UK Biodiversity Indicators 2015

Department for Environment Food & Rural Affairs

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1. Volunteers taking part in field observations © Beth Halski/Plantlife

2. Hebridean shearling ram © Alyson Small

3. Marmalade Fly *Episyrphus balteatus* © Wendy Dalton

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UK Biodiversity Indicators 2015

Measuring progress towards halting biodiversity loss

Indicator C9a: Animal Genetic Resources was corrected and updated 30 November 2016

Department for Environment Food & Rural Affairs

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Introduction

UK Biodiversity Indicators 2015

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

The UK is a signatory to the Convention on Biological Diversity (CBD) and is committed to the biodiversity goals and targets ('the Aichi targets') agreed in 2010 and set out in the Strategic Plan for Biodiversity 2011–2020. The UK is also committed to developing and using a set of indicators to report on progress towards meeting these international goals and targets. There are related commitments on biodiversity made by the European Union, and the UK indicators may also be used to assess progress with these.

The UK indicators were comprehensively reviewed during 2011 and 2012 to ensure they continued to be based on the most robust and reliable available data; and remained relevant to the new international goals and targets[1]. Since then some of the indicators have been refined to improve their relevance/quality, and new indicators have been developed to fill gaps. In this version of the publication each of the indicators has been updated with the most recent data wherever possible. In some cases, however, development work is ongoing, and where this is the case, the work to develop them has been described briefly.

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 5th National Report to the CBD in 2014, supplemented with other information relating to UK biodiversity and implementation of the Strategic Plan for Biodiversity 2011-2020. In 2015, JNCC produced an updated mapping of the indicators against both global and European biodiversity targets.

Biodiversity policy is a devolved responsibility in the UK: England, Scotland, Wales and Northern Ireland have each developed or are developing their own biodiversity or environment strategies. Indicators are being developed to track progress with the respective commitments in each country. The UK indicators have a specific purpose for international reporting and were selected following consultation and agreement between the administrations. The indicators provide a flexible framework and a common set of methodologies which in some cases can also be used for country reporting. The indicators may be subject to further review as necessary.

The UK Biodiversity Indicators are dependent on a wide variety of data, provided by Government, research bodies, and the voluntary sector. As Official Statistics, 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.

Previous versions of the indicators are available for download at http://jncc.defra.gov.uk/ukbi. Links to the full detail of each of the previous editions are provided on the website (stored on the National Archives website). At the 8th Biodiversity Indicators Forum (BIF8), a recommendation was made to publish a transparent statement of the level of confidence that can be ascribed to each individual indicator. Following peer review of a preliminary assessment the Biodiversity Indicators Working Group (Defra and JNCC) are re-visiting the methodology.

This is a Defra National Statistics compendium (see Annex for further details).

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[1] This review involved wide consultation with the UK Biodiversity Indicators Forum involving key stakeholders.

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 base or start year with the value in the end year.

✓	Improving	✗	Deteriorating
≈	Little or no overall change	⋯	Insufficient or no comparable data

Where possible the assessment has been made by evaluating trends using statistical analysis techniques. The assessment may be made by Defra statisticians in collaboration with the data providers, or undertaken by the data providers themselves. A green or red traffic light is only applied when there is sufficient confidence that the change is statistically significant and 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 base or start year and the value in the end year against a 'rule of thumb' threshold. The standard threshold used is three per cent, unless noted otherwise. Where the data allow it, a three-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 three per cent, the traffic light has been set at amber. The choice of three per cent 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 year to the latest year and do not reflect fluctuations during the intervening years.

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

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

- Short-term – an assessment of change over the latest five years.[2]

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 last year. This period is too short for a meaningful assessment. However, when it exceeds a one per cent threshold, the direction of change is given simply as an acknowledgement of very recent trends and as a possible early warning of emerging trends.

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[2] For a very few indicators, the short-term change is over a slightly 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 the 24 indicators and their component measures.

Indicator number (Strategic Goal / number), title, and measures where applicable			Long-term change[3]	Short-term change[4]
A1. Awareness, understanding and support for conservation			(⋯)	(⋯)
A2. Taking action for nature: volunteer time spent in conservation			✓ 2000–2014	✗ 2009–2014
A3. Value of biodiversity integrated into decision making			Under development	
A4. Global biodiversity impacts of UK economic activity / sustainable consumption			Under development	
A5. Integration of biodiversity considerations into business activity	A5a. Environmental Management Systems		(⋯)	(⋯)
	A5b. Environmental consideration in supply chains		(⋯)	(⋯)
B1. Agricultural and forest area under environmental management schemes	B1a. Area of land in agri-environment schemes	B1a(i). Higher-level or targeted schemes	✓ 1992–2014	✓ 2009–2014
		B1a(ii). Entry-level type schemes	✓ 2005–2014	✓ 2009–2014
	B1b. Area of forestry land certified as sustainably managed		✓ 2001–2015	≈ 2010–2015
B2. Sustainable fisheries			✓ 1990–2013	✓ 2008–2013
B3. Climate change adaptation			Under development	
B4. Pressure from climate change (Spring Index)			Not assessed	Not assessed
B5. Pressure from pollution	B5a. Air pollution	B5a(i). Area affected by acidity	✓ 1996–2012	✓ 2007–2012
		B5a(ii). Area affected by nitrogen	✓ 1996–2012	✓ 2007–2012
	B5b. Marine pollution		✓ 1990–2013	✓ 2008–2013
B6. Pressure from invasive species	B6a. Freshwater invasive species		✗ 1960–2015	Not assessed
	B6b. Marine (coastal) invasive species		✗ 1960–2015	Not assessed
	B6c. Terrestrial invasive species		✗ 1960–2015	Not assessed

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[3] 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.

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

Indicator number (Strategic Goal / number), title, and measures where applicable		Long-term change[3]	Short-term change[4]
B7. Surface water status		⊙ (insufficient data)	≈ 2010–2015
C1. Protected areas	C1a. Total extent of protected areas: on-land	✓ 1950–2015	≈ 2010–2015
	C1b. Total extent of protected areas: at-sea	✓ 1950–2015	✓ 2010–2015
	C1c. Condition of Areas/Sites of Special Scientific Interest	✓ 2005–2015	≈ 2010–2015
C2. Habitat connectivity		Under development	
C3. Status of European habitats and species	C3a. Status of UK habitats of European importance	⊙ (insufficient data)	✗ 2007–2013
	C3b. Status of UK species of European importance	⊙ (insufficient data)	✓ 2007–2013
C4. Status of UK priority species	C4a. Relative abundance	✗ 1970–2012	≈ 2007–2012
	C4b. Distribution	✗ 1970–2012	≈ 2007–2012
C5. Birds of the wider countryside and at sea	C5a. Farmland birds	✗ 1970–2013	✗ 2008–2013
	C5b. Woodland birds	✗ 1970–2013	≈ 2008–2013
	C5c. Wetland birds	✗ 1975–2013	✗ 2008–2013
	C5d. Seabirds	✗ 1986–2013	✗ 2008–2013
	C5e. Wintering waterbirds	✓ 1975/76–2012/13	✗ 2007/08–2012/13
C6. Insects of the wider countryside	C6a. Semi-natural habitat specialists	✗ 1976–2014	≈ 2009–2014
	C6b. Species of the wider countryside	✗ 1976–2014	≈ 2009–2014
C7. Plants of the wider countryside		Under development	
C8. Mammals of the wider countryside (bats)		✓ 1999–2013	≈ 2008–2013

Indicator number (Strategic Goal / number), title, and measures where applicable			Long-term change[3]	Short-term change[4]
C9. Genetic resources for food and agriculture	C9a. Animal genetic resources – effective population size of Native Breeds at Risk	C9a(i). Goat breeds	✔ Improving 2004–2015	✔ Improving 2010–2015
		C9a(ii). Pig breeds	✔ Improving 2000–2015	✖ Deteriorating 2010–2015
		C9a(iii). Horse breeds	✖ Deteriorating 2000–2015	✖ Deteriorating 2010–2015
		C9a(iv). Sheep breeds	✔ Improving 2000–2015	✔ Improving 2010–2015
		C9a(v). Cattle breeds	✔ Improving 2000–2015	✔ Improving 2010–2015
	C9b. Plant genetic resources – Enrichment Index		✔ Improving 1960–2015	✔ Improving 2010–2015
D1. Biodiversity and ecosystem services	D1a. Fish size classes in the North Sea		≈ Little or no change 1983–2014	✔ Improving 2009–2014
	D1b. Removal of greenhouse gases by UK forests		✔ Improving 1990–2013	✔ Improving 2008–2013
	D1c. Status of pollinating insects		✖ Deteriorating 1980–2010	✖ Deteriorating 2005–2010
E1. Biodiversity data for decision making	E1a. Cumulative number of records		✔ Improving 2004–2015	✔ Improving 2010–2015
	E1b. Number of publicly accessible records at 1km^2 resolution or better		⋯ Insufficient data	✔ Improving 2010–2015
E2. Expenditure on UK and international biodiversity	E2a. Public sector expenditure on UK biodiversity		✔ Improving 2000/01– 2014/15	✖ Deteriorating 2009/10– 2014/15
	E2b. Non-governmental organisation expenditure on UK biodiversity		⋯ Insufficient data	⋯ Insufficient data
	E2c. UK expenditure on international biodiversity		✔ Improving 2000/01– 2014/15	✔ Improving 2009/10– 2014/15

[3] 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.

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

✔ Improving   ✖ Deteriorating

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

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

The UK Government is a signatory to the Convention on Biological Diversity (CBD) and is committed to the biodiversity goals and targets agreed in 2010 and set out in the Strategic Plan for Biodiversity 2011–2020[5]. 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.

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

Assessment of change: all measures
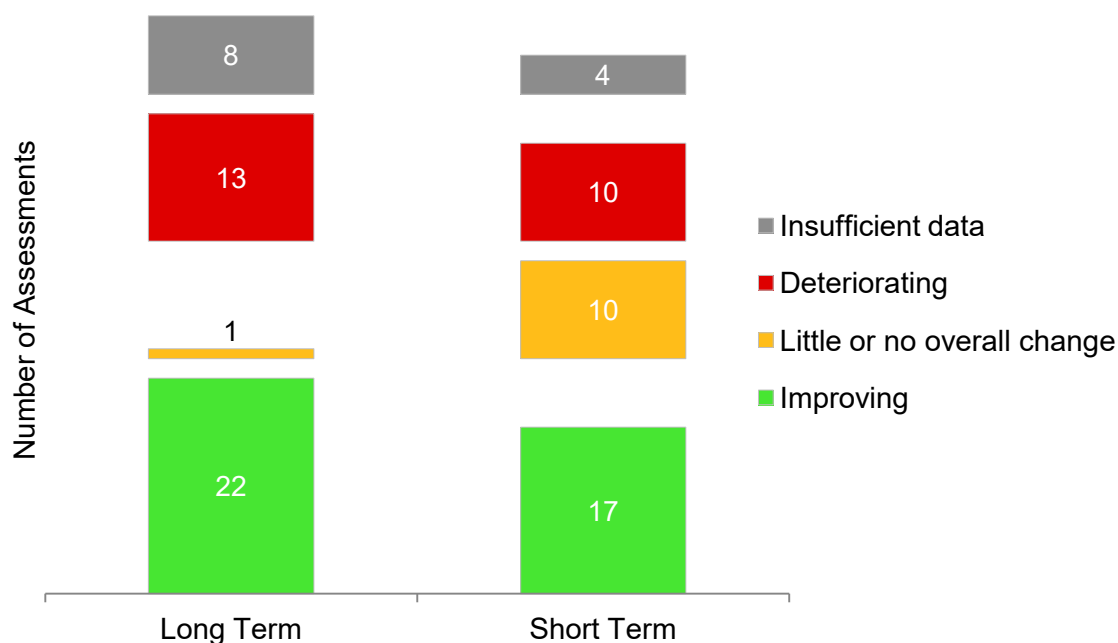
The UK biodiversity indicators set comprises 24 indicators and 50 measures. Of these, six measures are not assessed in the long-term, and nine in the short term, as the measures are either under development, or analytical methods for short-term assessment need to be refined. 22 of the 44 measures assessed over the long term show an improvement, compared to 17 of the 41 measures that are assessed over the short term. Thirteen measures show a decline in the long

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[5] The targets are known as "Aichi Targets", after the province in Japan where they were agreed.

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.

The 17 measures showing an improvement in the short term are:

B1a. Area of land in agri-environment schemes (2 measures)

B2. Sustainable fisheries

B5. Pressure from pollution (3 measures)

C1b. Total extent of protected areas: at sea

C3b. Status of UK species of European importance

C9a. Animal genetic resources (3 measures)

C9b. Plant genetic resources

D1a. Fish size classes in the North Sea

D1b. Greenhouse gas removals by UK forests

E1. Biodiversity data for decision making (2 measures)

E2c. UK expenditure on international biodiversity

The 22 measures which have improved in the long term are:

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

B1a. Area of land in agri-environment schemes (2 measures)

B1b. Area of forestry land certified as sustainably managed

B2. Sustainable fisheries

B5. Pressure from pollution (3 measures)

C1. Protected areas (3 measures)

C5e. Wintering waterbirds

C8a. Mammals of the wider countryside (bats)

C9a. Animal genetic resources (4 measures)

C9b. Plant genetic resources

D1b. Greenhouse gas removals by UK forests

E1a. Cumulative number of records in the NBN

E2. Expenditure on UK and international biodiversity (2 measures)

The 10 measures showing a decline in the short term are:

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

C3a. Status of UK habitats of European importance

C5. Birds of the wider countryside and at sea (4 measures)

C9a. Animal genetic resources (2 measures)

D1c. Status of pollinating insects

E2a. Public sector expenditure on UK biodiversity

The 13 measures showing long-term deterioration are:

B6. Pressure from invasive species (3 measures)

C4. Status of UK priority species (2 measures)

C5. Birds of the wider countryside and at sea (4 measures)

C6. Insects in the wider countryside (butterflies) (2 measures)

C9a. Animal genetic resources – horse breeds

D1c. Status of pollinating insects

A new indicator was published in 2015 on animal genetic resources – focussing on native breeds at risk – measures for goats, pigs, horses, sheep and cattle are provided. A new indicator on the distribution of priority species was also published, using new techniques for evaluating species

trends based on Bayesian statistics. Two of the ecosystem services indicators have had considerable development work. In the case of the removal of greenhouse gases by forests, this has enabled the indicator to be assessed for the first time. The scope of the pollinators indicator has been expanded to include hoverflies, considerably increasing the number of species included.

