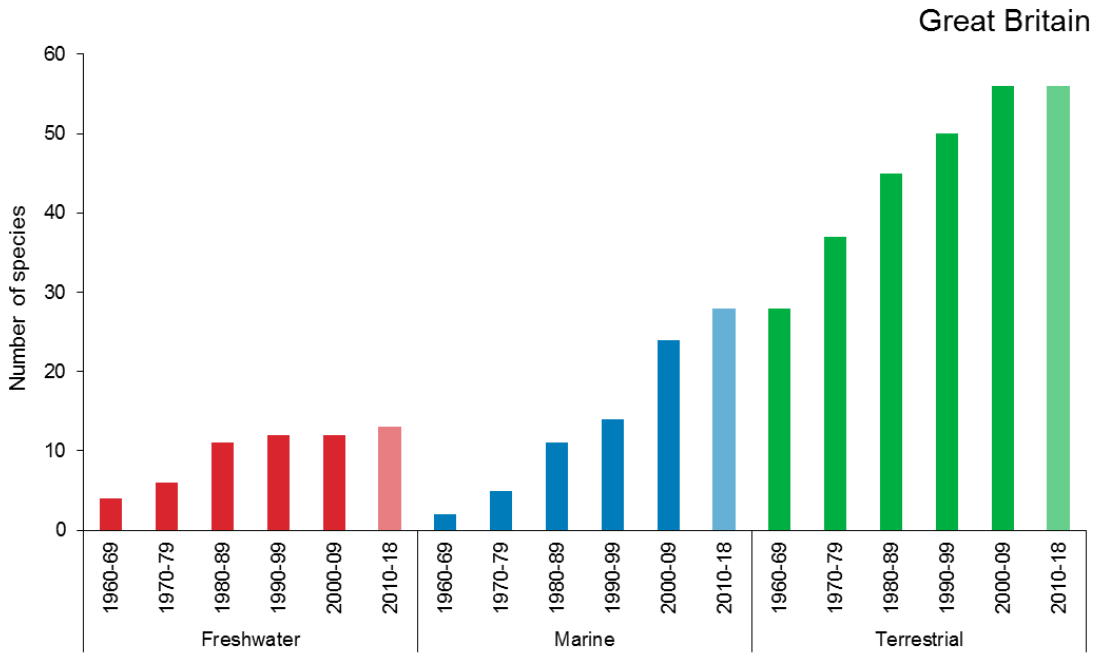
Non-native species are those that have reached Great Britain by accidental human transport, deliberate human introduction, or which arrived by natural dispersal from a non-native population in Europe. Species that have arrived since 1500 are included within this indicator. Most non-native species are 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.

Comparing the latest period (2010 to 2018) with the previous one (2000 to 2009), the number of invasive non-native species established in or along

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

10% or more of Great Britain's land area or coastline has remained constant in terrestrial environments (at 56 species), and has increased in both freshwater (from 12 to 13 species) and marine environments (from 24 to 28 species).

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 2018.



Notes: The most recent time period covers a slightly shorter period than the other bars (from 2010 to 2018).

Source: Botanical Society of Britain & Ireland, British Trust for Ornithology, Centre for Ecology & Hydrology, Marine Biological Association, National Biodiversity Network.

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

	Long term	Short term	Latest year
Freshwater invasive species	1960–2018	Not assessed	Not assessed
Marine (coastal) invasive species	1960–2018	Not assessed	Not assessed
Terrestrial invasive species	1960–2018	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.

B7. Surface water status

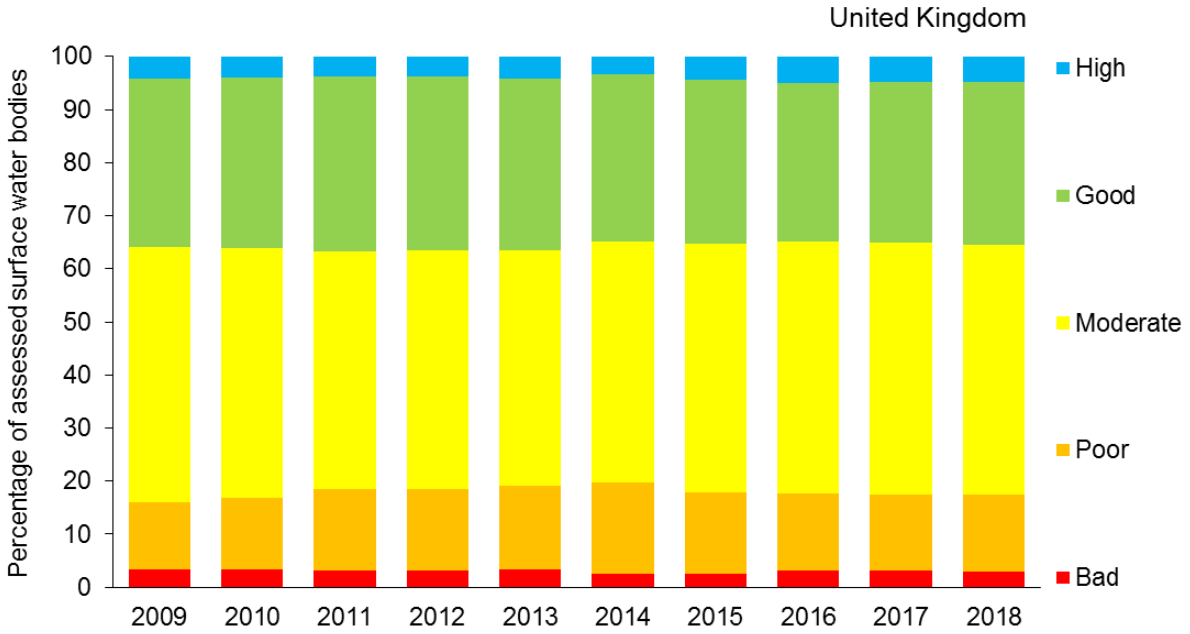
Type: State Indicator

There has been a small decrease 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 a similar decrease in the short term, between 2013 and 2018 (Figure B7i). In 2018, 35% of surface water bodies were assessed under the Water Framework Directive (WFD) as being in high or good status compared with 36% in 2009 and 37% in 2013

Indicator Description

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.

Figure B7i. Status classification of UK surface water bodies under the Water Framework Directive, 2009 to 2018.



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 will report next in late 2019. 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; and 9,300 in 2018. These figures were revised for the 2017 publication.
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		 2013–2018	No change (2018)

Note: The short-term assessment is based on a 3% rule of thumb. The base year for this assessment uses a 3-year average. See Assessing Indicators.

The WFD specifies the quality elements that can be used to assess the surface water status of a water body. Quality elements can be biological (e.g. fish, invertebrates and plants), chemical (e.g. heavy metals, pesticides and nutrients) or indicators of the condition of the habitats and water flows and levels (e.g. presence of barriers to fish migration and modelled lake level data). Classifications indicate where the quality of the environment is good, where it may need improvement and what may need to be improved. They can also be used, over the years, to plan improvements, show trends and monitor progress.

The ecological status of UK surface water bodies is a measure that looks at both the biological and habitat condition status of a water body. Some small differences exist in the way the administrations and environment agencies implement the methods and tools for assessing water body status.

The introduction of new WFD monitoring data and classification standards in 2014 (including a new baseline adopting all of the new standards, tools, designations and water body boundaries) has led to a step change in the number of water bodies assessed as being in each status classification in following years. It also led to a reduction in the total number of water bodies being assessed because under the new WFD guidance, water bodies below the 10km^2 catchment area no longer need to be included. The formal reporting of new standards in cycle 2 of the WFD uses the second cycle plans published in 2015. In Scotland, refined methods and environmental standards have been used to assess water body condition since 2013. Small numbers of changes to surface water body boundaries occurred throughout the period, and in 2013 groundwater body boundaries were refined to reflect improved understanding.

C1. Protected areas

a. Total extent of protected areas: on-land

b. Total extent of protected area: at-sea

c. Condition of Areas / Sites of Special Scientific Interest

Type: Extent – Response Indicator; Condition – State/Response Indicator

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 7.4 million hectares, from 21.2 million hectares (ha) in December 2014 to 28.6 million hectares at the end of May 2019 (Figure C1i).

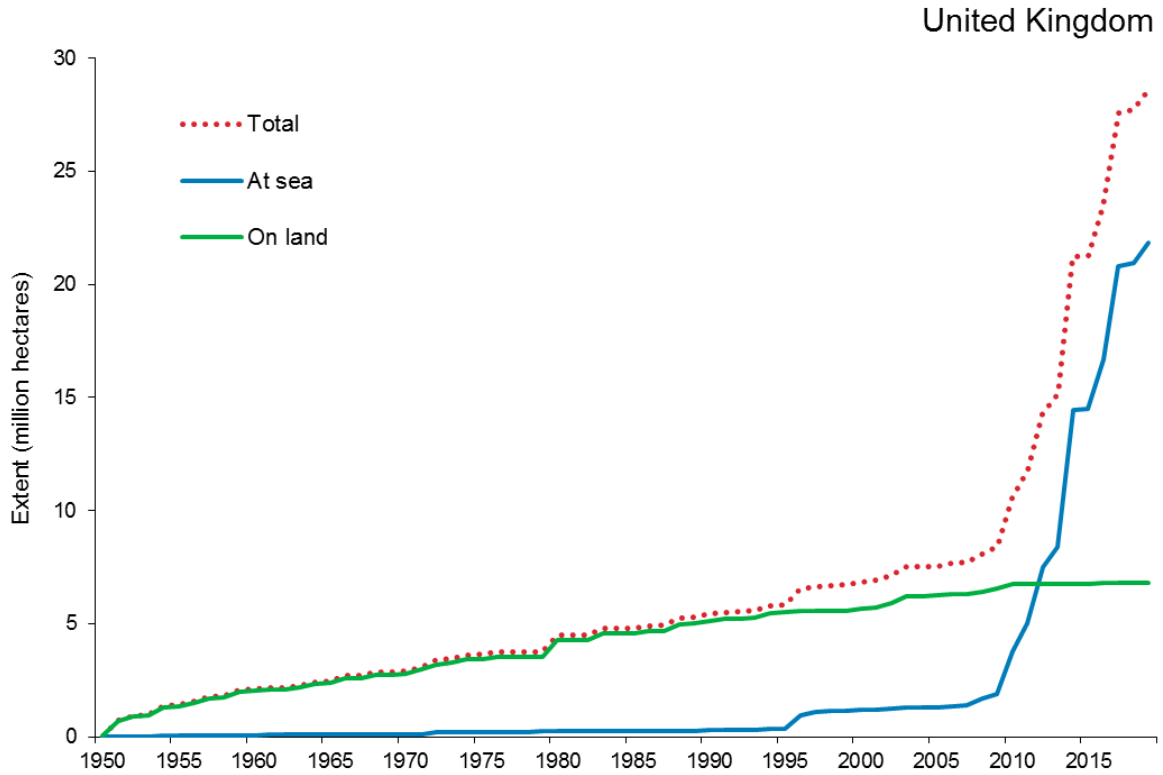
This increase is almost entirely down to the designation of inshore and offshore marine sites under the European Union (EU) Habitats Directive, the designation of Marine Conservation Zones (MCZ) in English, Welsh, and Northern Irish waters, and designation of Nature Conservation Marine Protected Areas (NCMPA) in Scottish waters. The extent of protected areas on land has increased by 11,200 hectares since 2014.

Indicator Description

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.

Figure C1i. Extent of UK nationally and internationally important protected areas: (a) on land and (b) at sea, 1950 to 2019.

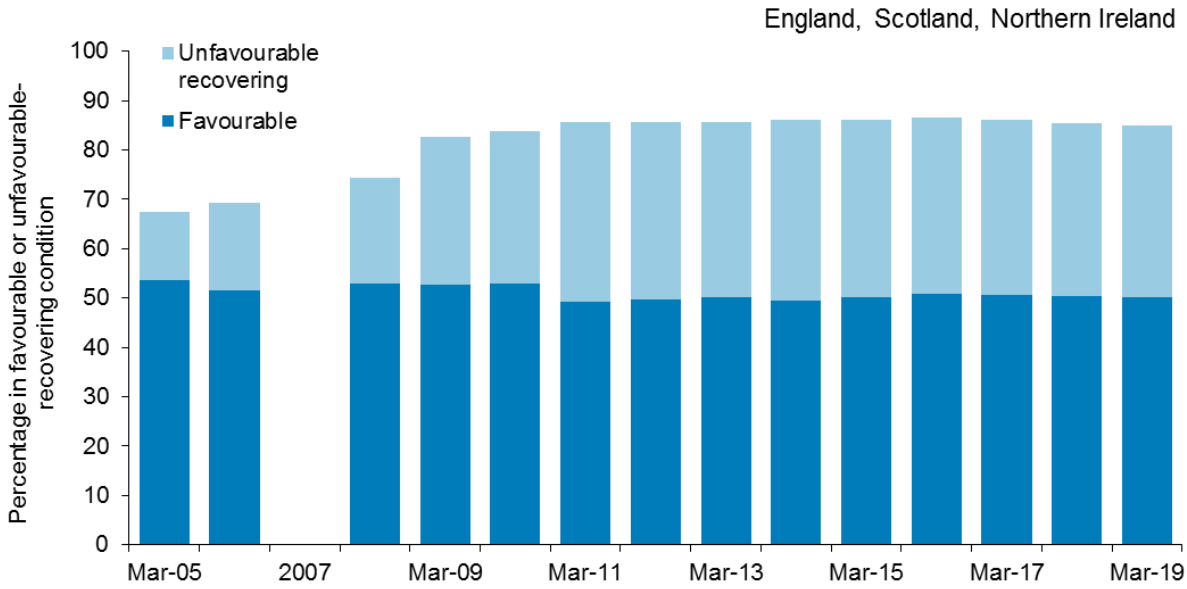


Notes:

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 88,613 million hectares.
2. Based on calendar year of site designation. For 2019, the data cut-off is 31 May. The calculation method and projection of spatial areas has changed since the last publication of this indicator (2018); these data are therefore not directly comparable to those presented in previous publications (see the online fiches for further details).
3. 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, Scottish Natural Heritage.

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 2019.



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 A/SSSIs notified for geological features only.

Source: Natural England, Northern Ireland Environment Agency, Scottish Natural Heritage.

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 2014, and remained stable at 85% in 2019 (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 2019. These changes reflect improved management of sites, but may also be affected by a greater number of sites/features having been assessed over time.

Assessment of change in area and condition of UK protected areas			
	Long term	**Short term**	**Latest year**
Total extent of protected areas: on land	1950–2019	2014–2019	No change (2019)
Total extent of protected areas: at sea	1950–2019	2014–2019	Increased (2019)
Condition of A/SSSIs	2005–2019	2014–2019	No change (2019)

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 for details.

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

No new data point but this indicator has been updated to include woodland birds.

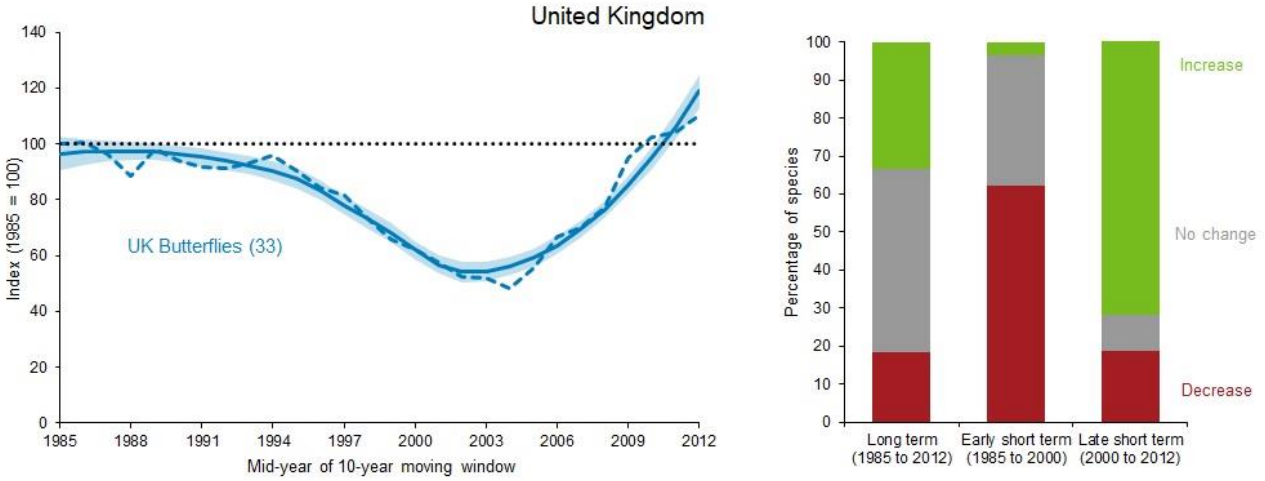
For UK butterflies, the average functional connectivity between 1985 and 1995 was relatively stable, the unsmoothed index fell to a low of 48% in 2004, and then rose. The level of functional connectivity in 2012 (110%) is 10% greater than in the start year of 1985, with 72% of species increasing in connectivity 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.

Indicator Description

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.

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

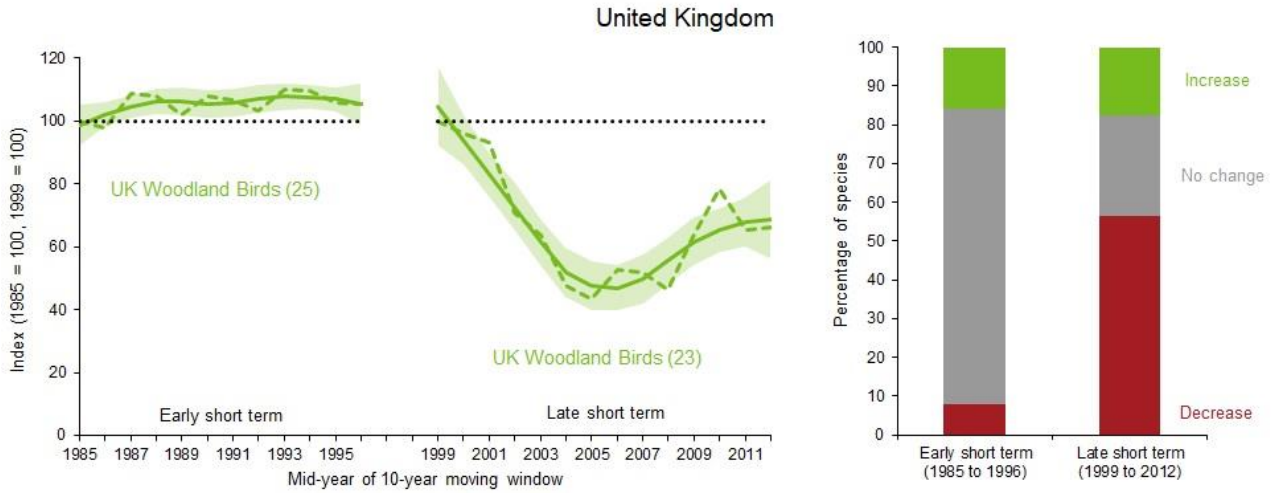


Notes:

1. The connectivity index was calculated as the mean value of population synchrony using a 10-year moving window. The index values were extracted from a statistical (mixed effects) model which accounts for other factors known to influence population synchrony, therefore focusing the measure on functional connectivity.
2. The line graph shows the unsmoothed average trend (dashed line), and the smoothed average trend (using a LOESS regression function; solid line) of functional connectivity over time across all 33 species. The shaded area represents the 95% confidence interval around the smoothed average trend.
3. The figure in brackets shows the number of species in the index.
4. The number of individual species included in each time period varies due to the availability of data: there were 21 species in the long-term period, 24 in the early short-term period and 31 in the late short-term period. In all, 33 species from 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.

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.

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?).

[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.

C3. Status of European habitats and species

a. Status of UK habitats of European importance – revised

Type: State Indicator

This indicator has been updated 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.

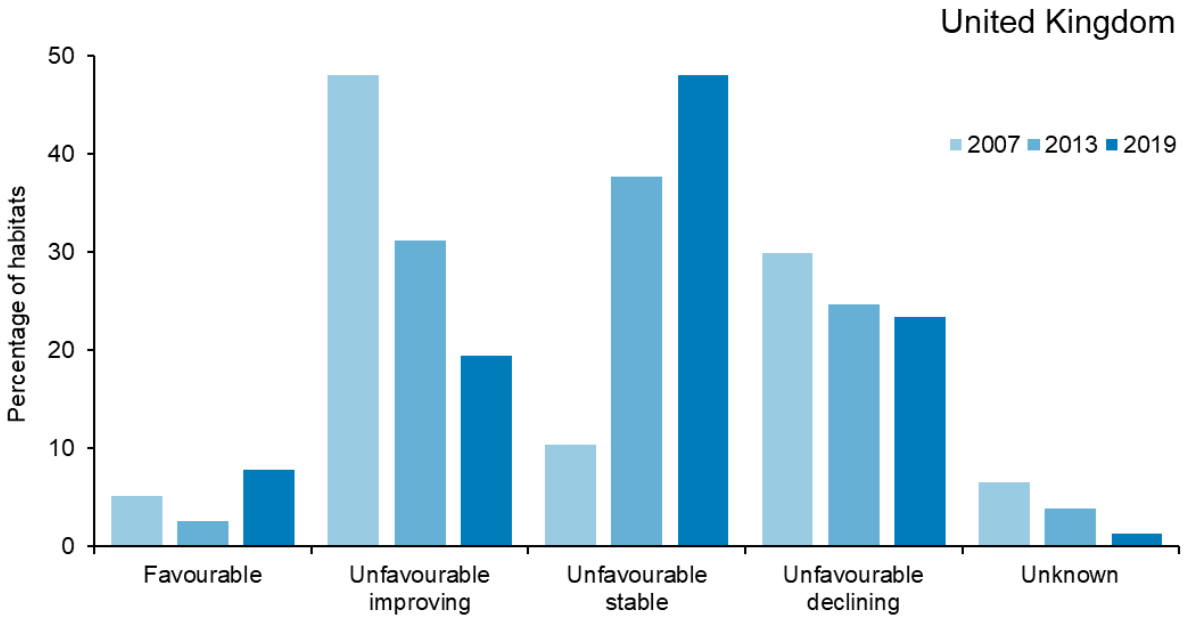
The proportion of the habitats assessed as unfavourable-stable increased from 10% in 2007, to 38% in 2013, and to 48% in 2019.