Assessment of change: Strategic Goals B and C

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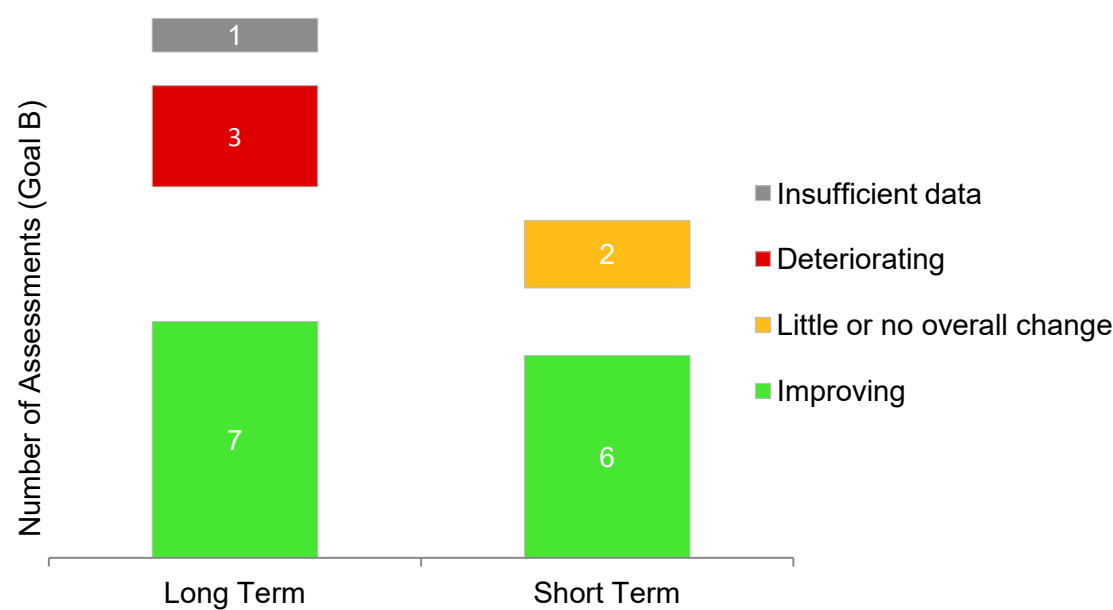
The indicators under Strategic Goal B (seven indicators and 13 measures prefixed "B" in the summary table) show progress is being made to address the pressures on biodiversity (e.g. in the proportion of fisheries that are sustainable, in the area of land in agri-environment schemes, air and marine pollution).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

Goal C: Improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity.
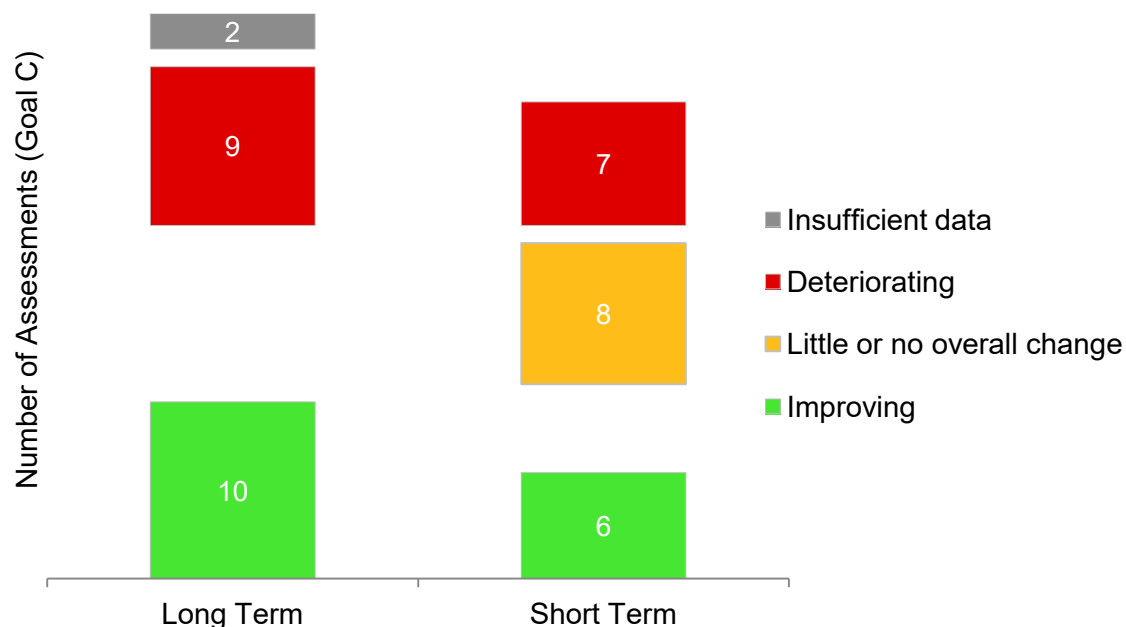
There were long-term declines for nine measures under Strategic Goal C (nine indicators and 23 measures prefixed "C" in the summary table, covering status of biodiversity), reflecting the declines in many species populations seen in the 1970s and 1980s. There is some evidence that some of the previous declines have slowed, with some measures assessed as deteriorating in the long-term showing little or no overall change in the short-term (e.g. butterflies, woodland birds, and the abundance and distribution of priority species). In total, six measures have shown improvement over the short term, including extent of protected areas at sea, status of UK species of European importance, and plant genetic resources. These conclusions should be viewed with some caution as changes are more difficult to assess reliably over the short term.

A1. Awareness, understanding and support for conservation

Type: Response indicator

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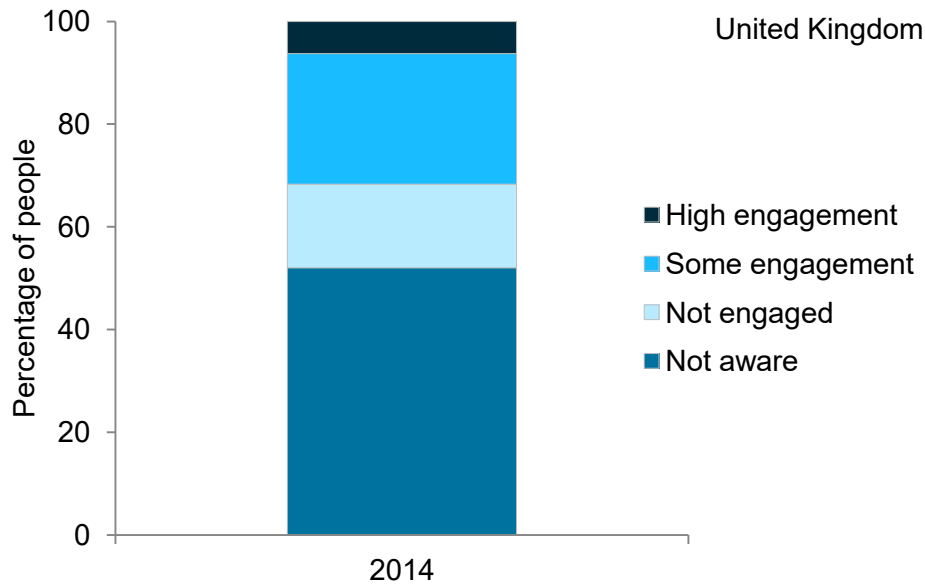
Notes:

1. This chart differs from the chart shown in the 2014 publication as it now includes final data for Wales and revised, final data for England.

2. 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 background section below.

3. Data are weighted based on the relative population size of each country.

Source: Department of the Environment 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

- In 2014, 6 per cent of people in the UK were highly engaged with the issue of biodiversity loss. These are people who are aware of the threat to biodiversity in the UK, are concerned about the loss of biodiversity and take actions to support and protect biodiversity, including some requiring higher effort.

- In 2014, 25 per cent of people in the UK showed some engagement with the issue of biodiversity loss. These are people who are aware of the threat to biodiversity in the UK, are concerned about the loss of biodiversity and take some 'day-to-day' actions to support and protect biodiversity.

- 16 per cent of people are aware of the threat to biodiversity, but are not concerned about it.

- 52 per cent of survey respondents stated that they were not aware of the threat to biodiversity in the UK.

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

Type: Response Indicator

Figure A2i.   Index of volunteer time spent in selected UK conservation organisations, 2000 to 2014.
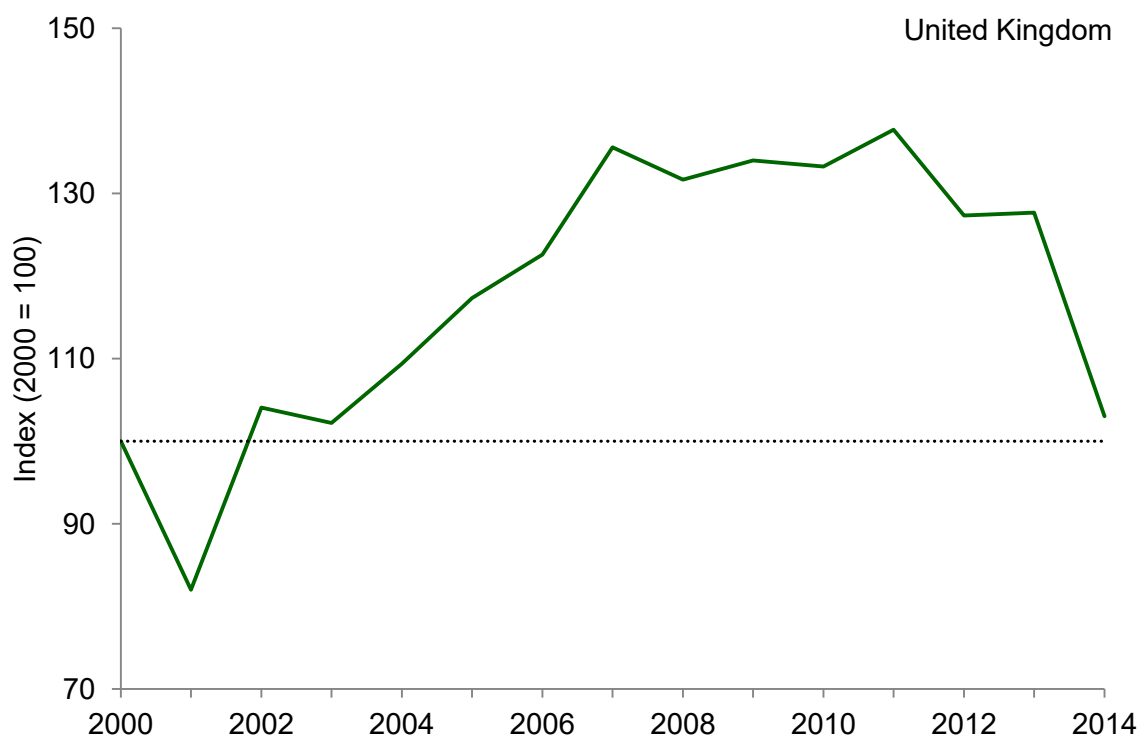
Notes:

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. Interpolated estimates (based on trends reported by other organisations) have been used to fill missing years for the Canal & River Trust (formerly British Waterways) (2000–2009), Butterfly Conservation (2000–2002), The Conservation Volunteers (2000–2005), Loch Lomond & The Trossachs National Park Authority (2000–2001, 2003), National Parks England (2000–2008), Natural England (2000, 2002), Plantlife (2000–2006), The Wildlife Trusts (2000–2005, 2010 and 2013), and the Woodland Trust (2000–2001).

3. Data provided by the The Conservation Volunteers, Loch Lomond & The Trossachs National Park Authority, Natural England, the Canal & River Trust (formerly British Waterways), National Parks England, and RSPB were for financial years rather than calendar years. Financial year data have been assigned to the first calendar year (e.g. 2011/12 data were allocated to 2011).

Source: Bat Conservation Trust, Botanical Society of Britain & Ireland, 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, Plantlife, RSPB, The Wildlife Trusts, Woodland Trust.

Assessment of change in volunteer time spent in conservation			
	Long term	**Short term**	**Latest year**
Conservation volunteering	✅ 2000–2014	❌ 2009–2014	Decreased (2014)

- The amount of time people spend volunteering to assist in conservation in part reflects society's interest in and commitment to biodiversity. The work undertaken by conservation volunteers includes: assisting with countryside management, carrying out surveys and inputting data, assisting with administrative tasks, and fundraising.

- Between 2000 and 2014 the amount of time contributed by volunteers has increased by 3 per cent, but in the five years to 2014 it decreased by 23 per cent.

- The indicator assessment for conservation volunteering should be treated with caution as the methodology used by some conservation charities changes from year to year. This can cause fluctuations in the data, particularly where there are revised methods used by charities that have previously recorded large amounts for total volunteer hours.

- The data series has been revised since the last publication in 2014, due to some organisations providing updated figures for previous years.

A3. Value of biodiversity integrated into decision making

Indicator under development – progress to date

No change from previous publication.

Integrating the value of biodiversity use as part of mainstream decision making is important to allow us to continue to enjoy the benefits from biodiversity that we currently achieve. Potential means of measuring this will be dependent on a number of factors, including the extent to which systems of payments for ecosystems services are implemented, and developments in the incorporation of biodiversity values and other forms of natural capital into national accounting systems.

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 ecosystems accounts within the national accounting framework.

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

Indicator under development – progress to date

No change from previous publication.

Production and consumption in the UK has an impact on the natural environment beyond our shores through the range of imports and exports of goods and services. Each of the four countries of the UK has introduced or is introducing policies to promote sustainable production and consumption and thereby reduce their impact on biodiversity and promote sustainable use of natural resources.

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

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

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

An assessment framework has been developed to provide information on the direct and indirect links between consumption in the UK and environmental impacts that occur due to production 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 further develop this approach.

In combination, these projects have defined what data are available on biomass flows into the UK economy, and the scope for undertaking the same analysis at country level – using Scotland as a model.

A5. Integration of biodiversity considerations into business activity

a. Environmental Management Systems

b. Environmental consideration in supply chains

Type: Response indicator

Figure A5ai.   Percentage of large companies that use an Environmental Management System, 2011 to 2013.
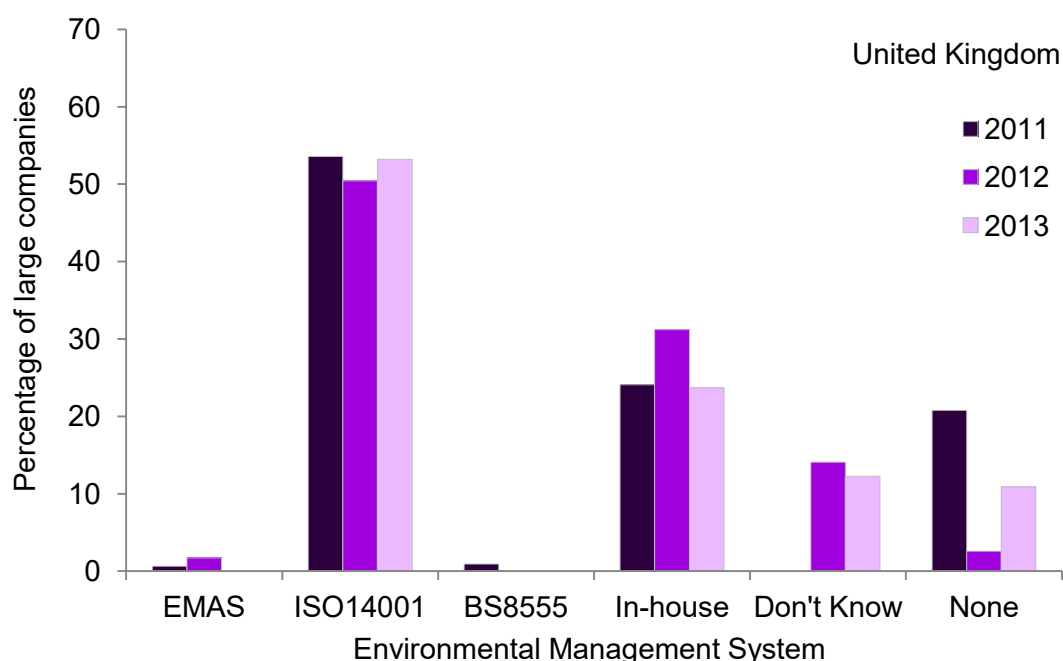
Notes:

1. As companies can have multiple systems in place, a hierarchy (EMAS > ISO 14001 > BS 8555 > In-house) has been applied to avoid double counting.