Indicator Description

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 online fiche. 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).

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 – revised

Type: State Indicator

This indicator has been updated 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.

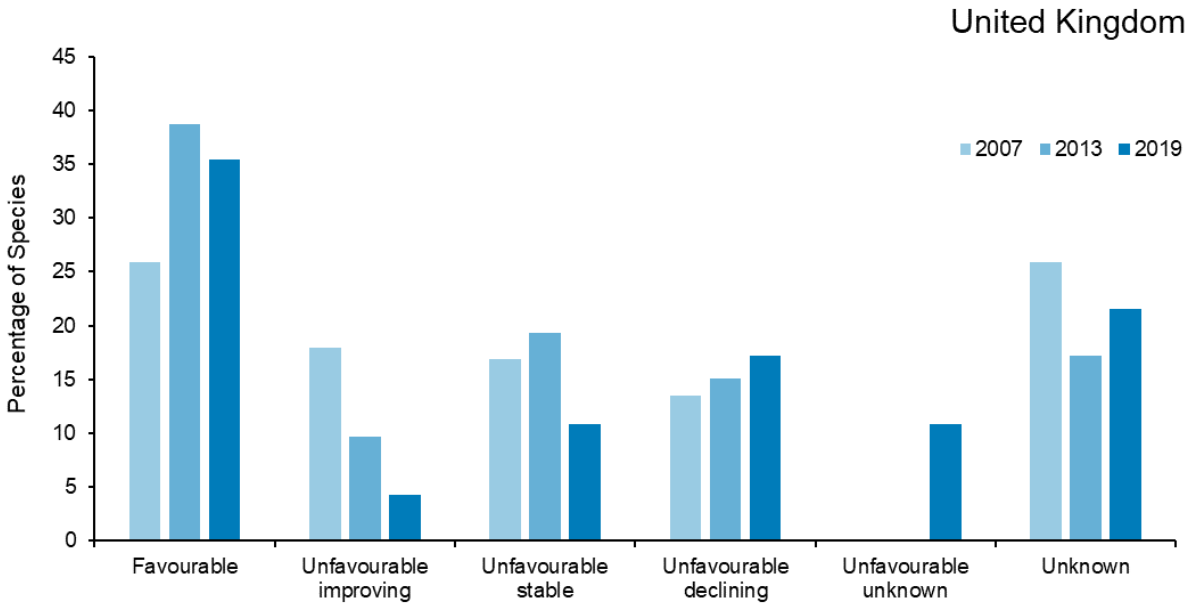
The conservation status of 14% of the species was unfavourable-declining in 2007, this increased to 15% in 2013 and 17% in 2019. The proportion of the species assessed as unfavourable-stable increased from 17% in 2007 to 19% in 2013, and decreased to 11% in 2019.

Indicator Description

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 online fiche. 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).

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

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 214 species for which abundance trends are available.

By 2016, the index of relative abundance of priority species in the UK had declined to 40% of its base-line value in 1970, a statistically significant decrease (Figure C4ai). Over this long-term period, 22% of species showed a strong or weak increase and 63% showed a strong or weak decline.

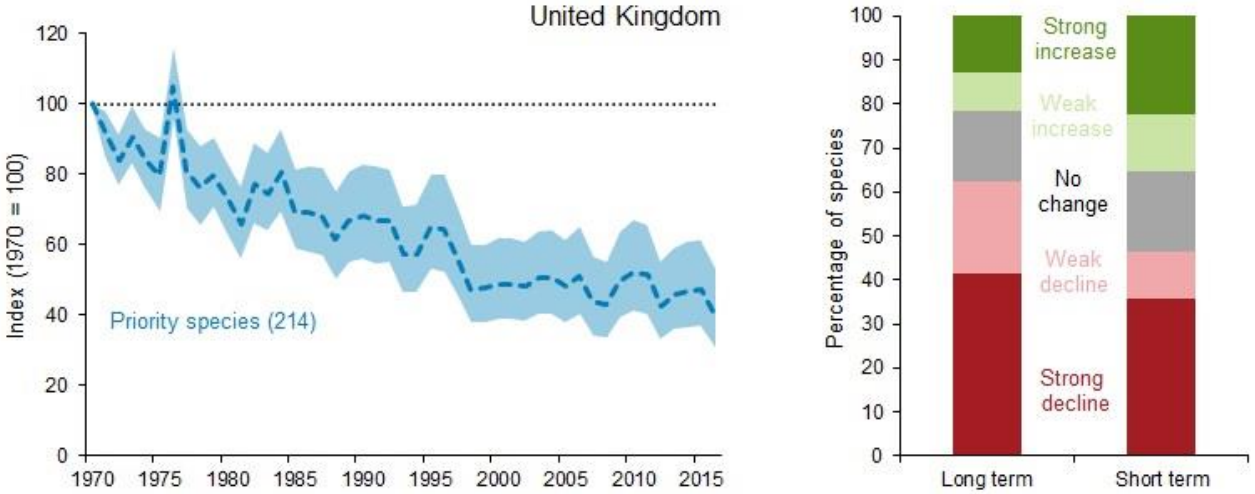
Indicator Description

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.

Between 2011 and 2016, the index was 22% lower than its value in 2011, again showing a statistically significant decrease. Over this short-term period, 35% 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 2016.



Notes:

5. The line graph shows the unsmoothed trend (dashed line) with its 95% confidence interval (shaded area).
6. The figure in brackets shows the number of species included in the composite index.
7. The bar chart shows the percentage of species within the indicator that have increased (weakly or strongly), decreased (weakly or strongly) or shown no change in abundance based on set thresholds of change.
8. 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).
9. This indicator is not directly comparable with the previous publication. There have been a number of minor changes in the composition and a revision to the statistical methods used (see the online fiche for more detail).

Source: Bat Conservation Trust, British Trust for Ornithology, Butterfly Conservation, 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	⊗ 1970–2016	⊗ 2011–2016	Decreased (2016)

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

Of the 2,890 species in the combined priority species list, the 214 for which robust quantitative time series of relative species abundance are available are included in the indicator. These 214 species include birds (104), butterflies (23), mammals (11) and moths (76). 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

No additional data point since the previous publication but methodological changes have resulted in revisions to the full data series (see the online fiche for further details).

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.

Indicator Description

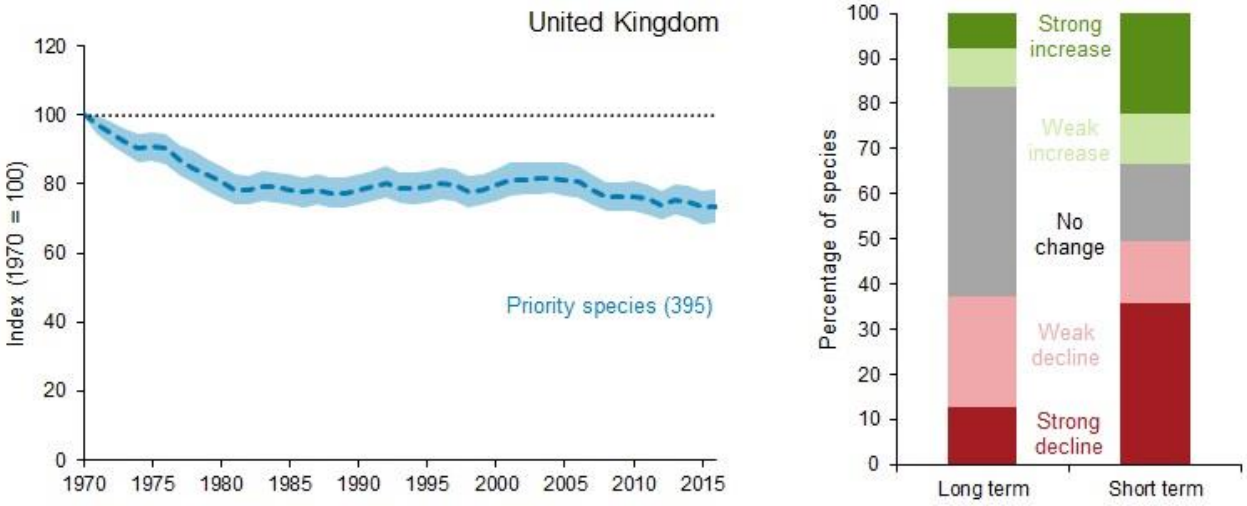
This indicator measures change in the number of 1km grid squares across the UK in which priority species were recorded in any given year. This is referred to as the 'occupancy index' and is effectively equivalent to changes in the distribution of priority species for which data are available. The indicator will increase when priority species become more widespread on average, and decrease when species becomes less widespread.

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

Between 1970 and 2016, 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 27%.

The index was 3% lower in 2016 than in 2011, with 33% of species showing an increase and 50% showing a decline. However, this short-term decrease was not significant, and therefore the short-term assessment is stable.

Figure C4bi. Change in distribution of UK priority species, 1970 to 2016.



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 no 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. As a result of methodological improvements and more stringent criteria in the occupancy model analysis, fewer

species have been included in the 2019 iteration of this indicator compared with the 2018 iteration (714 versus 395). Since 2018, data updates to the Biological Records Centre database for 3 groups (craneflies, hoverflies and leaf and seed beetles) have been received for this indicator (see the online fiche for further details).

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	1970–2016	2011–2016	No change (2016)

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 – *not updated, see note under figure C5di*

e. Wintering waterbirds

Type: State Indicator

In 2017, the UK farmland bird index was less than half (46%) of its 1970 value. Short term, between 2011 and 2016, the smoothed index decreased by 7%.

The woodland bird index was 25% less than its 1970 value in 2017. Short term, between 2011 and 2016, the smoothed index decreased by 5%.

In 2017, the water and wetland bird index showed no significant change since 1975. Short term, between 2011 and 2016 the smoothed index increased by 3%.

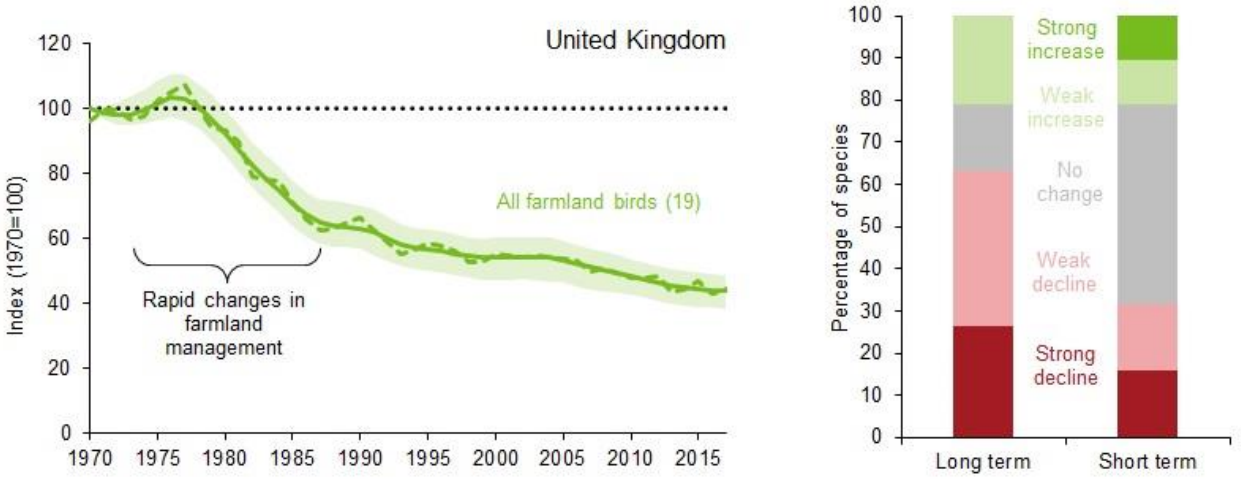
In 2015 the breeding seabird index was 22% below its 1986 value. Short term, between 2009 and 2014 the index declined by 6% - *see note under figure C5di.*

In 2016/17, the wintering waterbirds index was 106% higher than in 1975/76. Short term, between 2010/11 and 2015/16, the smoothed index showed no significant change.

Indicator Description

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.

Figure C5ai. Breeding farmland birds in the UK, 1970 to 2017.

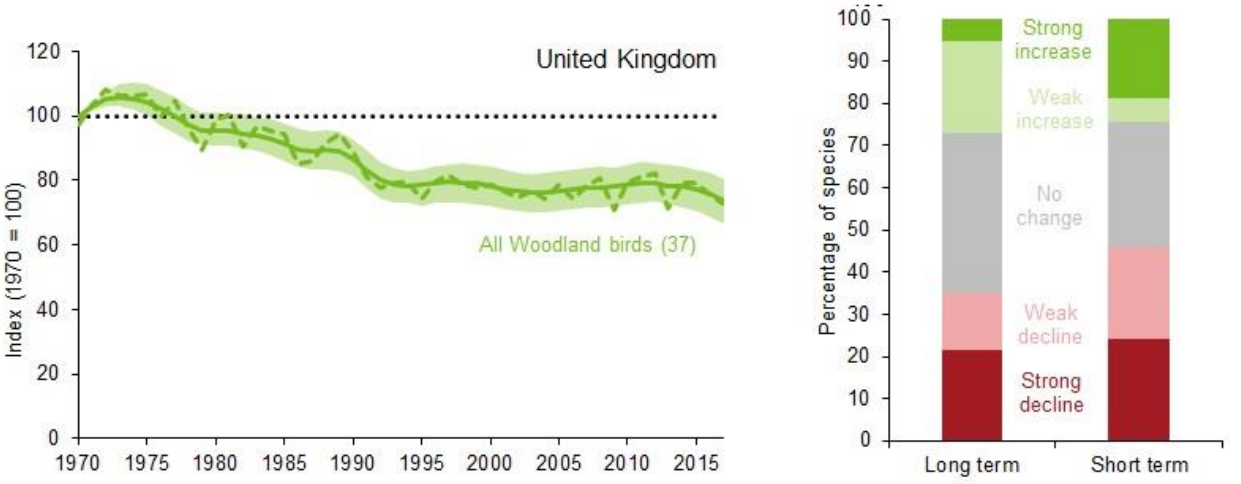


Notes:

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 no 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 2017.

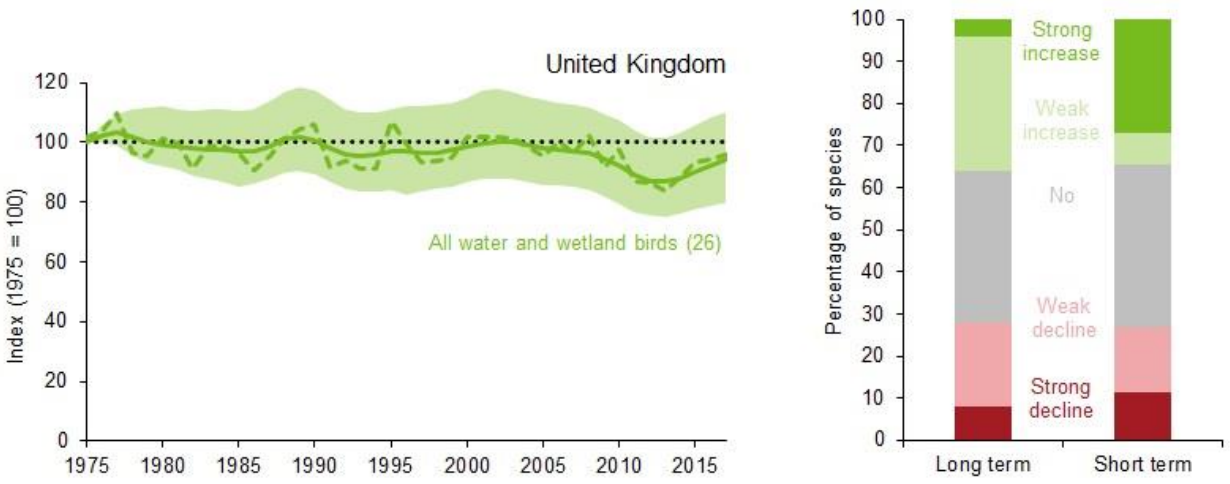


Notes:

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 no 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 2017.

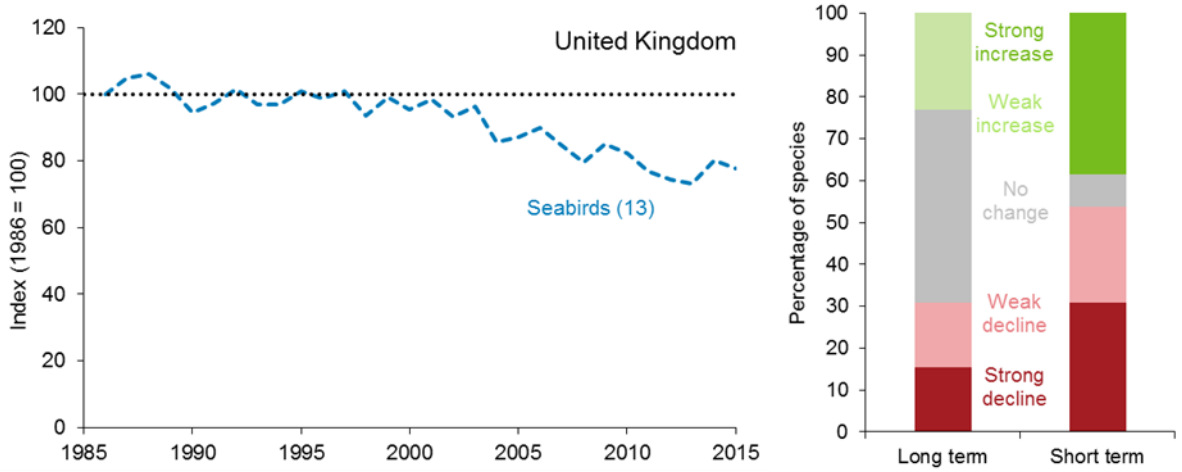


Notes:

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 no 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 2015 – not updated, see note below figure C5di.

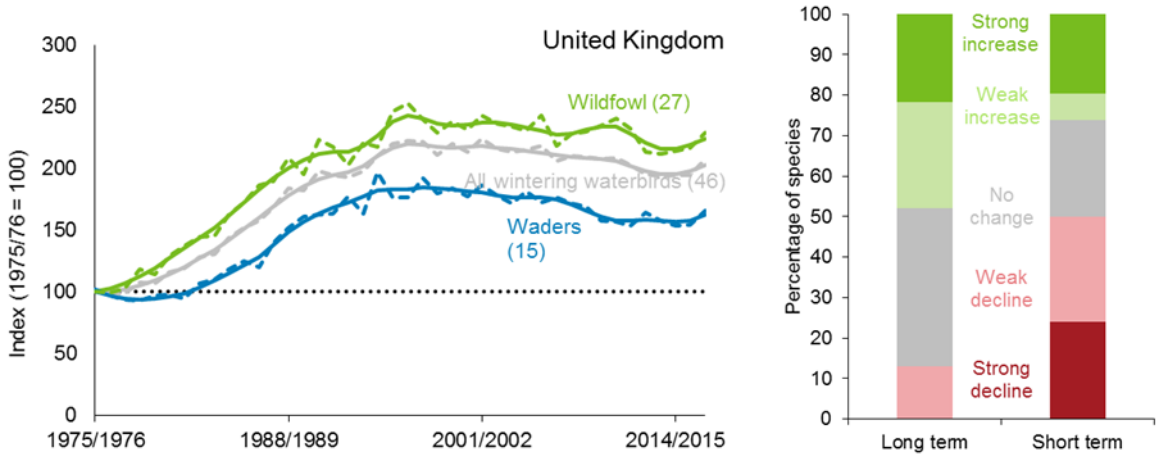


Notes:

1. The line graph shows the unsmoothed trend (dashed line) – no smoothed trend is available for seabirds, as individual species population trends are analysed using an imputation procedure that does not include smoothing. As data are based on a mixture of full counts and sample sites, standard bootstrapping methods used for other indicators cannot be applied.
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 no change, based on set thresholds of annual change.
4. In 2016, the Seabird Monitoring Programme (SMP) Steering Group made the decision to put the analysis and publication of the annual SMP report on hold for 2 years. The reason for this was to enable staff time to be dedicated to the current breeding seabird census, Seabirds Count. Although SMP data is still being collected, and in higher volumes for the census, the absence of analysed data for 2016 and 2017 means this indicator has not been updated.

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 2016/17.



Notes:

1. The line graph shows the unsmoothed trend (dashed line) and smoothed trend (solid line).
2. The figure in brackets shows the number of species in the index.
3. The bar chart shows the percentage of species within the indicator that have increased, decreased, or shown no change, based on set thresholds of annual change.
4. Based on financial years.
5. Data from surveys of wintering waterbirds are based on full counts on wetland and coastal sites of markedly varying size. This means that standard indicator bootstrapping methods cannot be applied.