2. Based on responses from 121 large companies in 2011, 127 large companies in 2012, and 134 large companies in 2013.

3. 'Large companies' are those that employ at least 250 staff.

4. 'Don't know' was not given as a response option in the 2011 survey.

Source: Defra.

Figure A5bi.   Percentage of large companies that consider environmental issues in their supply chain, 2012 to 2013.
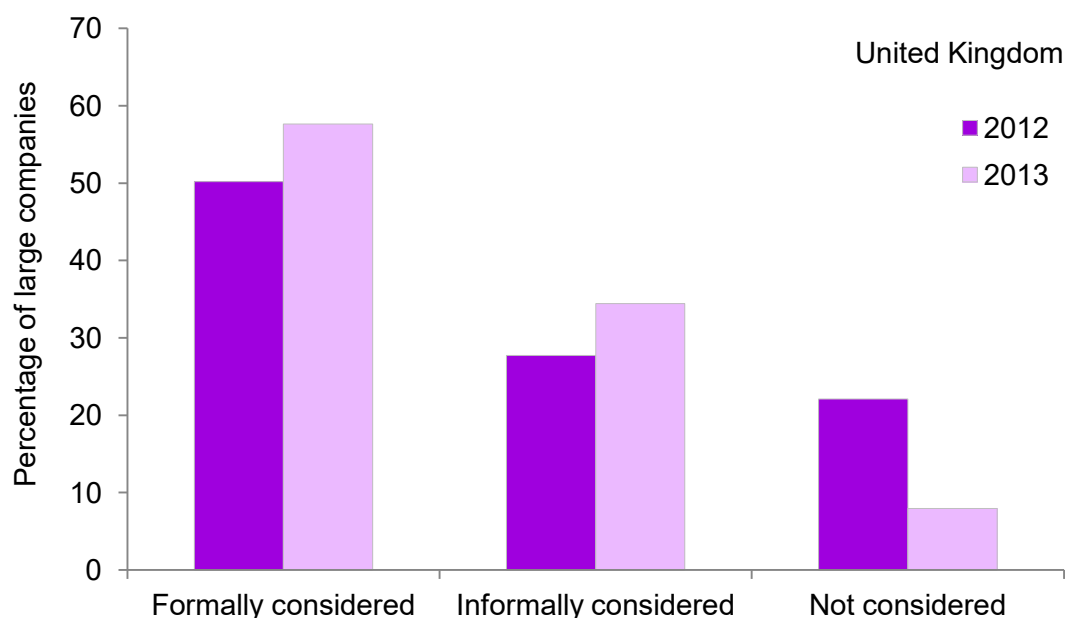
Notes:

1. Based on responses from 120 large companies in 2012, and 133 large companies in 2013.

2. 'Large companies' are those that employ at least 250 staff.

Source: Defra.

Assessment of change in biodiversity considerations in business activity			
	Long term	**Short term**	**Latest year**
Percentage of large companies that use an Environmental Management System (EMS)	⊙	⊙	Decreased (2013)
Percentage of companies where the environment is formally considered in the supply chain	⊙	⊙	Increased (2013)

- 77 per cent of responding large companies (companies with at least 250 employees) had an Environmental Management System (EMS) in place in 2013, compared to 83 per cent in 2012.

- In 2013, 53 per cent of responding large companies had an EMS certified to ISO 14001.

- Overall, in 2013 24 per cent of respondents had an EMS in place which was not externally certified (i.e. it was developed and implemented to meet "in-house" needs).   This compares to 31 per cent of respondents having an "in-house" EMS in 2012.

- Overall, 92 per cent of large companies considered environmental issues within their supply chain in 2013, up from 78 per cent in 2012. Within the 2013 figure, 58 per cent formally

considered environmental issues, 34 per cent considered them informally; and 8 per cent did not consider environmental issues at all.

B1. Agricultural and forest area under environmental management schemes

a. Area of land in agri-environment schemes

i. Higher-level / targeted schemes

ii. Entry-level type schemes

Type: Response Indicator

Figure B1ai.   Area of land covered by higher-level or targeted agri-environment schemes, 1992 to 2014.
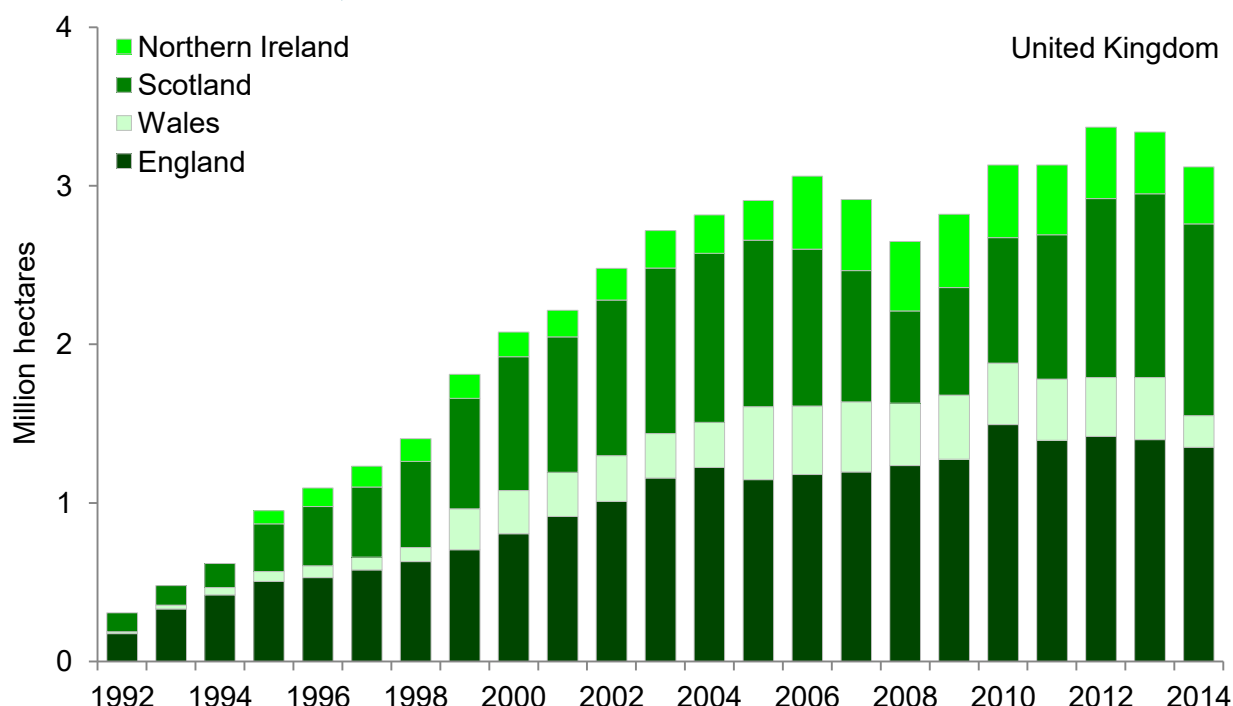
Notes:

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).
    Scotland: ESA, Countryside Premium, Rural Stewardship (RS), Rural Priorities (RP).
    Wales: ESA, Tir Cymen, Tir Gofal, Glastir Advanced.
    Northern Ireland: ESA, Countryside Management.

2. Higher-level schemes have stricter criteria for qualification than other agri-environment schemes.

Source: Department for Agriculture and Rural Development Northern Ireland, Defra, Natural England, Scottish Government, Welsh Government.

Figure B1aii. Area of land covered by entry-level type, whole-farm agri-environment schemes, 2005 to 2014.
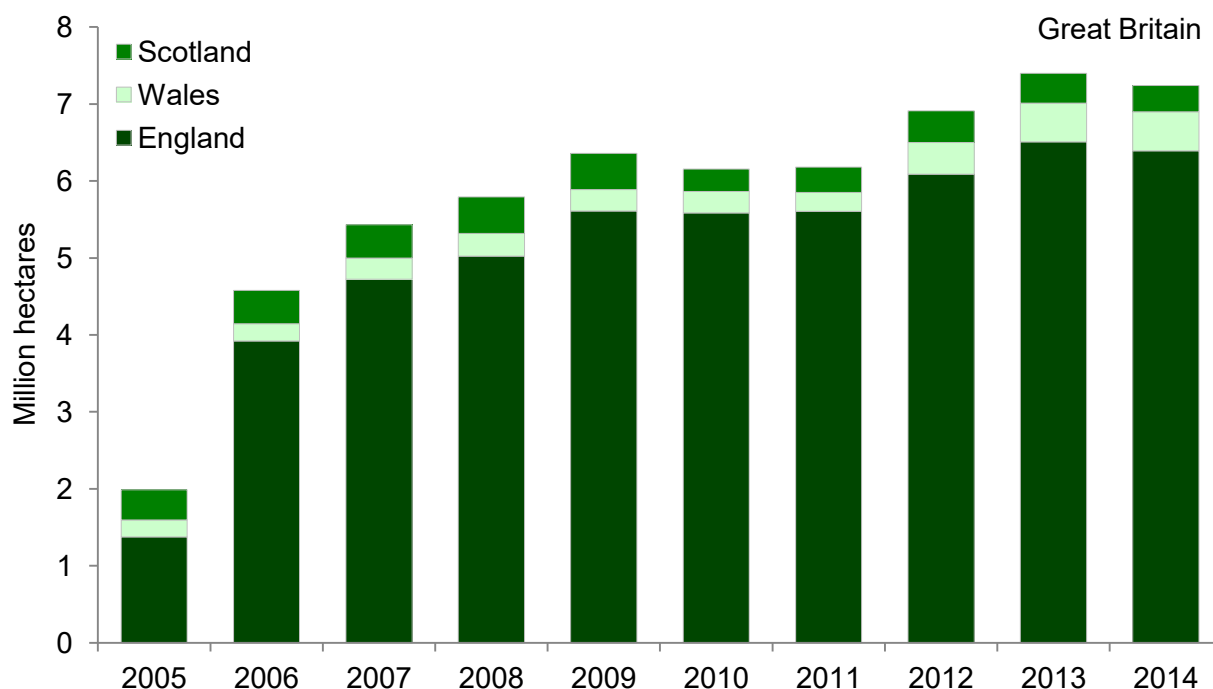
Notes:

1. The following have been included as entry-level type schemes:
   England: Entry Level Stewardship Scheme, Upland Entry Level Scheme (since 2010).
   Scotland: Land Management Contracts (previously Menu Scheme),
   Land Managers Options Schemes, Habitat Scheme.
   Wales: Tir Cynnal, Glastir Entry.

2. Entry-type schemes have less strict criteria for qualification than the higher-level schemes shown in the previous chart.

Source: 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	✓ 1992–2014	✓ 2009–2014	Decreased (2014)
Entry-level type, whole-farm schemes	✓ 2005–2014	✓ 2009–2014	Decreased (2014)

- Agri-environment schemes require farmers to implement environmentally beneficial management and to demonstrate good environmental practice on their farms.

- 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 farmers, across all types of farmland, to implement simple and effective environmental management on their farms that

goes beyond the Single Payment Scheme requirements to maintain land in 'Good Agricultural and Environmental Condition'.

- In 2014, the total area of land in higher-level or targeted agri-environment agreements in the UK was just over 3.1 million hectares. In the individual countries farms with agri-environment schemes account for 15 per cent of farm area in England; 12 per cent in Wales; 22 per cent in Scotland; and 36 per cent in Northern Ireland.

- In 2014, the total area of land in entry-level type schemes in England, Scotland and Wales was just over 7.2 million hectares. In the individual countries farms with agri-environment schemes account for 71 per cent of farm area in England; 31 per cent in Wales; and 6 per cent in Scotland.

- The majority of land on higher-level schemes is linked to an entry-level type scheme; therefore the areas of land in higher-level and entry-level schemes cannot be added to provide a grand total.

b. Area of forestry land certified as sustainably managed

Type: Response Indicator

Figure B1bi. Percentage of woodland area certified as sustainably managed, 2001 to 2015.
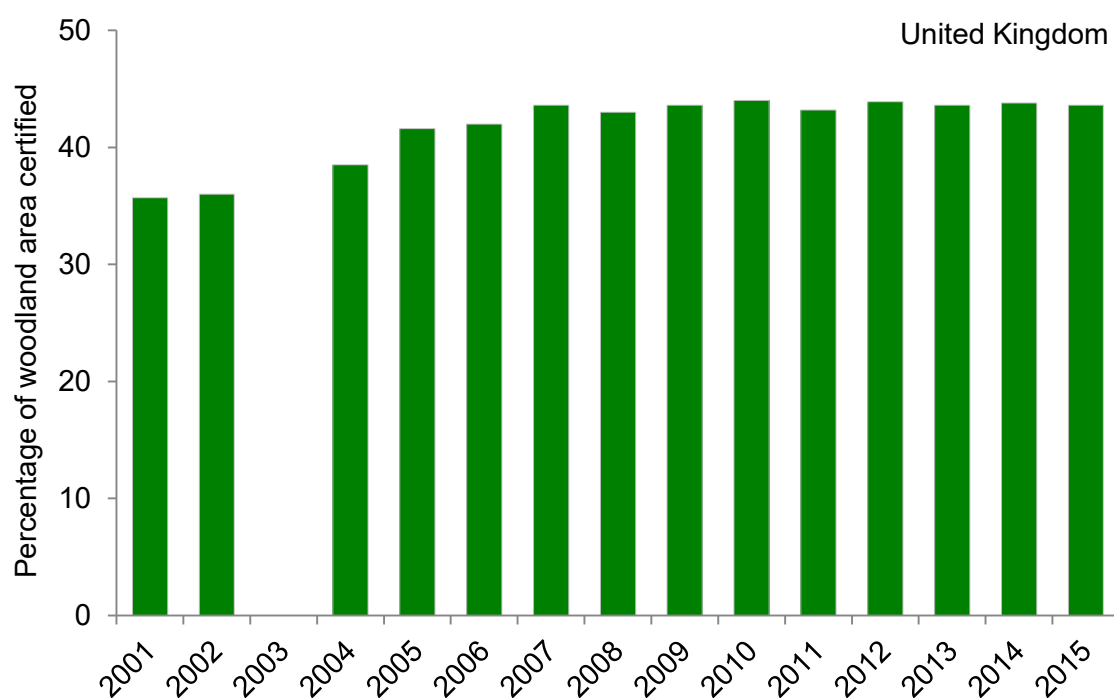
Notes: 2015 figures relate to certificates that were valid up to 31 March.

Source: Forestry Commission.

Assessment of change in area of woodland certified as sustainably managed			
	Long term	**Short term**	**Latest year**
Percentage of woodland certified	✓ 2001–2015	≈ 2010–2015	No change (2015)

- Certification of woodlands promotes responsible forest management to safeguard forests' natural heritage and protect threatened species. The total area certified can change if new woodlands are certified, if existing certificate holders decide not to renew, or if there is a delay in renewal of an existing certificate.

- Since 2001, the percentage of woodland certified as sustainably managed in the UK has increased from 36 per cent to 44 per cent. Since 2010, the proportion has been static at 44 per cent.

- In the individual countries in 2015, the percentage of woodlands certified as sustainably managed was 27 per cent in England, 46 per cent in Wales, 57 per cent in Scotland, and 58 per cent in Northern Ireland.

- In 2011, the Forestry Commission implemented a number of refinements to methods for calculating the area certified, using revised woodland area data from the National Forest Inventory together with geo-referenced data for Forestry Commission land. This method was later applied to the whole data series. The indicator is therefore now based on a revised dataset which cannot be directly compared with previous publications before 2013.

B2. Sustainable fisheries

Type: Pressure Indicator

Figure B2i.   Percentage of fish stocks harvested sustainably and at full reproductive capacity, 1990 to 2013.
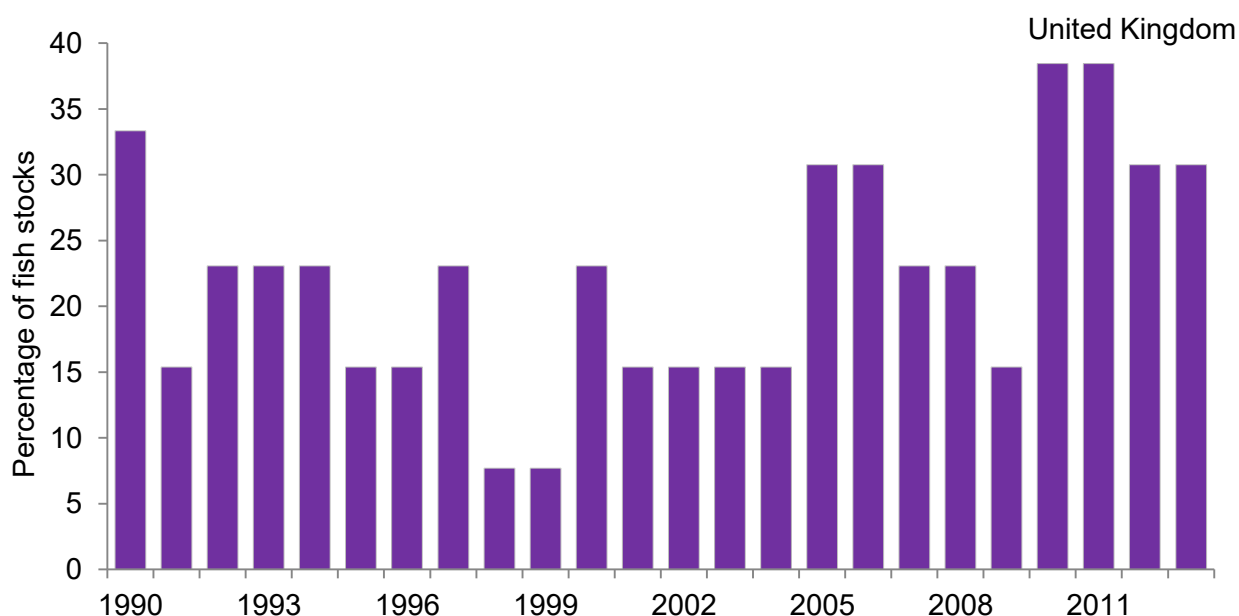
Notes: Based on 13 stocks for which accurate time series are available, derived from stock assessment reports.

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**
Sustainable fisheries	✓ 1990–2013	✓ 2008–2013	No change (2013)

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

- In 2013, 31 per cent of the indicator stocks around the UK (four of the 13 stocks) were at full reproductive capacity and were being harvested sustainably. This is an increase from the average for 1990–1992 of 24 per cent (three indicator stocks).

- The sustainability indicator in 2013 has increased from the lowest value of 8 per cent in 1998 and 1999, and from the average value for 2007–2009 (21 per cent).

- The indicator is a revision of the data series since last published, and is not directly comparable with earlier publications.

B3. Climate change adaptation

Indicator under development – progress to date

No change from previous publication.

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 per cent 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

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 2015.**
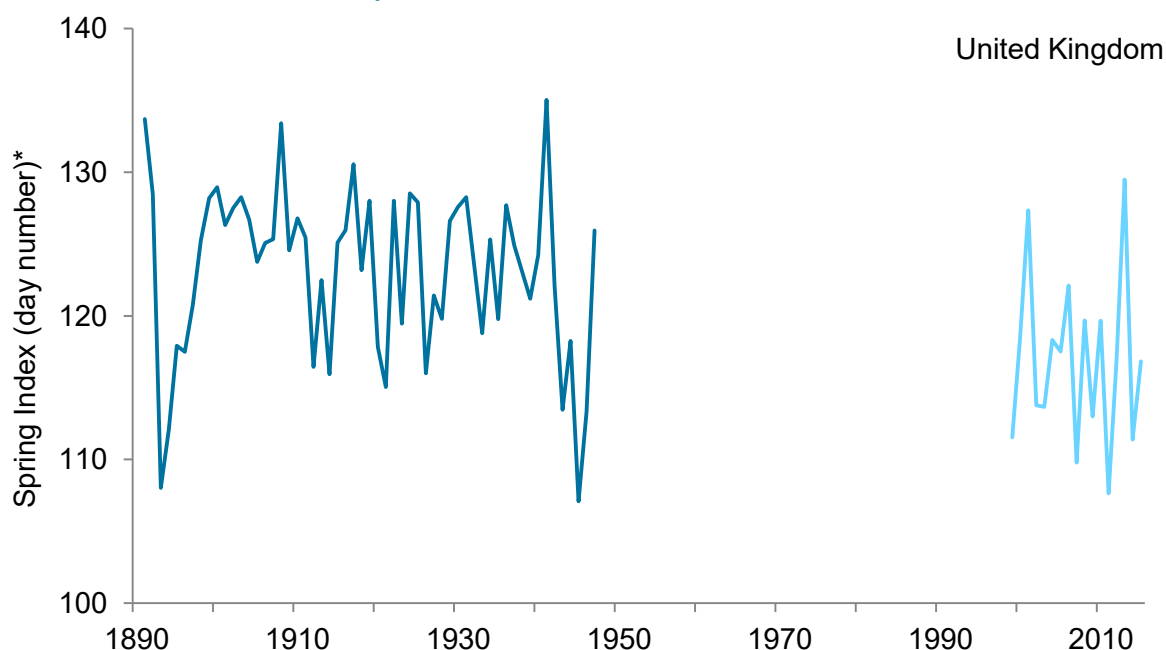
Notes: *Number of days after 31 December (e.g. day 121 = 1 May).

Source: 1891 to 1947 – Royal Meteorological Society; 1999 to 2015 – 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 UK Spring Index is calculated from the annual mean observation date of the following four biological events: first flowering of hawthorn (*Crataegus monogyna*), first flowering of horse chestnut (*Aesculus hippocastanum*), first recorded flight of an orange-tip butterfly (*Anthocharis cardamines*) and first sighting of a swallow (*Hirundo rustica*).

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

- The Spring 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.

B5. Pressure from pollution

a. Air pollution

i. Area affected by acidity

ii. Area affected by nitrogen

Type: Pressure Indicator

Figure B5ai. **Area of sensitive UK habitats exceeding critical loads for acidification and eutrophication, 1996 to 2012.**
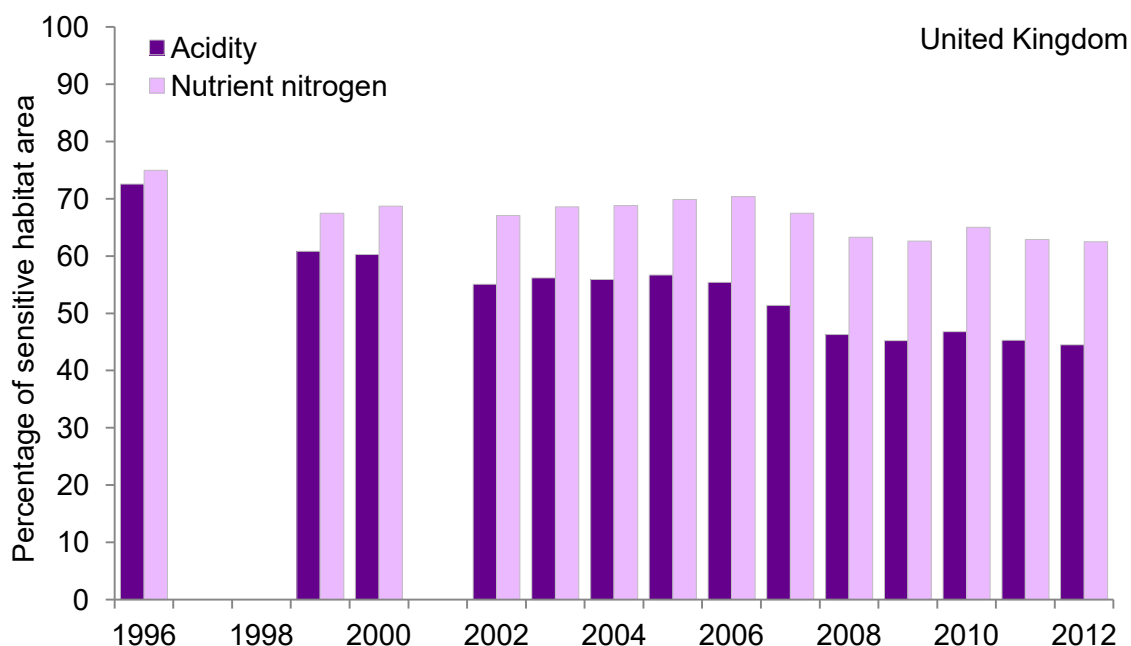
Notes:

1. Each column represents critical load exceedances based on a three-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 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 was a revision to the calculation of deposition data for the period 2004 to 2013 in 2015, which means the exceedance results for this period are not directly comparable to those previously published.

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	✓ 1996–2012	✓ 2007–2012	No change (2012)
Area affected by nitrogen	✓ 1996–2012	✓ 2007–2012	No change (2012)

- 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. The pollutants arise mainly from burning fossil fuels, industry, road transport, and emissions 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).

- In 1996, acid deposition exceeded critical loads in 73 per cent of the area of sensitive habitats. This declined to 45 per cent in 2012. There has also been a decrease in the area affected over the short term, since 2007, when the figure was 51 per cent.

- In 2012, nitrogen deposition exceeded critical loads in 63 per cent of sensitive habitats. This was a decrease from a level of 75 per cent in 1996. There was also a decrease in the short term, since 2007, when the figure was 68 per cent.

b. Marine pollution

Type: Pressure indicator

Figure B5bi.   Combined input of hazardous substances to the UK marine environment, as an index of estimated weight of substances per year, 1990 to 2013.

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

Assessment of change in input of hazardous substances			
	Long term	**Short term**	**Latest year**
Combined input of hazardous substances	✅ 1990–2013	✅ 2008–2013	Decreased (2013)

- The indicator shows the combined input of six of the most hazardous substances to the UK marine environment.

- Levels of all six substances declined over the period 1990 to 2013. Inputs of three substances (cadmium, lindane and mercury) declined by more than 75 per cent over this time period, while zinc has declined by 65 per cent, copper by 62 per cent, and lead by 53 per cent.

- In the short term, between 2008 and 2013, inputs of five of the substances declined, while inputs of mercury were stable. The index as a whole decreased from a combined index value of 34 in 2008 to 26 in 2013, which is therefore assessed as an improvement. Inputs of five of the substances decreased between 2011 and 2012, with a small increase of mercury.

B6. Pressure from invasive species

a. **Freshwater invasive species**

b. **Marine (coastal) invasive species**

c. **Terrestrial invasive species**

Type: Pressure Indicator

Figure B6i.   Number of non-native invasive species established in or along more than 10 per cent of Great Britain's land area or coastline, 1960 to 2015.
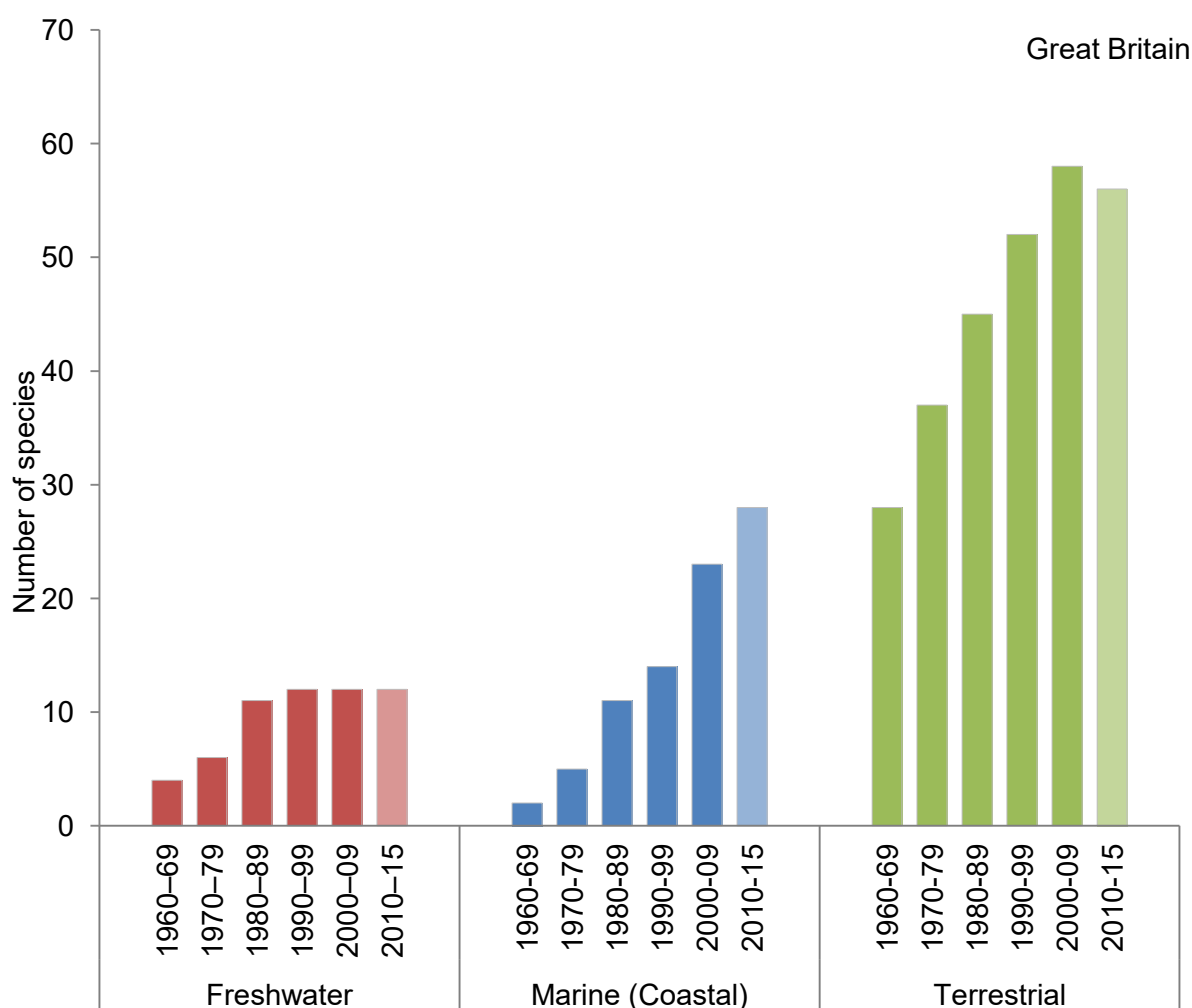
Notes: The last time period covers a shorter period than the other bars (2010–2015).

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

Assessment of change in the number of non-native invasive species established in or along more than 10 per cent of Great Britain's land area or coastline			
	Long term	**Short term**	**Latest year**
Freshwater invasive species	⊗ 1960–2015	Not assessed	Not assessed
Marine (coastal) invasive species	⊗ 1960–2015	Not assessed	Not assessed
Terrestrial invasive species	⊗ 1960–2015	Not assessed	Not assessed

- 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 arrived since 1500 are considered.