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	1970–2016	2011–2016	Increased (2017)
Woodland birds	1970–2016	2011–2016	No Change (2017)
Wetland birds	1975–2016	2011–2016	No Change (2017)
Wintering waterbirds	1975/76–2015/16	2010/11–2015/16	Increased (2016-17)

Notes:

1. Whilst latest year percentage changes in these indices are reported based on the most recent unsmoothed data point (2017), the formal long-term and short-term assessments of the statistical significance of these changes are made using the smoothed data to 2016. This is because the most recent smoothed data point (2017) is likely to change in next year's update when additional data are included for 2018.
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

Since 1976, the unsmoothed habitat specialist butterflies index has fallen by 68% (Figure C6a).

Over the same period, the unsmoothed index for species of the wider countryside has fallen by 30% (Figure C6b).

Large fluctuations in numbers between years are typical features of butterfly populations, principally in response to weather conditions. The summer heatwave of 2018 meant that last year was a better year for butterflies in the UK; ranked 18th in the 43-year series, with more than two-thirds of species increasing in annual abundance.

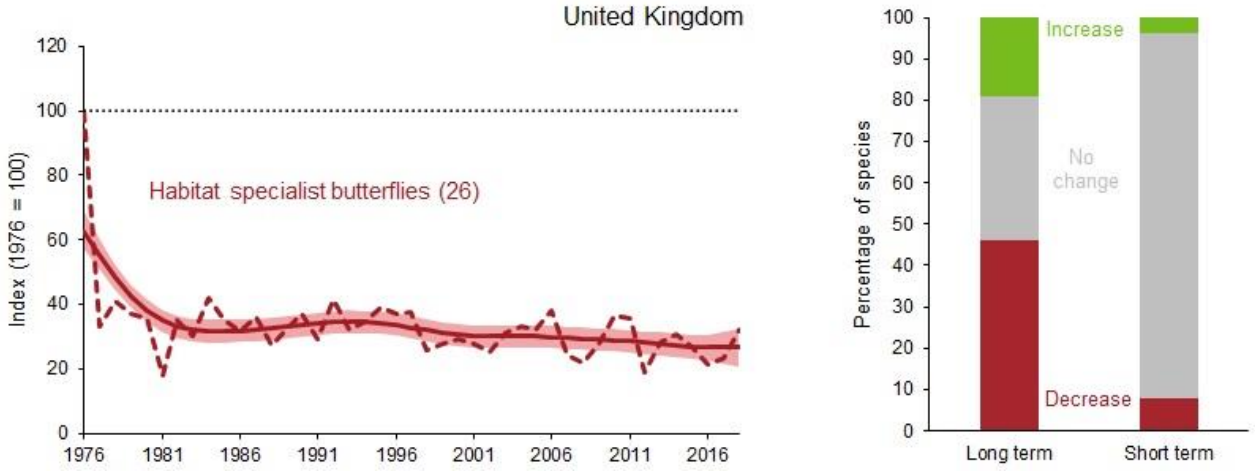
Indicator Description

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.

The statistical assessment of change is made on an analysis of the underlying smoothed trends. Since 1976, populations of habitat specialists and species of the wider countryside have declined significantly but since 2013, both trends show no significant change

Figure C6ai. Trends for habitat specialist butterflies in the UK, 1976 to 2018.

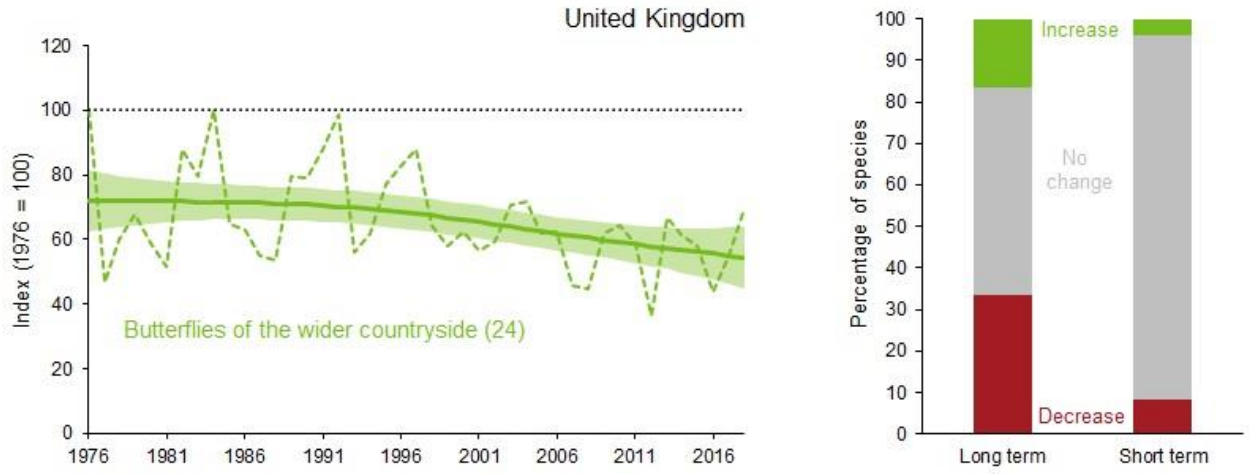


Notes:

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.
4. Since 2017, an improved analysis method has been used to derive the species indices (see the online fiche for further information).
5. The line graph is not directly comparable to those appearing in previous versions of this publication. Improvements in the modelling technique have allowed the inclusion of more data; this has resulted in slight alterations to the trends for individual species and the composite trend.

Source: Butterfly Conservation, Centre for Ecology & Hydrology, Defra, Joint Nature Conservation Committee.

Figure C6bi. Trends for butterflies of the wider countryside in the UK, 1976 to 2018.



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*); these 2 species have been combined due to historical difficulties with distinguishing 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.
5. Since 2017, an improved analysis method has been used to derive the species indices (see the online fiche for further information).
6. The line graph is not directly comparable to those appearing in previous versions of this publication. Improvements in the modelling technique have allowed the inclusion of more data; this has resulted in slight alternations to the trends for individual species and the composite trend.

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

Assessment of change in butterfly populations			
	Long term	Short term	Latest year
Habitat specialists	1976–2018	2013–2018	Increased (2018)
Species of the wider countryside	1976–2018	2013–2018	Increased (2018)

Note: While 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 2018. Analysis of the underlying trends is undertaken by the data providers.

C7. Plants of the wider countryside

Indicator under development – progress to date

No new data since previous publication.

An indicator of plant species richness has been published previously within the biodiversity indicators set, based on analysis of changes in land cover recorded in the Countryside Survey; a detailed periodic audit of a statistically representative sample of land across Great Britain. As the latest Countryside Survey data are from 2007, the data previously presented for this indicator are considered too out of date to be fit-for-purpose and retained within the indicator set as a headline measure: the UK Biodiversity Indicators Steering Group therefore took the decision to move this data and analysis to the background section of this fiche.

Indicator Description

Until 2013, the indicator presented the change in plant species richness in survey plots across Great Britain between 1990 and 2007 for a range of widely occurring habitats. The results from 7 habitat types were presented, grouped into 3 measures for the assessment: arable and horticultural land; woodland and grassland; and boundary habitats. As the data has not been updated since 2007, the data presented previously is considered too out of date to be fit-for-purpose. A new indicator based on the National Plant Monitoring Scheme is being considered, but needs more work before it can be presented as an experimental statistic.

During 2015 and 2016, the Centre for Ecology & Hydrology (CEH), Joint Nature Conservation Committee (JNCC) and Defra, investigated the possibility of using Bayesian occupancy models (see indicators C4b and D1c for details) to identify trends in plant species. Trials have focussed on species that will be monitored with the National Plant Monitoring Scheme (NPMS; see below). CEH have since developed a novel combined abundance/occupancy model for NPMS data in a Bayesian framework. Simulation tests and applications to real data indicate potential to contribute to a new indicator of UK habitat quality. Further development is needed to extend the model to create annual indices and to give consideration to the method of individual species trend aggregation.

In the slightly longer term it is anticipated that this National Plant Monitoring Scheme, designed by the Botanical Society of Britain and Ireland (BSBI), CEH, Plantlife and JNCC, will provide relative abundance data for around 400 indicator species. This will be more equivalent to the data underpinning the birds, bats and butterfly indicators, allowing a more comparable indicator of plants and habitat trends to be developed. It will not be possible to produce a trend before 2020, as the NPMS was only launched in 2015 and further time is needed to collect enough data to be able to calculate the size and direction of the trend.

C8. Mammals of the wider countryside (bats)

Type: State Indicator

The bat index has increased by 42% between 1999 and 2017. In the short term, between 2012 and 2017, the bat index has increased by 10%.

The bat index is a composite of 10 species trends (11 species with 2 combined). Since 1999, 5 of the bat species trends included in the index have increased and 5 have shown no significant change. The UK's rarer and more specialised bat species are not included in the index due to difficulties monitoring these species.

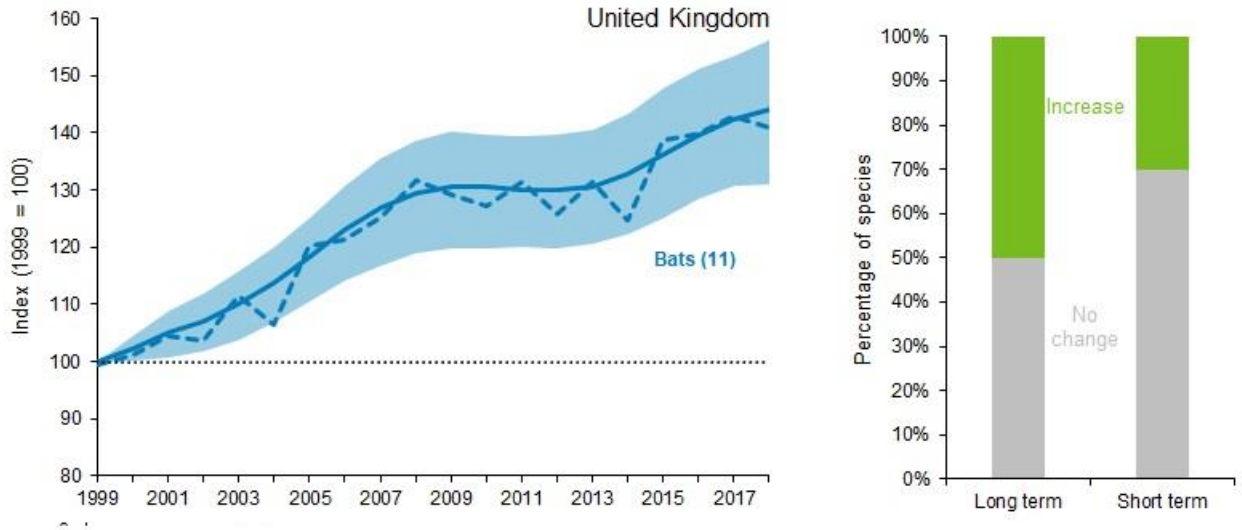
The increase in the index is underpinned by

Indicator Description

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 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 in the field. Bat species make up a third of the UK's mammal fauna and occur in most lowland habitats across the UK.

significant increases in populations of 3 species, greater horseshoe bat, lesser horseshoe bat and common pipistrelle. These increases indicate that some bat species are recovering after what are believed to have been major population declines during the 20th century.