- 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. Invasive non-native species have one or more of these negative impacts and a high capacity for spread to natural and semi-natural habitats.

- Over the period 1960–2015, non-native species have become more prevalent in the countryside. The number of these invasive non-native species established in or along more than 10 per cent of Great Britain's land area or coastline has increased since 1960 in the freshwater, terrestrial and marine (coastal) environments, increasing the likely pressure on native biodiversity.

- Of the 3,056 non-native species in Great Britain, 1,957 are considered to be established, and of those 180 are considered to be exerting a negative impact on native biodiversity in Great Britain. In 2014, the indicator was based on 3,050 non-native species, of which 1,919 were considered to be established and 179 considered to be exerting a negative impact on biodiversity.

B7. Surface water status

Type: State Indicator

Figure B7i. Status classification of UK surface water bodies under the Water Framework Directive, 2009 to 2015.
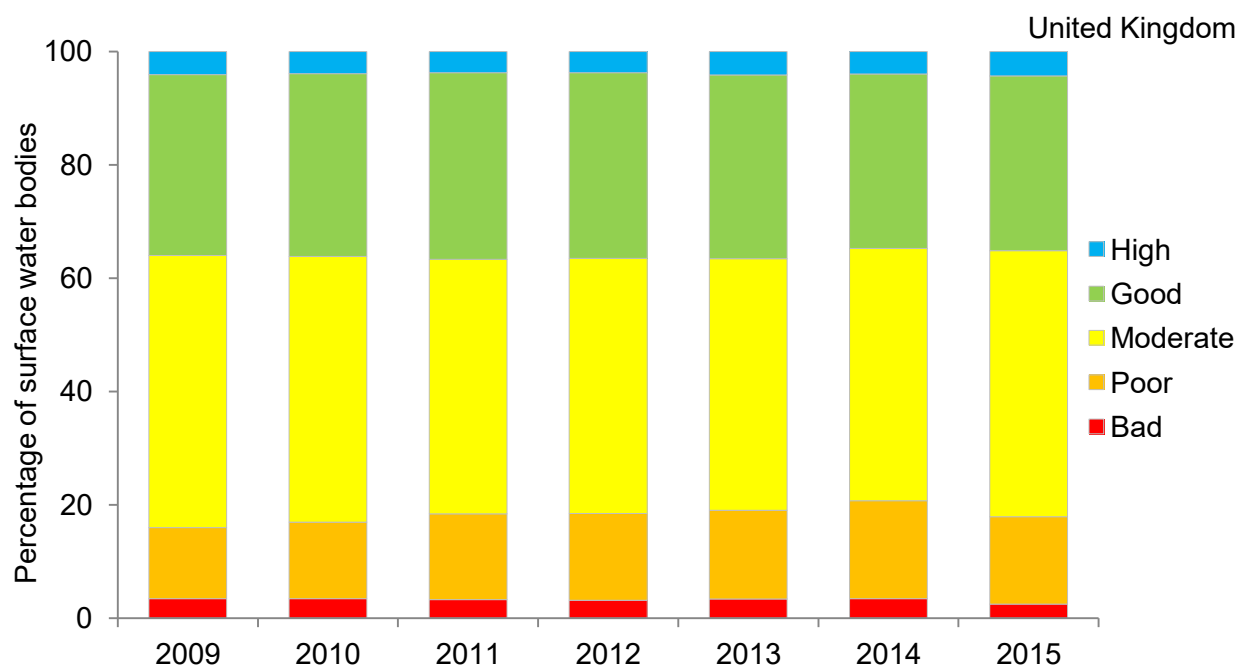
Notes:

1. Based on numbers of surface water bodies classified under the Water Framework Directive 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. The results published each year relate to data reported in that year under the Water Framework Directive.

4. The percentage of water bodies in each status class has been calculated based on the total number of water bodies assessed in each year.

5. The number of water bodies assessed varies slightly from year to year: 10,832 water bodies were assessed in 2009; 10,761 water bodies in 2010; 10,782 in 2011; 10,704 in 2012; 10,763 in 2013; 10,799 in 2014; and 10,379 in 2015.

6. 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 class has been added to the number of HMAWBs with high ecological potential.

Source: Department of the Environment 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'	⊙	≈ 2010–2015	Decreased (2015)

- There was a small decrease in the overall number of water bodies awarded high or good surface water status between 2010 and 2015. In 2015, 35 per cent of surface water bodies assessed under the Water Framework Directive (WFD) in the UK were in high or good status. This reflects very little change from 36 per cent of surface water bodies assessed in 2010.

- 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 (including a new baseline adopting all of the new standards, tools, designations and water body boundaries) in 2014 will lead to a step change in the number of water bodies assessed as being in each status class in future years. The formal reporting of new standards will happen in cycle 2 of WFD, using the second cycle plans published in 2015. The introduction of reporting the cycle 2 standards has differed amongst the UK countries.

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

Figure C1i.   Extent of UK nationally and internationally important protected areas: (a) on-land; (b) at-sea, 1950 to 2015.
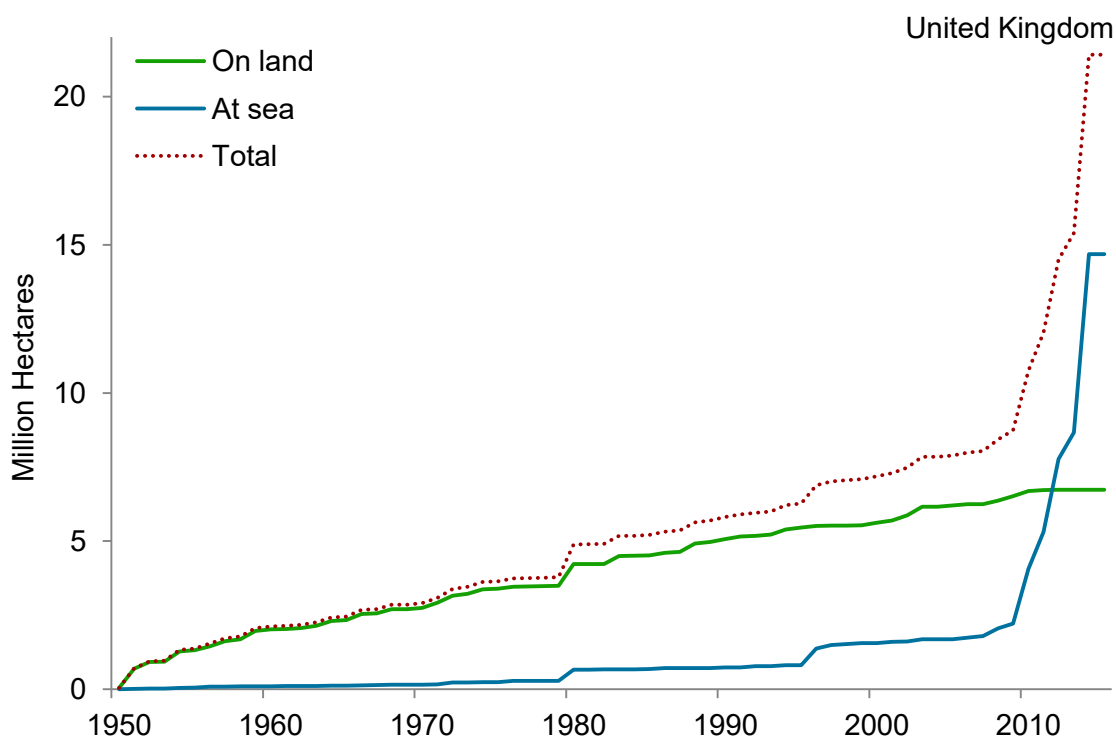
Notes:

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.

2. Based on calendar year of site designation. For 2015, the data cut-off is 31 July.

3. Extent is based on the following site designations: Areas of Special Scientific Interest, Sites of Special Scientific Interest, 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 2015.**
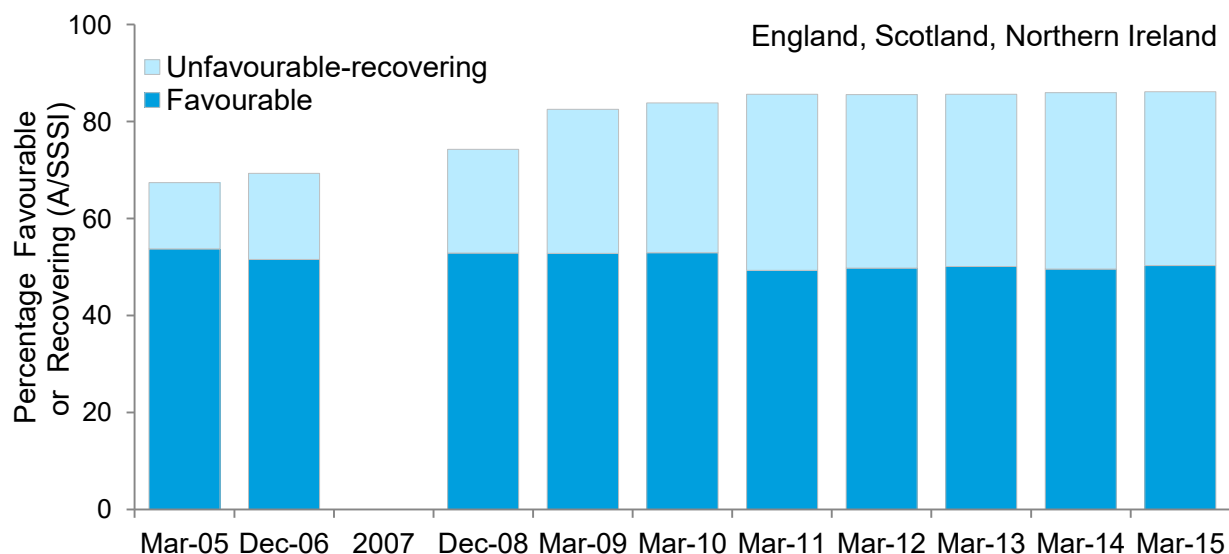
Notes:

1. England figures based on area. Scotland and Northern Ireland figures based on number of features.

2. Based on data to the end of the calendar month shown. 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. 'Recovering' is used in the graph above, and throughout the document, as a convenient shorthand for the condition category 'unfavourable-recovering'.

5. Figures exclude condition of A/SSSIs notified for geological features only.

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

Assessment of change in area and condition of UK protected areas			
	Long term	**Short term**	**Latest year**
Total extent of protected areas: on-land	✓ 1950–2015	≈ 2010–2015	No change (2015)
Total extent of protected areas: at-sea	✓ 1950–2015	✓ 2010–2015	No change (2015)
Condition of A/SSSIs	✓ 2005–2015	≈ 2010–2015	No change (2015)

- 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 10.7 million hectares, from 10.8 million hectares in December 2010 to 21.4 million hectares at the end of July 2015.

- This 10.7 million hectare 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 in English, Welsh, and Northern Irish waters, and designation of Nature Conservation Marine Protected Areas in Scottish waters. The extent of protected areas on-land increased by 36,800 hectares since 2010.

- The indicator also shows the condition of Areas or Sites of Special Scientific Interest (A/SSSIs) on land. A/SSSIs are surveyed periodically to assess whether they are in good condition ('favourable') or, if not, whether they are under positive management ('unfavourable-recovering').

- The percentage of features, or area, of A/SSSIs in favourable or recovering condition increased from 67 per cent in 2005 to 84 per cent in 2010 and to 86 per cent in 2015. The proportion of features or area of land in recovering condition has increased from 14 per cent in 2005 to 36 per cent in 2015. These changes reflect improved management of sites, but may also be affected by a greater number of sites/features having been assessed over time.

C2. Habitat connectivity

Indicator under development – progress to date

A measure of connectivity has been published previously within the biodiversity indicators set, based on an 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. Expert opinion was used to assess the relative likelihood of movement by species characteristic of each habitat between habitat patches across different intervening land cover types found in the survey. The measure required further analysis to better explain the causes of the changes in connectivity and, as a result, the information available was insufficient for an assessment of change to be made, despite the statistically significant increase seen in connectivity in neutral grassland habitat observed. It has not been possible to undertake the analysis required and, given the latest data available for the indicator is from 2007, it has been decided by the UK Biodiversity Indicators Steering Group that this indicator is now too out-of-date to be retained within the indicator set, and the previous data and analysis has been moved to the background section.

During 2015, CEH, JNCC and Defra have, based on a review of the specialist literature, investigated the possibility of using the level of synchrony in the fluctuations of annual population counts of butterflies as a proxy of connectivity. The exploration used data for four species of butterfly associated with woodland, collected through the UK Butterfly Monitoring Scheme (UKBMS). Population synchrony, measured as the level of correlation in time-series of annual abundance between site comparisons, is known to be influenced by distance, habitat similarity and geographic location. After accounting for these factors, evidence has shown synchrony is positively related to landscape suitability and landscape features that promote dispersal ability. Furthermore, population synchrony is positively related with the frequency of actual movements of individuals. Based on this evidence, population synchrony has been shown to be an effective measure of functional connectivity, with higher levels of synchrony associated with higher functional connectivity. The test has so far only been focussed on connectivity derived from data on four species of woodland butterflies. The next stage is to expand the work, looking to broaden taxonomic coverage to include birds, and more habitats, with the aim of publishing an experimental statistic in 2016.

C3. Status of European habitats and species

a. Status of UK habitats of European importance

Type: State Indicator

Figure C3ai.   Percentage of UK habitats of European importance in improving or declining conservation status in 2007 and 2013.
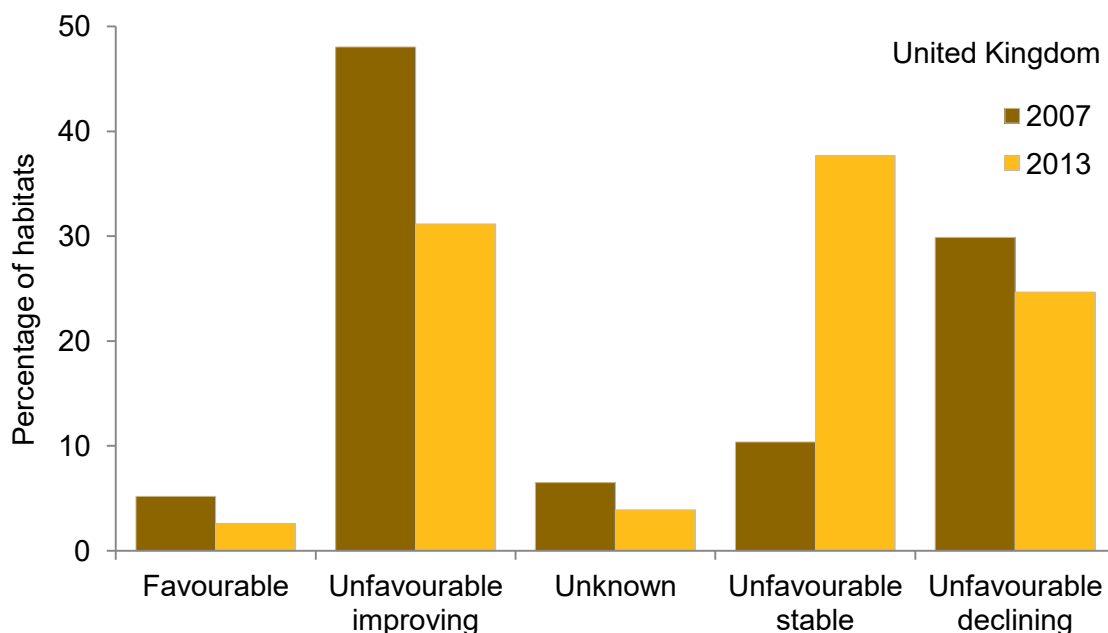
Notes:

1. The chart is based on 77 habitats listed on Annex I of the Habitats Directive.

2. The aim of the Habitats Directive is to achieve favourable conservation status for the species and habitats listed in its Annexes. An assessment of status and trends for each species and habitat is undertaken every six years. 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 2007 and 2013.