Figure C8i. Trends in bat populations, 1999 to 2017.



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 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 no significant change.
5. Since 2018, this indicator has been extended to include 11 species instead of 8. The complete time series in the accompanying dataset has also been updated to reflect these changes.
6. The model used to analyse some individual species trends has changed since the previous publication, and these results are therefore not directly comparable (see the online fiche for more details).

Source: Bat Conservation Trust.

Assessment of change in widespread bat populations			
	Long term	Short term	Latest year
Bat populations	1999–2017	2012–2017	Decreased (2018)

Note: Long-term and short-term assessments are made on the basis of smoothed trends to the penultimate year (2016) by the Bat Conservation Trust. This is because the most recent smoothed data point (2017) is likely to change in next year's update when additional data are included for 2018. As such, the latest year assessment 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

Indicator Description

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 in-breeding 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).

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

 for pigs decreased from 176 in 2000 to 174 in 2013 and to 152 in 2018;

 for horses decreased from 178 in 2000 to 128 in 2013 and to 117 in 2018;

 for sheep increased from 245 in 2000 to 380 in 2013 and to 403 in 2018;

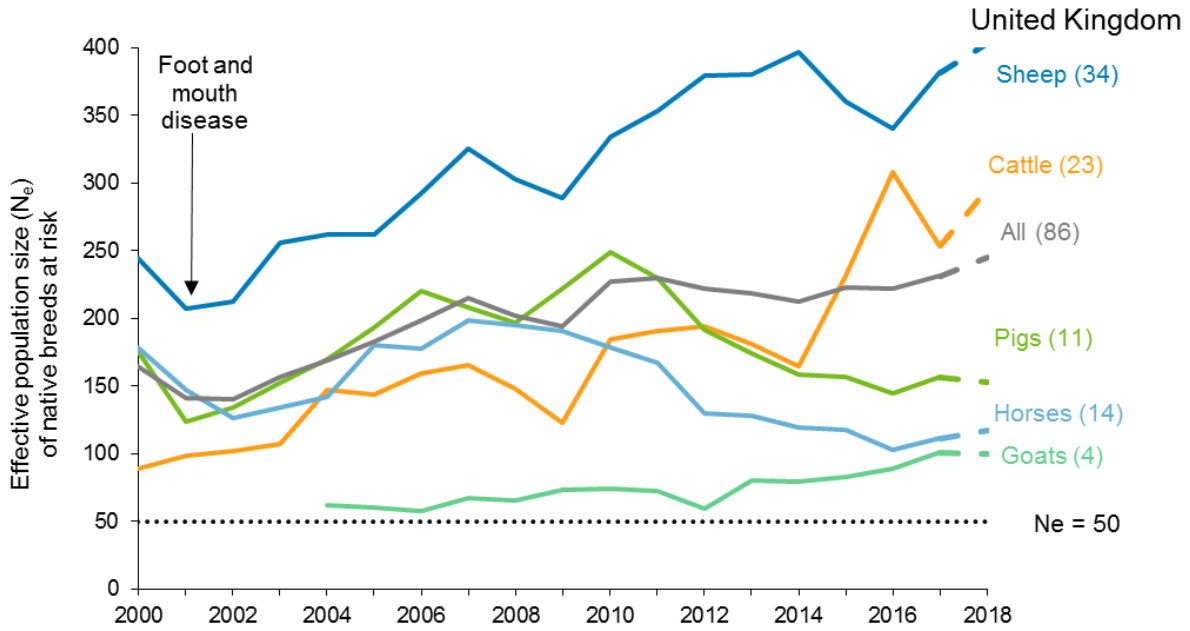
 for cattle increased from 88 in 2000 to 181 in 2013 and to 295 in 2018;

 for goats the dataset starts in 2004 when it was 62, increasing to 80 in 2013 and increasing to 100 in 2018; prior to 2004, effective population size could only be calculated for one breed.

The *average* effective population sizes calculated between 2000 and 2018 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 2018, of the Native Breeds at Risk, one breed of goat (Toggenburg), 3 breeds of horse (Cleveland Bay Horse, Eriskay Pony, and Suffolk Punch), and one breed of cattle (Vaynol), had a N_e less than 50. No breeds of sheep or pig had effective population sizes below the threshold in 2018.

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 2018.



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 2018 data only relates to a third of the total breeds and these are for 4 goat breeds, 11 pig breeds, 13 horse breeds, 30 sheep breeds, and 18 cattle breeds. Further details of how many breeds are included in each year can be found in the technical background document and the datasheet.
2. Data for 2015, 2016 and 2017 in the previous publication of this indicator was provisional. However two thirds of the breeds data has now been collected through the three yearly survey in October 2018. Data for 2018 are provisional, hence the last part of the lines are showed as 'dashed'. It is expected that the 2018 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 8 May 2019.
4. Historic data for some breeds have been revised. As a result, this indicator is not directly comparable with the previous publication. The Breed Inventory Results published on 8 May 2019 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	2004–2018	2013–2018	Decreased (2018)
Pig breeds	2000–2018	2013–2018	Decreased (2018)
Horse breeds	2000–2018	2013–2018	Increased (2018)
Sheep breeds	2000–2018	2013–2018	Increased (2018)
Cattle breeds	2000–2018	2013–2018	Increased (2018)

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

No update since previous 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.

Indicator Description

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.

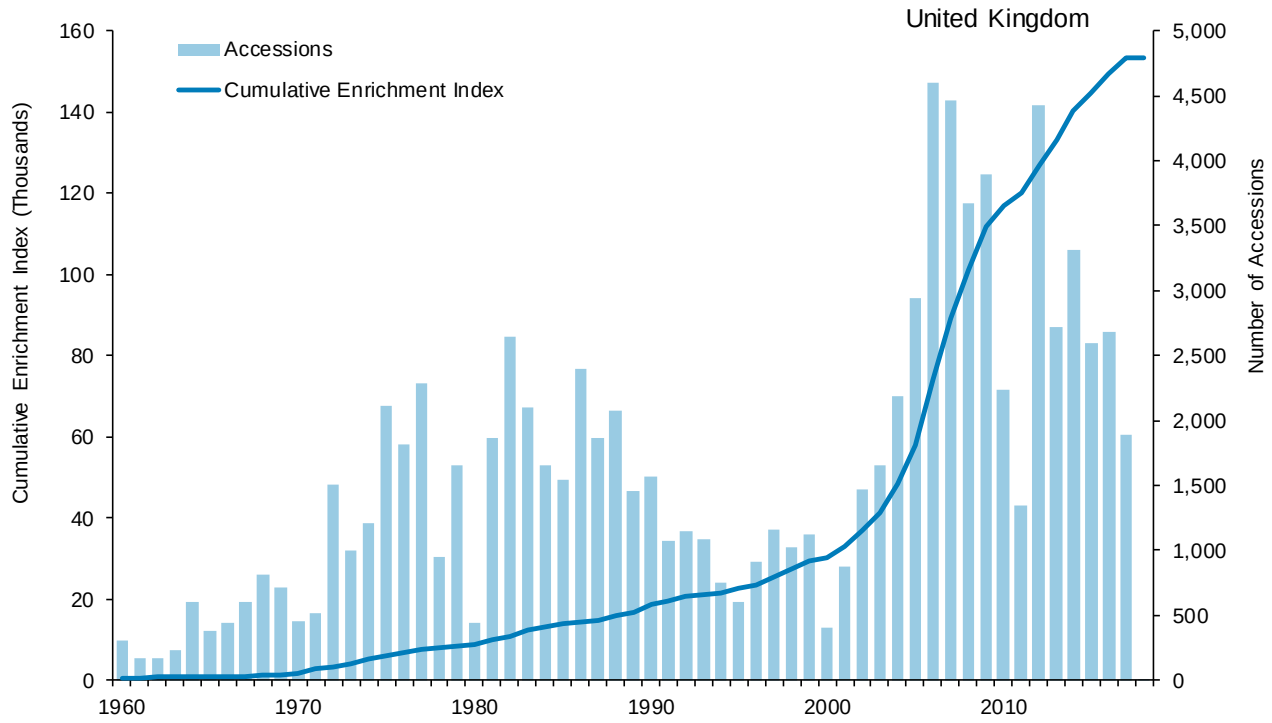
Genetic diversity is an important component of biological diversity. The genetic diversity of UK plant resources includes domesticated plants and their wild relatives, as well as socio-economically and culturally valuable plant species. These encompass plants grown in a farming or horticultural setting, or both, as well as commercial cultivars, landraces and traditional varieties and their wild relatives.

Ex situ conservation of cultivated plants and their wild relatives is one method used to preserve genetic diversity. In the context of this indicator, the term *ex situ* means off-site conservation of genetic material.

The Enrichment Index is a proxy measure of genetic diversity based upon the assumption that genetic diversity increases (to a greater or lesser extent) with originality of accessions, which is estimated based on: the number of species collected; the number of accessions collected; the number of countries collected from; and the area from which collection took place.

As a result of discussions in the UK Plant Genetic Resources Group, a revised indicator is being considered; this was not available for the 2018 or the 2019 publication, but it is hoped that a new indicator will be available for the 2020 publication.

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 for details.