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	⊙	⊗ 2007–2013	Decreased (2013)

Notes: *A long term assessment is not made as the data do not go back more than 10 years.

- In 2007, 5 per cent of UK habitats listed on Annex I of the Habitats Directive were in favourable conservation status, decreasing to 3 per cent in 2013.

- The conservation status of 48 per cent of habitats was unfavourable-improving in 2007, decreasing to 31 per cent in 2013.

- The conservation status of 30 per cent of the habitats was unfavourable-declining in 2007, decreasing to 25 per cent in 2013.

- The information sources on which the assessments are based vary between habitats – their quality is documented in the database which underpins the assessments. The changes are largely based on evidence, though expert opinion was used in a few cases where evidence was not available.

b. Status of UK species of European importance

Type: State Indicator

Figure C3bi.   Percentage of UK species of European importance in improving or declining conservation status in 2007 and 2013.
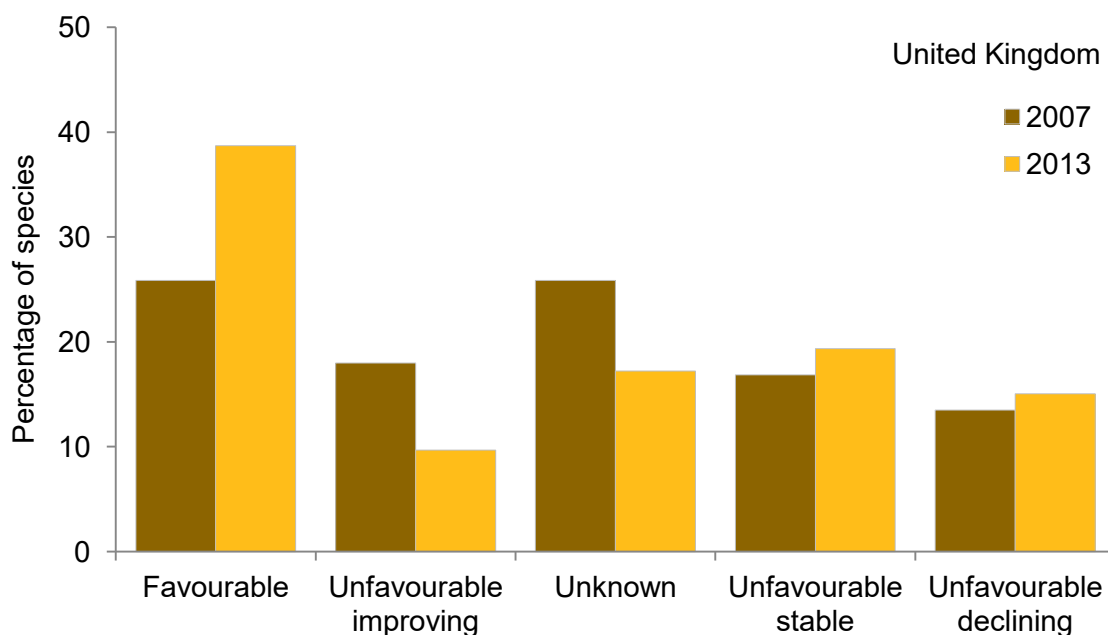
Notes:

1. The number of species assessed was 89 in 2007, and 93 in 2013.

2. The chart is based on species listed on Annexes II, IV and V of the Habitats Directive, but excluding vagrants.

3. The aim of the Habitats Directive is to achieve favourable conservation status for the species and habitats listed in its Annexes. An assessment of status and trends for each species and habitat is undertaken every six years. 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 2007 and 2013.

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	⊙	✓ 2007–2013	Increased (2013)

**Notes:**   *A long term assessment is not made as the data do not go back more than 10 years.

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- In 2007, 26 per cent of UK species listed on Annexes II, IV or V of the Habitats Directive were in favourable conservation status, increasing to 39 per cent in 2013.

- The conservation status of 18 per cent of species was improving in 2007, decreasing to 10 per cent in 2013.

- The conservation status of 13 per cent of the species was declining in 2007, increasing to 15 per cent in 2013.

- The information sources on which the assessments are based vary between species – their quality is documented in the database which underpins the assessments. The changes are largely based on evidence, though expert opinion was used in a few cases where evidence was not available.

C4. Status of UK priority species

a. Relative abundance

Type: State Indicator

Figure C4ai. Change in the relative abundance of priority species in the UK, 1970 to 2012.
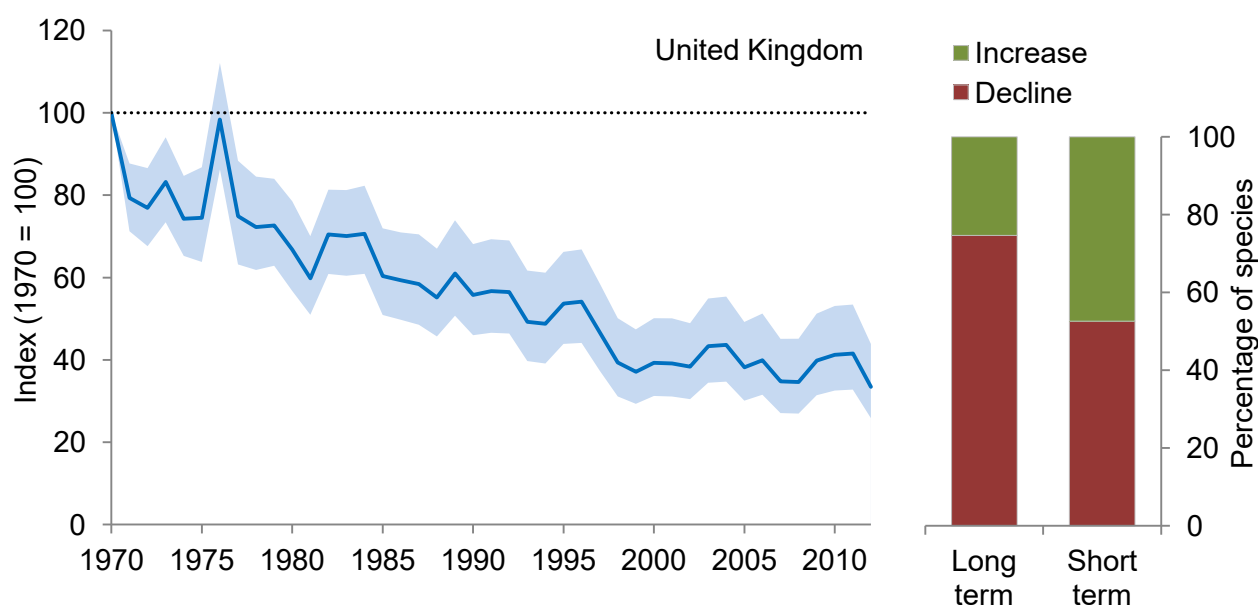
Notes:

1. Based on 213 species. The line graph shows the unsmoothed trend (solid line) with its 95 per cent confidence interval (shaded).

2. The bar chart shows the percentage of species increasing or declining over the long-term (1970 to 2012) and the short-term (2007 to 2012).

3. 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) and Section 42 (Wales), Northern Ireland Priority Species List, Scottish Biodiversity List).

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	⊗ 1970–2012	≈ 2007–2012	Decreased (2012)

- Official lists of priority species have been published for each UK country; actions to conserve these priority species are included within the respective country biodiversity or environment strategies. The species included in the indicator are those on one or more of these priority species lists, for which population abundance data are available.

- By 2012, populations of priority species overall had declined to 33 per cent of the 1970 index value, a statistically significant decrease. Over this long-term period 25 per cent of species showed an increase and 75 per cent showed a decline.

- Between 2007 and 2012, populations of priority species declined by 4 per cent relative to their value in 2007. This decrease is not statistically significant. Within the index over this short-term period, 47 per cent of species showed an increase and 53 per cent showed a decline.

- The measure is a composite indicator of trends in 213 species from the following taxonomic groups: birds, butterflies, mammals, and moths. They 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. See the Technical background document for more detail.

b. Distribution

Type: State Indicator

Figure C4bi.   Change in distribution of UK priority species, 1970 to 2012.
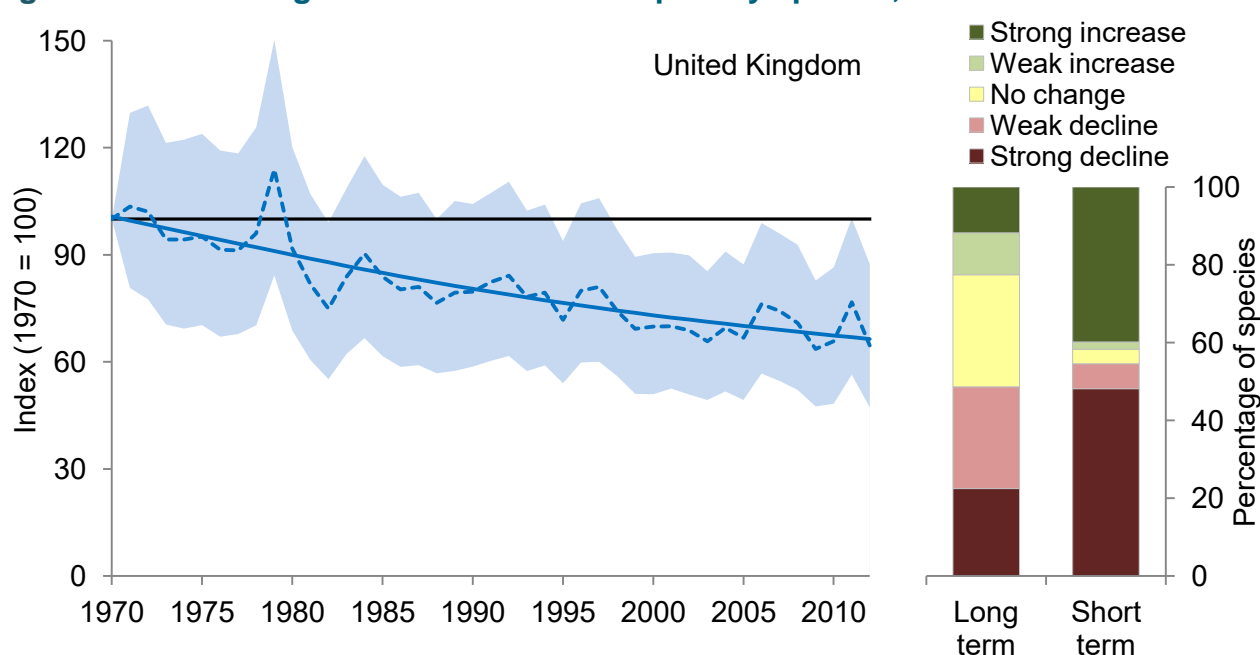
Notes:

1. Based on 111 species. The line graph shows the unsmoothed trend (dashed line) and smoothed trend (solid line) with variation around the unsmoothed line (shaded) within which we can be 90% confident that the true value lies (credible interval).

2. 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.

3. 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) and Section 42 (Wales), Northern Ireland Priority Species list, Scottish Biodiversity List).

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	⊗ 1970–2012	≈ 2007–2012	Decreased (2012)

*   Official lists of priority species have been published for each UK country, and actions to conserve these priority species are included within the respective country strategies. The species included in the indicator are those on one or more of these priority species lists for which distribution data are available.

*   The indicator shows the average relative change in the distribution of 111 species, as measured by the number of 1km grid squares across the UK in which they were recorded – this is referred to as the 'occupancy index'. The indicator will increase when a species becomes more widespread, and will decrease when a species becomes less widespread.

*   Between 1970 and 2012, the occupancy index declined by 35 per cent; 49 per cent of species became less widespread, and 22 per cent became more widespread.

*   The indicator fell by 13 per cent between 2007 and 2012. Between 2007 and 2012, 55 per cent became less widespread (48 per cent showed a strong decrease), and 42 per cent of species became more widespread (40 percent showed a strong increase).

*   The measure is a composite indicator of 111 species from the following taxonomic groups for which there are sufficient data to create a time series: bees, wasps, ants, dragonflies, grasshoppers and related insects, ground beetles, moths, bryophytes and freshwater fish. Priority species were selected in each country because they are scarce, declining or iconic. They are not representative of wider species in general. In addition, the 111 species represent less than 5 per cent of the complete list of priority species, and are not necessarily representative of them. They do, however, include a range of taxonomic groups, thereby broadening the scope of the priority species indicators, and will respond to the range of environmental pressures that biodiversity policy aims to address, including land-use change, climate change, invasive species, and pollution.

C5. Birds of the wider countryside and at sea

a. Farmland birds

b. Woodland birds

c. Wetland birds

d. Seabirds

e. Wintering waterbirds

Type: State Indicator

Figure C5ai.   Breeding farmland birds in the UK, 1970 to 2014.
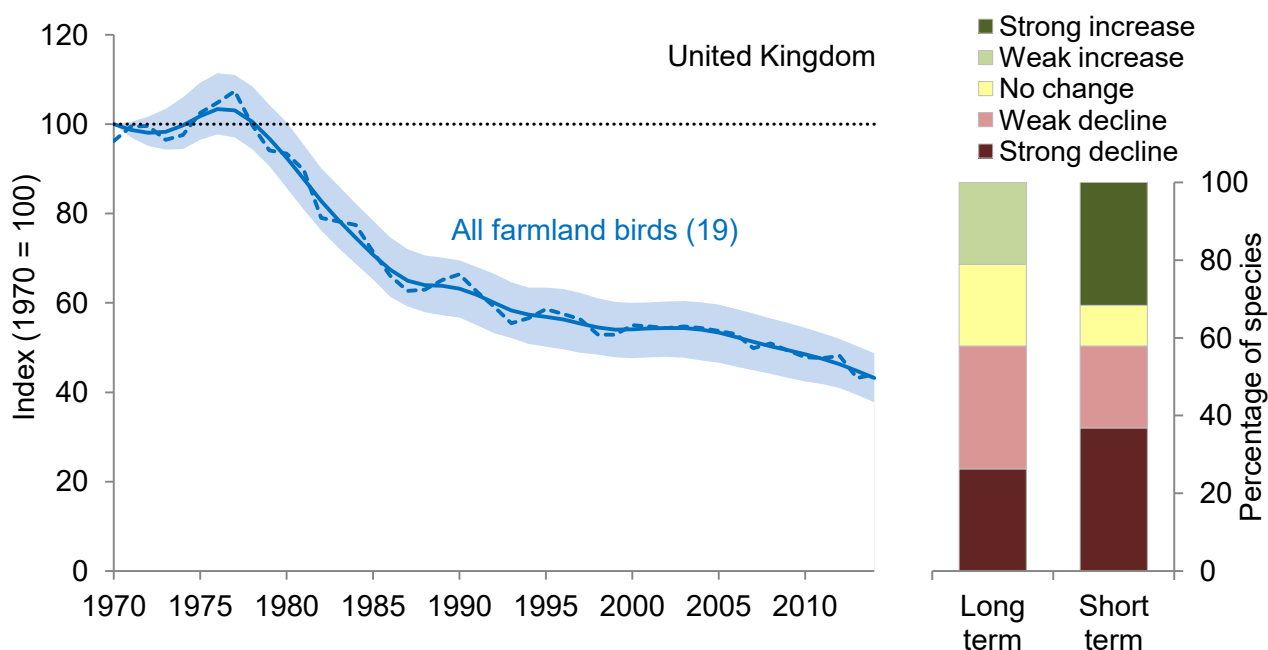
Notes:

1. The figure in brackets shows the number of species.

2. The line graph shows the unsmoothed trend (dashed line) and smoothed trend (solid line) with its 95 per cent confidence interval (shaded).

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 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 2014.

Notes:

1. The figure in brackets shows the number of species.

2. The line graph shows the unsmoothed trend (dashed line) and smoothed trend (solid line) with its 95 per cent confidence interval (shaded).

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 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 2014.
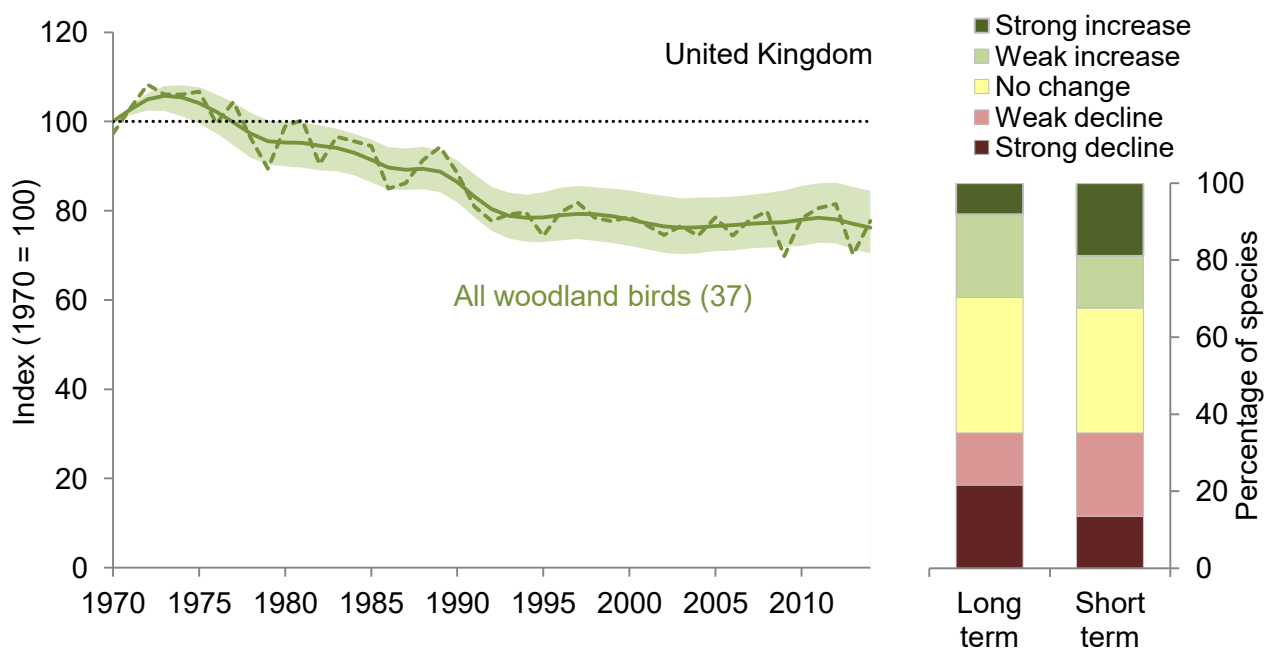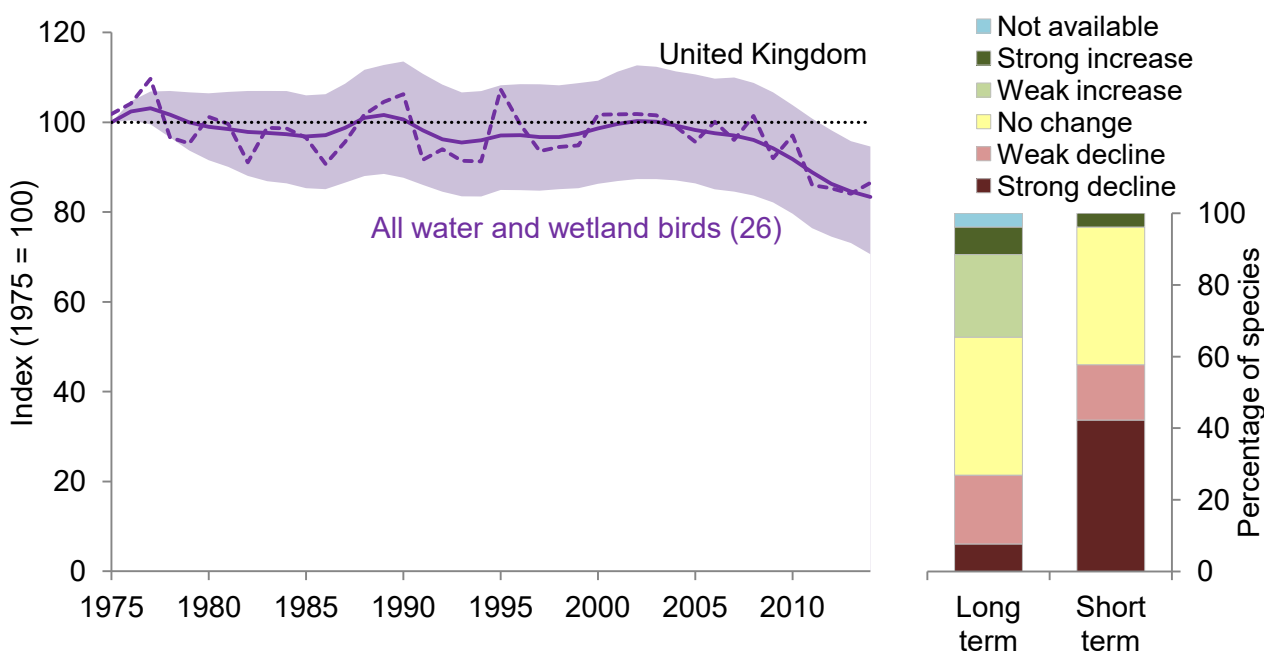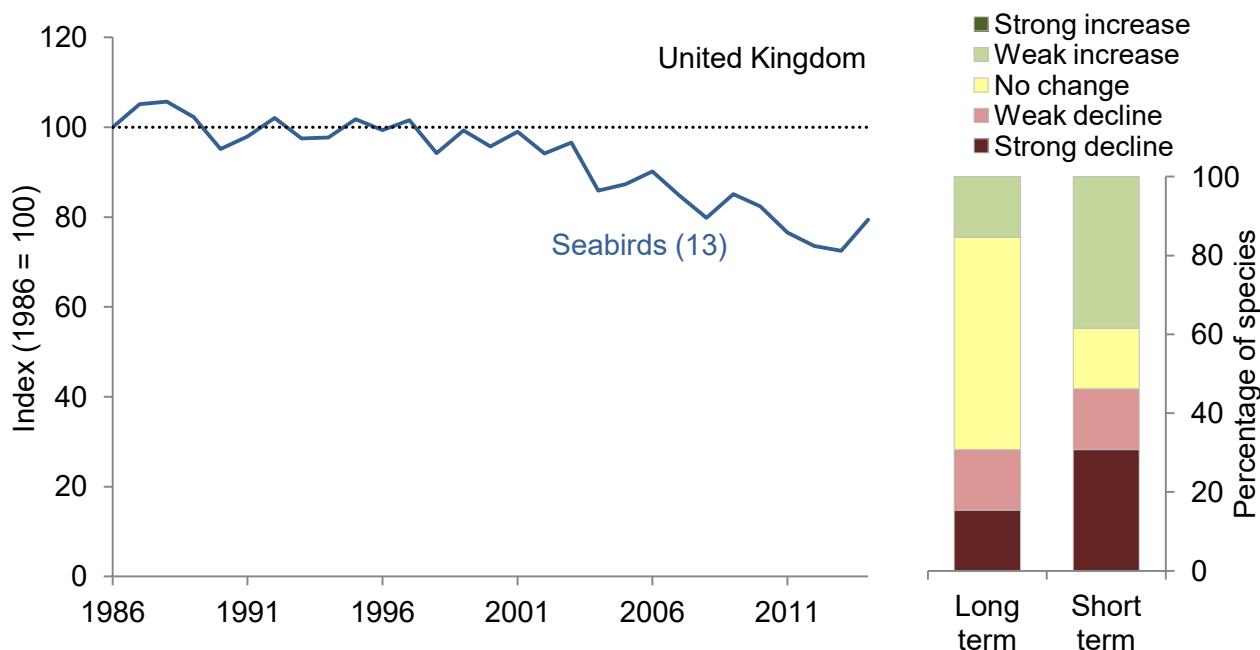

Notes:

1. The figure in brackets shows the number of species.

2. The line graph shows the unsmoothed trend (dashed line) and smoothed trend (solid line) with its 95 per cent confidence interval (shaded).

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 change.

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

Figure C5di.   Breeding seabirds in the UK, 1986 to 2014.

Notes:

1. The figure in brackets shows the number of species.

2. The line graph shows the unsmoothed trend (solid 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 and the trend is presented without confidence intervals.

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 change.

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 2013-14.
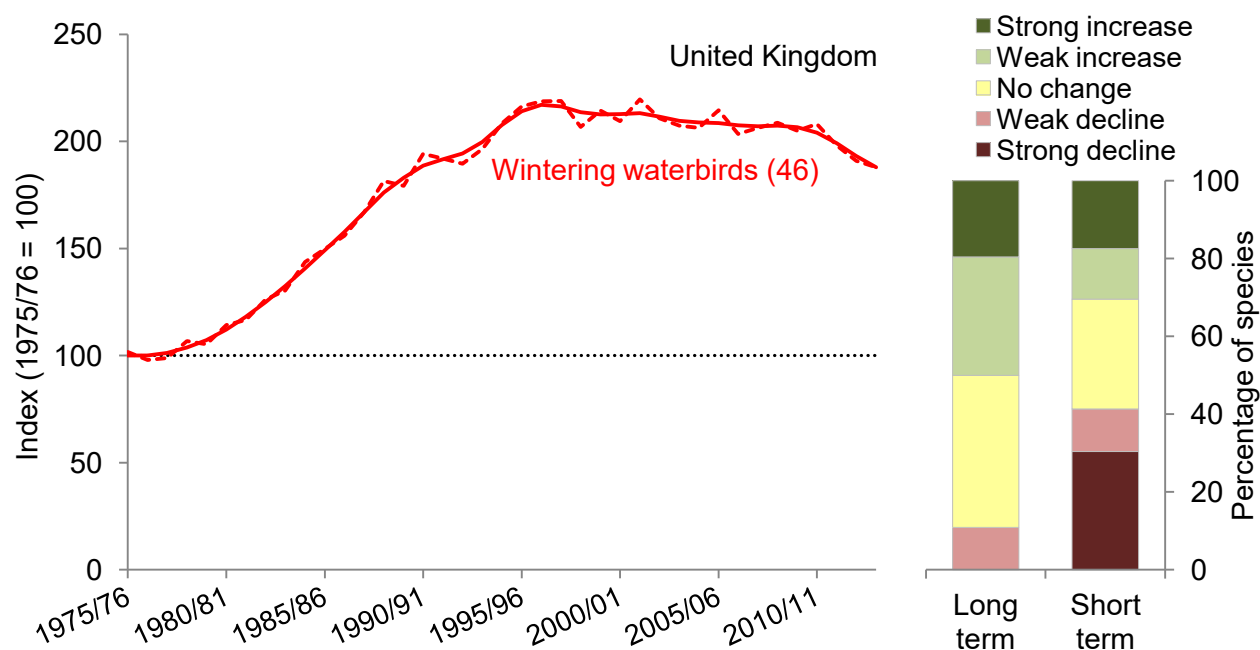
Notes:

1. The figure in brackets shows the number of species.

2. Based on financial years.

3. The line graph shows the unsmoothed trend (dashed line) and smoothed trend (solid line).

4. 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 and the trend is presented without confidence intervals.

5. The bar chart shows the percentage of species within the indicator that have increased, decreased, or shown no change, based on set thresholds of change.

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	⊗ 1970–2013	⊗ 2008–2013	No change (2014)
Woodland birds	⊗ 1970–2013	≈ 2008–2013	Increased (2014)
Wetland birds	⊗ 1975–2013	⊗ 2008–2013	No change (2014)
Seabirds	⊗ 1986–2013	⊗ 2008–2013	Increased (2014)
Wintering waterbirds	✓ 1975/76–2012/13	⊗ 2007/08–2012/13	No change (2013-14)

Notes: While percentage changes in these indices are reported based on the most recent unsmoothed data point (2014), the formal long- and short-term assessments of the statistical significance of these changes are made using the smoothed data to 2013. This is because the most recent smoothed data point (for 2014) is likely to change in next year's update when additional data are included for 2015. 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.

- Between 1970 and 2014, populations of breeding farmland and woodland birds decreased by 54 per cent and 20 per cent respectively, and the population index for breeding water and wetland birds was 15 per cent lower than in 1975. All of these changes are statistically significant. In 2014, breeding seabird populations were 27 per cent lower than their 1986 level.

- In the shorter-term, between 2008 and 2013, populations of woodland birds have remained stable, whilst farmland birds have shown a statistically significant decrease of 11 per cent, and water and wetland birds a significant decrease of 12 per cent. Seabirds have shown a decrease of 9 per cent between 2008 and 2013.

- In 2013-14, populations of the wintering waterbirds were 85 per cent higher than in 1975-76. There has been a decline since the index peaked in the late 1990s, with the smoothed index falling by almost 7 per cent in the short term between 2007-08 and 2012-13.