D1. Biodiversity and ecosystem services

a. Fish size classes in the North Sea

Type: State / Benefit Indicator

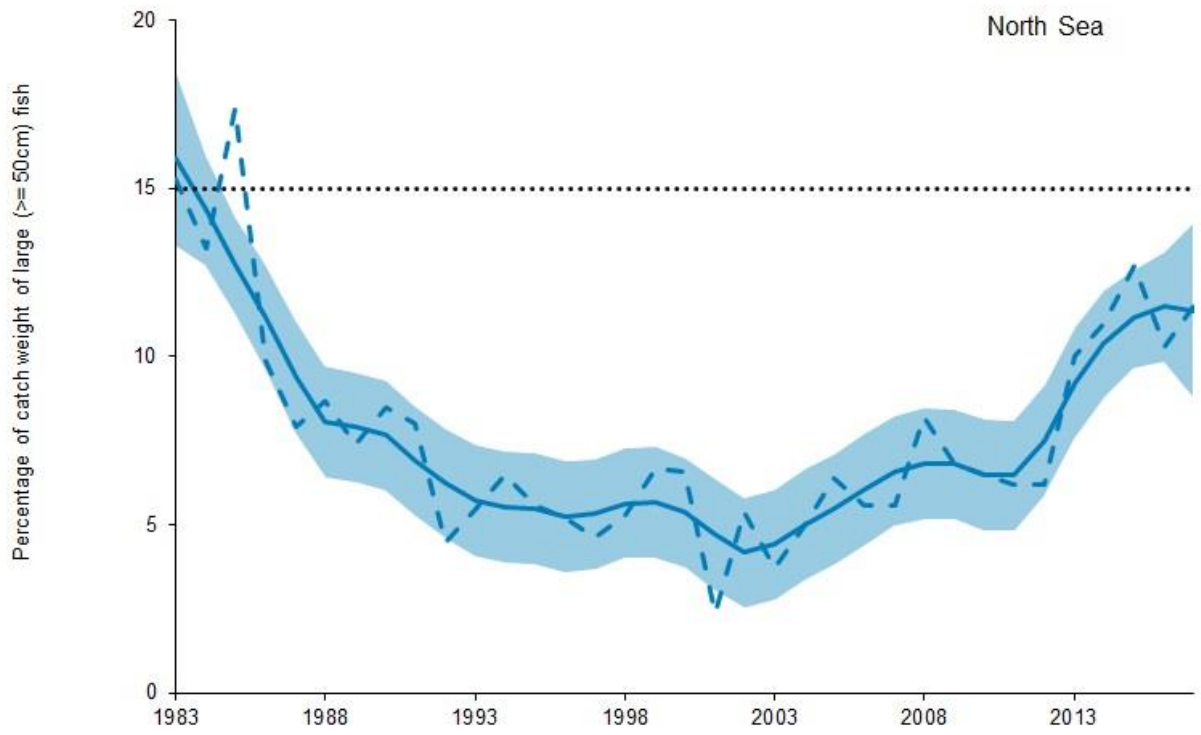
Since the previous publication additional data have been provided for the North Sea, Celtic sea, Irish Sea and Scottish Continental Shelf. The entire dataset has been revised, and updated to include all available years. The assessment value thresholds are specific to time periods and therefore change with any updates.

Indicator Description

The indicator shows changes in the proportion, by weight, of large individuals equal to or over 50cm 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.

In 2017, large fish in the North Sea survey made up 12% of the weight of the fish community. This is approaching the value of 15% recorded in 1983 and shows a noticeable increase from a low of 2% in 2001. While there was a clear decline in the indicator from 1983 to 2001, there has been recovery since, and this pace of recovery accelerated after 2012.

Figure D1ai. Percentage of large fish (equal to or larger than 50cm), by weight, in the North Sea, 1983 to 2017.



Notes: The line graph shows the unsmoothed trend (dashed line) and a LOESS smoothed trend (solid line) with the shaded area showing the 95 per cent confidence intervals around the smoothed trend. The horizontal dashed line shows the assessment. 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	1983–2017	2012–2017	Increased (2017)

Note: The long-term and short-term assessments have been made by the Centre for Environment, Fisheries and Aquaculture Science (Cefas) by fitting a LOESS smoothed trend to the index (see the note under Figure D1ai).

b Removal of greenhouse gases by UK forests

Type: Benefit Indicator

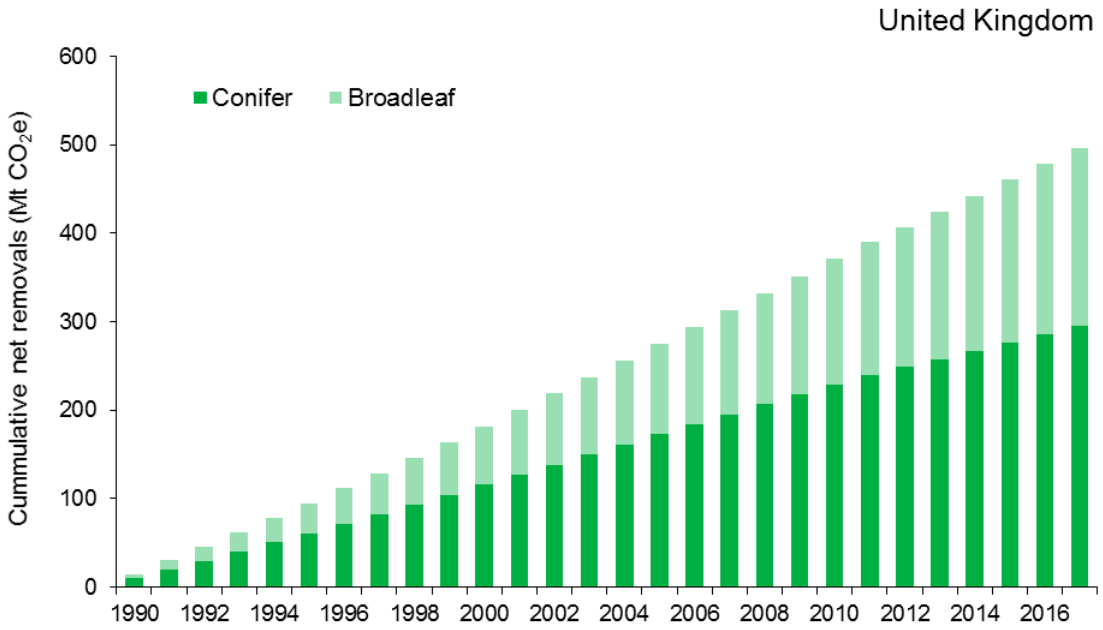
It is estimated that since 1990, forests in the UK have (cumulatively) removed the equivalent of 497 million tonnes of carbon dioxide (Mt $C0_2e$) from the atmosphere (Figure D1bi). In 2017, UK forests are estimated to have removed 18 Mt CO_2e.

The proportion of greenhouse gases removed from the atmosphere by broadleaf woodland has increased since the time series began, accounting for 49% (8.8 Mt CO_2e) of the estimated annual removals in 2017 compared to 35% (5.1 Mt CO_2e) of removals in 1990 (see the online fiche for detail).

Indicator Description

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.

Figure D1bi. Cumulative net removals of greenhouse gases by UK forests, 1990 to 2017.



Notes:

1. Estimated cumulative net removals of greenhouse gases (carbon dioxide (CO_2), methane (CH_4) and nitrous oxide (N_2O)) from the atmosphere by forests in the UK, expressed as million tonnes of CO_2 equivalent (Mt CO_2e).
2. Revised in 2015 to reflect improved modelling of greenhouse gas emissions and removals.
3. Revised in 2017 due to improvements made to the forestry sector of the 1990 to 2015 Land Use, Land Use Change and Forestry (LULUCF) greenhouse gas inventory.
4. Revised in 2018 due to improvements in the CARBINE model used to calculate the forest carbon stock figures for the 1990 to 2016 LULUCF greenhouse gas inventory.
5. Revised in 2019 due to further improvements in the CARBINE model (see the online fiche for more details).
6. 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	1990–2017	2012–2017	Increased (2017)

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 has been updated to include 14 additional species of hoverfly across the entire time series; this update has impacted on the long-term and short-term trends.

There was an overall decrease in the pollinator indicator from 1987 onwards. In 2016, the indicator had declined by 31% compared to its value in 1980. The long-term trend was assessed as declining (Figure D1ci).

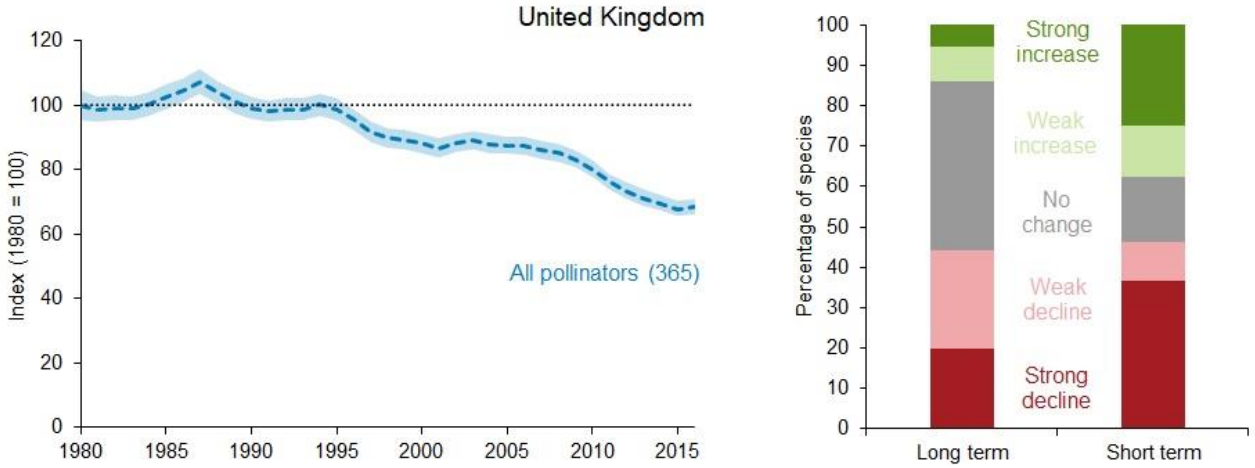
Between 2011 and 2016, the indicator showed a decrease of 10%; the short-term trend was also assessed as declining.

Indicator Description

This indicator illustrates changes in pollinator distribution (bees and hoverflies) in the UK. The indicator is based on 365 species of pollinator (137 species of bee and 228 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.

Over the long term, 14% of pollinator species became more widespread (5% showed a strong increase), and 44% became less widespread (20% showed a strong decrease). Similarly, a greater proportion of species were decreasing than increasing over the short term, with 46% of species decreasing and 38% of species increasing.

Figure D1ci. Change in the distribution of UK pollinators, 1980 to 2016.



Notes:

1. The line graph shows the unsmoothed composite indicator trend with variation around the line (shaded) within which we 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 (137 wild bee and 228 hoverfly species).
3. The bar chart shows the percentage of species within the indicator that have increased, decreased or shown no change in occupancy, based on set thresholds of change.
4. This indicator is not directly comparable with the previous publication. Hoverfly trends have been updated to 2016 (previously 2013) and 14 additional hoverfly species have been included across the entire time series, increasing the total number of hoverfly species in the indicator from 214 to 228.

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

Assessment of change in distribution of pollinators in the UK			
	Long term	**Short term**	**Latest year**
Distribution of UK pollinators	1980–2016	2011–2016	No change (2016)

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

E1. Biodiversity data for decision making

a. Cumulative number of records

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

Type: State Indicator

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

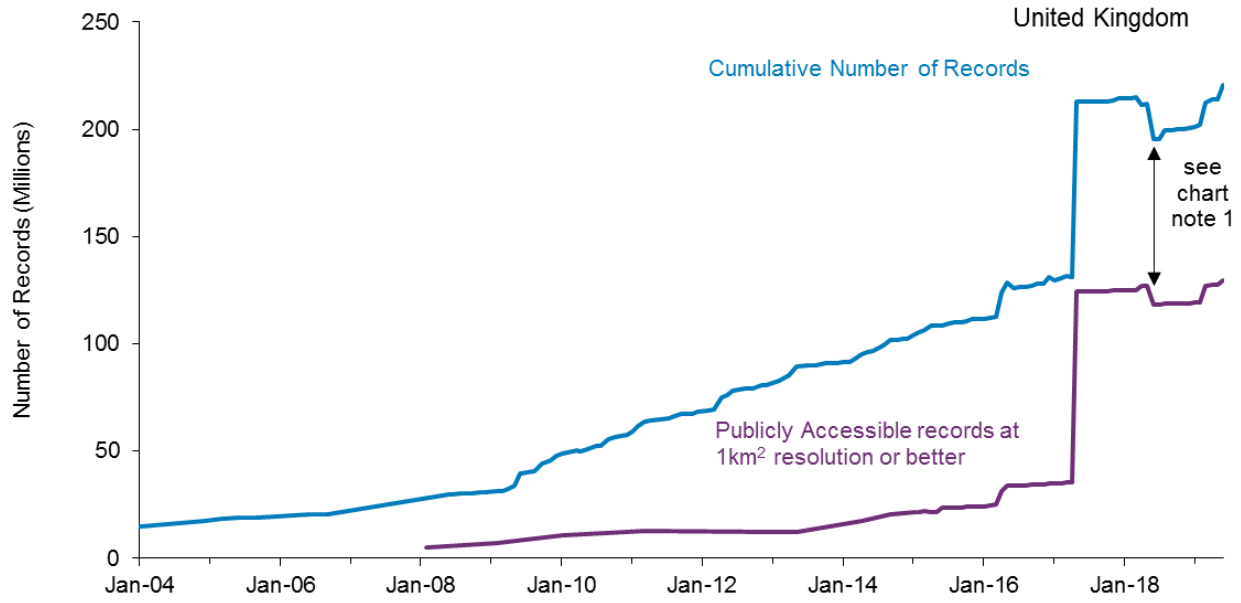
Indicator Description

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.

NBN Atlas in April 2017 there has been an increase of 89.4 million records to the end of May 2019.

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 130.0 million records at the end of May 2019 which are at 1km^2 resolution or better.

Figure E1i. Records added to the National Biodiversity Network, 2004 to 2019.



Notes:

1. The number of records from May 2018 dropped 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. Data available to 31 May 2019.

Source: National Biodiversity Network.

Assessment of change in data for decision making			
	Long term	**Short term**	**Latest year**
Cumulative number of records	2004–2019	2014–2019	Increased (2019)
Number of publicly accessible records at 1km^2 resolution or better	2008–2019	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.

E2. Expenditure on UK and international biodiversity

a. Public sector expenditure on UK biodiversity

b. Non-Governmental organisation expenditure on UK biodiversity

c. UK expenditure on international biodiversity

Type: Response Indicator

In 2017/18, £456 million of UK public sector funding was allocated to biodiversity in the UK; a real-term increase of 67% since the time series began in 2000/01, and real-term decreases of 16% since 2016/17 and 29% 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 2017/18, it amounted to 0.022% of UK GDP.

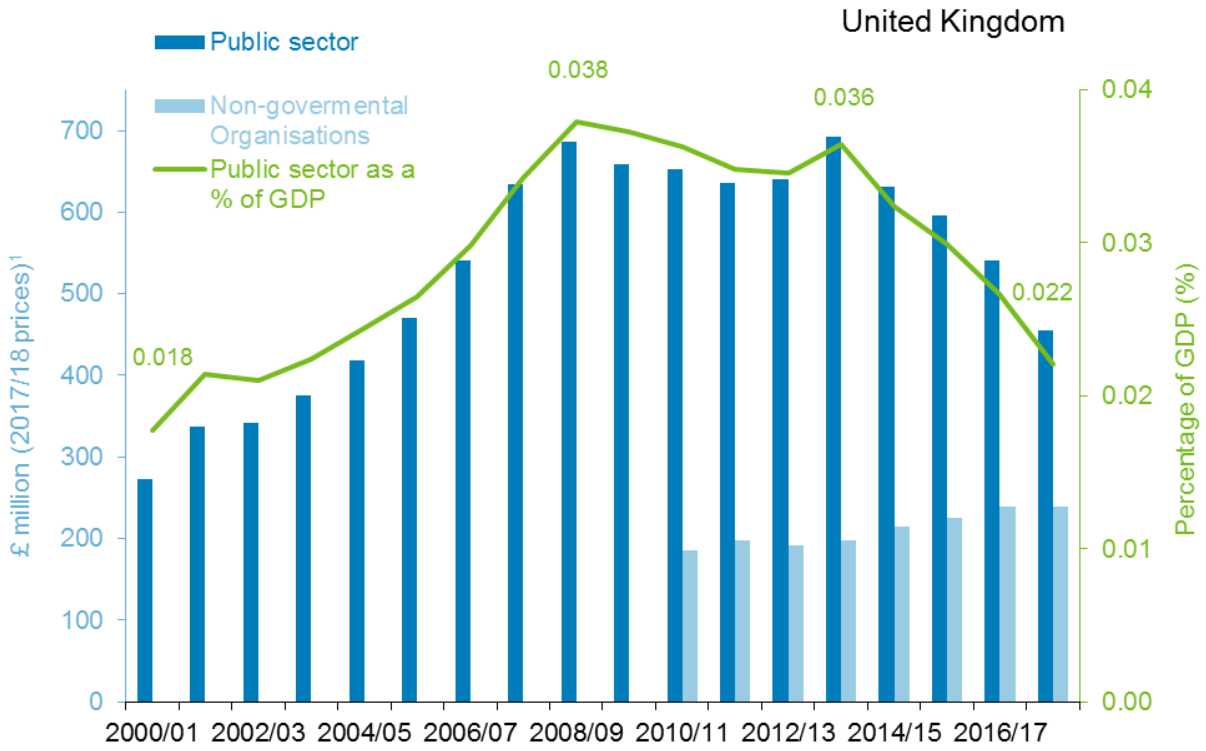
Spending on biodiversity in the UK by non-governmental organisations (NGOs) with a focus on biodiversity and/or nature conservation was £239 million (net of government funding) in 2017/18. This figure represents no real-term change since 2016/17 but a 24% increase in biodiversity related spending over the last 5 years.

Indicator Description

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.

Figure E2i. Expenditure on biodiversity in the UK, 2000/01 to 2017/18.



Notes:

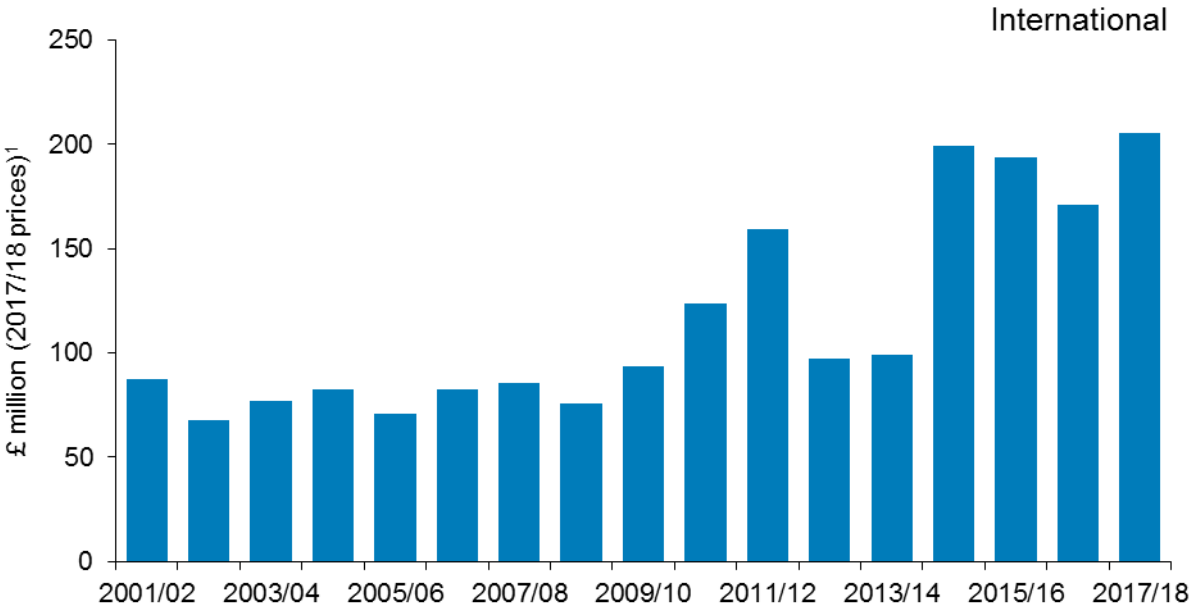
1. Deflated using UK Gross Domestic Product (GDP) deflator.
2. Wherever possible, NGO spend is net of government funding.

3. There may be some inconsistencies in the reporting of expenditure on UK biodiversity from one year to the next (see background section for further details).
4. Revisions to past data series as a result of improved methodology or access to additional data mean the chart (and figures) are not directly comparable to those presented in previous publications (see background section for further details).

Source: Defra, HM Treasury.

In 2017/18, UK public sector funding for international biodiversity totalled £205 million; a real-term increase of 135% since the time series began in 2001/02. Funding for international biodiversity has also more than doubled over the last 5 years and increased by 20% 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 (which now includes a wider range of projects as part of the 2019 update). The additional ODA data are only available from 2001/02 and therefore the time series has been shortened to ensure consistent presentation across all remaining years. Inclusion of these data has resulted in additional annual expenditure of between £13 million and £143 million across the time series (in 2017/18 prices). Step changes observed between 2011/12 and 2012/13 and between 2013/14 and 2014/15 are due to a large decrease followed 2 years later by a large increase in ODA funding for biodiversity related projects.

Figure E2ii. UK public sector expenditure on international biodiversity, 2001/02 to 2017/18.



Notes:

1. Deflated using UK Gross Domestic Product (GDP) deflator.
2. There may be some inconsistencies in the reporting of expenditure on international biodiversity from one year to the next (see background section 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 (which now includes a wider range of projects as part of the 2019 update).
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 and/or access to additional data (in particular, revisions to GEF payments and the inclusion of a wider range of other ODA funding from 2001/02 onwards) mean the chart (and figures) are not directly comparable to those presented in

previous publications. It also means that the 2000/01 data point has been removed from the time series to ensure consistent presentation across all remaining years.

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	 2000/01–2017/18	 2012/13–2017/18	Decreased (2017/18)
Non-Governmental organisation spending (net of Government funding) on biodiversity in the UK		 2012/13–2017/18	No change (2017/18)
UK public sector expenditure on international biodiversity	 2001/02–2017/18	 2012/13–2017/18	Increased (2017/18)

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

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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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 the Joint Nature Conservation Committee (JNCC) website: 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, we 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 2019

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

Scottish Natural Heritage
Dualchas Nàdair na h-Alba

NATURAL ENGLAND

Cyfoeth Naturiol Cymru
Natural Resources Wales