C6. Insects of the wider countryside (butterflies)

a. Semi-natural habitat specialists

b. Species of the wider countryside

Type: State Indicator

Figure C6ai.   Trends in butterfly populations in the UK: habitat specialists, 1976 to 2014.
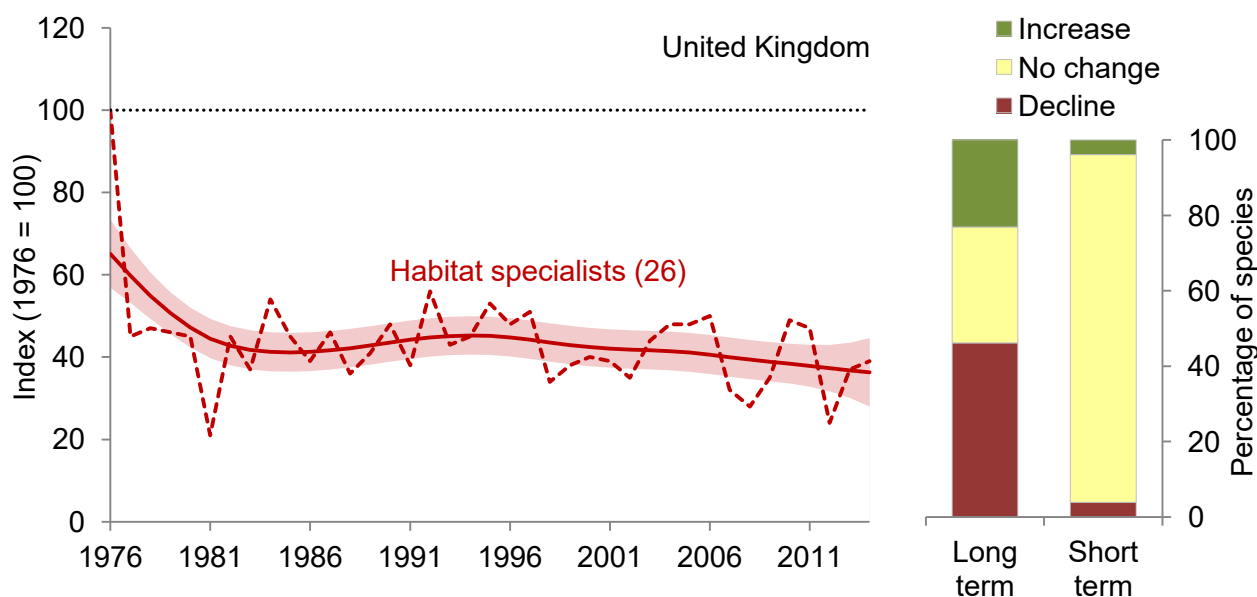
Notes:

1. The figure in brackets shows the number of species included in the index.

2. The line graph shows the unsmoothed trend (dashed line) and smoothed trend (solid line) with its 95 per cent confidence interval (shaded).

3. The bar chart shows the percentage of species within the indicator that have shown a statistically significant increase, statistically significant decrease, or no change.

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

Figure C6bi.   Trends in butterfly populations in the UK: species of the wider countryside, 1976 to 2014.
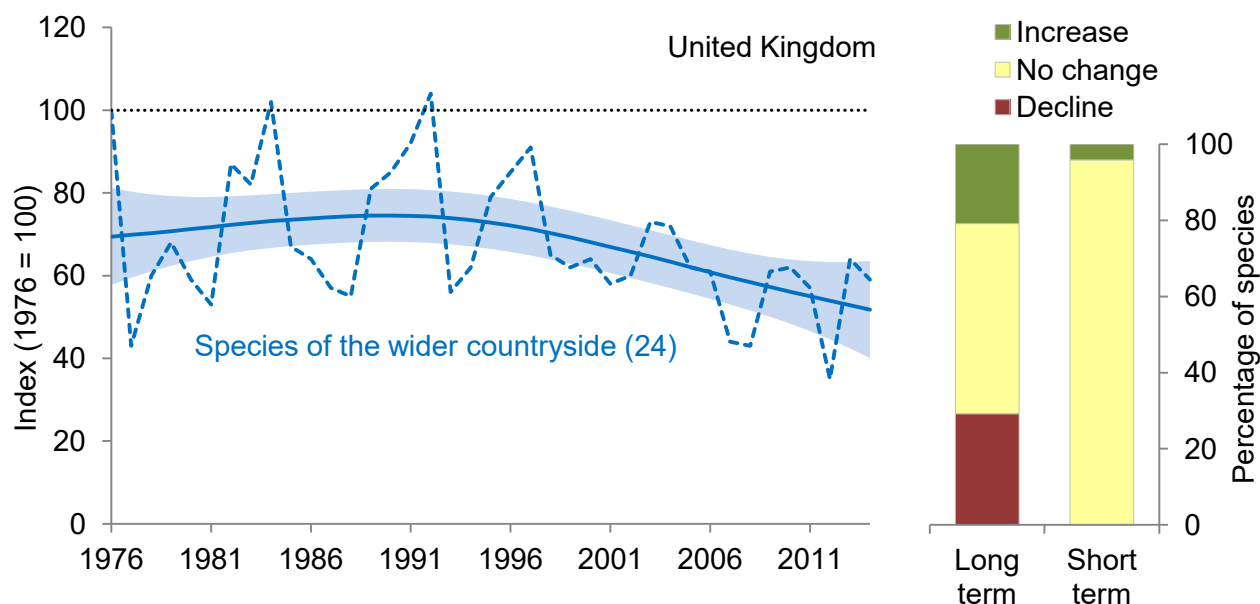

Notes:

1. The figure in brackets shows the number of species included in the index.

2. The line graph shows the unsmoothed trend (dashed line) and smoothed trend (solid line) with its 95 per cent confidence interval (shaded).

3. The bar chart shows the percentage of species within the indicator that have shown a statistically significant increase, statistically significant decrease, or no change.

4. Since 2013, an improved analysis method has been applied to the measure for species of the wider countryside (see the website for further information).

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

Assessment of change in butterfly populations			
	Long term	**Short term**	**Latest year**
Semi-natural habitat specialists	❌ 1976–2014	≈ 2009–2014	Increased (2014)
Species of the wider countryside	❌ 1976–2014	≈ 2009–2014	Decreased (2014)

Notes: While percentage changes in these indices are reported based on the most recent unsmoothed data point (2014), the formal long-term and short-term assessments of the statistical significance of these changes are made using the smoothed data to 2014. Analysis of the underlying trends is undertaken by the data providers.

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- Since 1976, the indices for butterflies strongly associated with semi-natural habitats (habitat specialists) and for those found in the wider countryside have decreased by 61 per cent and 41 per cent respectively.

- Large fluctuations in numbers between years are typical features of butterfly populations. The statistical assessment of change is therefore made on an analysis of the underlying smoothed trends.

- This analysis shows that, since 1976, populations of habitat specialists and species of the wider countryside have declined significantly.

- The unsmoothed data for habitat specialists show an increase between 2009 and 2014, whilst species of the wider countryside show a decrease over the same period. However, the underlying analysis of the smoothed trend shows that these increases are not significant; there has been no overall change in either of the two indices in the five years to 2014.

- In the most recent year, 2014, habitat specialist butterflies increased by 6.7 per cent from the previous year, whilst wider countryside species decreased by 8.0 per cent.

C7. Plants of the wider countryside

Indicator under development – progress to date

An indicator of plant species richness has been published previously within the biodiversity indicators set, based on an 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 is 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 background.

During 2015, the Centre for Ecology & Hydrology (CEH), Joint Nature Conservation Committee (JNCC) and Defra have investigated the possibility of using Bayesian Occupancy Detection 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 new National Plant Monitoring Scheme (NPMS; see below). Although initial testing using Botanical Society of Britain & Ireland (BSBI) atlas data is encouraging, the measures under development (for woodlands and for lowland heathland) require further work before they will be fit for publication as experimental statistics. It is hoped to undertake further work in 2016, including investigating the use of data on habitat specialist (axiophyte) species, which can complement the species chosen for monitoring under the NPMS.

In the slightly longer term, it is anticipated that the new National Plant Monitoring Scheme designed by the BSBI, CEH, Plantlife and JNCC will provide relative abundance data – which will be more equivalent to the data underpinning the birds, bats and butterfly indicators – allowing a more representative indicator of plants and habitat trends to be developed. Although data will start to be delivered within three years, it will not be possible to produce a trend before 2020, as time is needed to collect enough data to be able to calculate the statistical significance of the trend.

C8. Mammals of the wider countryside (bats)

Type: State Indicator

Figure C8i. Trends in bat populations, 1999 to 2014.
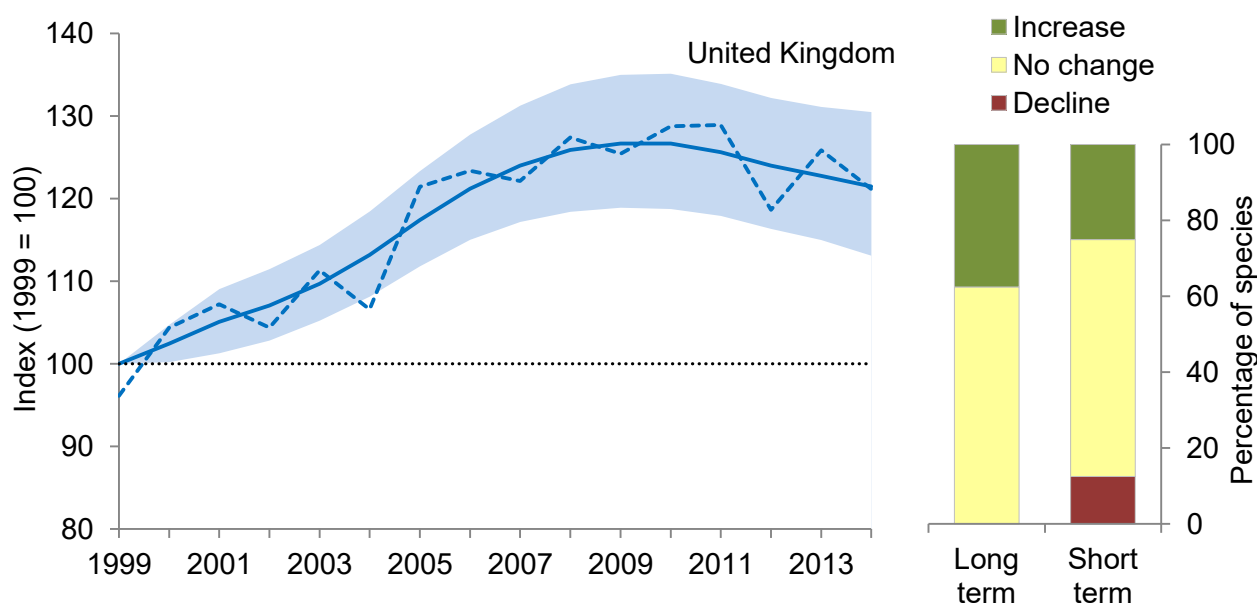
Notes:

1. The headline measure is a composite index of eight bat species: serotine, Daubenton's bat, Natterer's bat, noctule, common pipistrelle, soprano pipistrelle, brown long-eared bat, and lesser horseshoe bat.

2. The line graph shows the unsmoothed trend (dashed line) and smoothed trend (solid line) with its 95% confidence interval (shaded).

3. The bar chart shows the percentage of species which, over the time periods of the long-term and short-term assessments, have shown a statistically significant increase or decline.

Source: Bat Conservation Trust.

Assessment of change in widespread bat populations			
	Long term	**Short term**	**Latest year**
Bat populations	✓ 1999–2013	≈ 2008–2013	Decreased (2014)

Notes: Long-term and short-term assessments are made on the basis of smoothed trends to the penultimate year (2013) by the Bat Conservation Trust. This is because the most recent smoothed data point (2014) is likely to change in next year's update when additional data are included for 2015. The latest year assessment is based on unsmoothed data.

- Between 1999, when trends from standardised large-scale monitoring became available through the National Bat Monitoring Programme (NBMP), and 2013, bat populations have increased by 23 per cent; an assessment of the underlying smoothed trend shows this is a statistically significant increase.

- In the short term, between 2008 and 2013, an assessment of the underlying smoothed trend shows that bat populations have shown a small, non-significant decrease of 2.5 per cent, and are therefore considered to be stable.

- Three species have increased in the long-term: Daubenton's bat, common pipistrelle and lesser horseshoe bat; no species have decreased; and five species have shown no significant change in population size. In the short term, between 2008 and 2013, one species, noctule, has shown a significant decrease; two species, common pipistrelle and lesser horseshoe bat, have shown significant increases; and five species have shown no significant change in population size.

- Fragmented historical evidence suggests that bats underwent severe declines in the latter half of the 20th century.

C9. Genetic resources for food and agriculture

a. Animal genetic resources – effective population size of Native Breeds at Risk
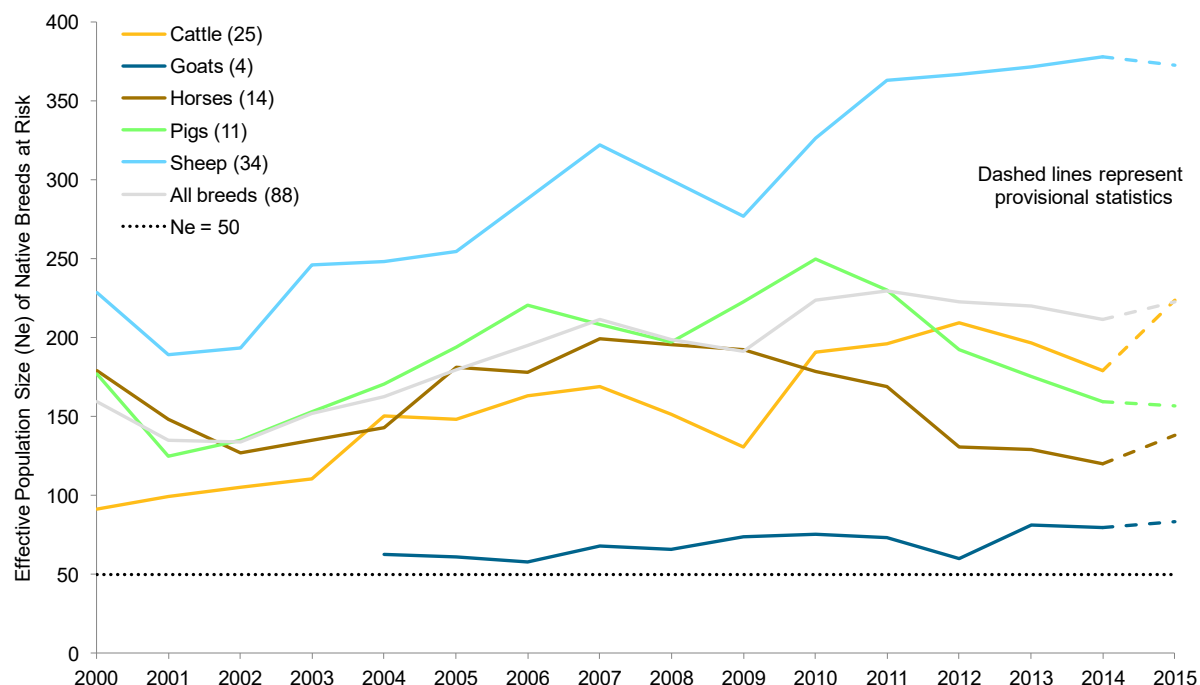
   i. **Goat breeds**

  ii. **Pig breeds**

 iii. **Horse breeds**

 iv. **Sheep breeds**

  v. **Cattle breeds**

Type: State / Benefit Indicator

Figure C9ai. Average effective population size (N_e) of Native Breeds at Risk, 2000 to 2015.

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 2015 values are based on four goat breeds, 11 pig breeds, 12 horse breeds, 26 sheep breeds, and 20 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 are provisional, hence the last part of the lines are shown as 'dashed'. It is expected that the provisional data can be confirmed in 2018 (see the technical document for details).

3. Based on data in the UK Farm Animal Genetic Resources Breed Inventory published on 10 August 2016 (as revised 7 September 2016).

4. There was an error in calculations of N_e for cattle published for this indicator in January 2015. In addition, data for more breeds of sheep, cattle and horses are available in the inventory published in 2016, affecting the series for these species. As a result, this indicator is not directly comparable with the previous publication.

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 pale grey line is an average of all 88 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, 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	✓ 2004–2015	✓ 2010–2015	No change (2015)
Pig breeds	✓ 2000–2015	✗ 2010–2015	No change (2015)
Horse breeds	✗ 2000–2015	✗ 2010–2015	Increased (2015)
Sheep breeds	✓ 2000–2015	✓ 2010–2015	No change (2015)
Cattle breeds	✓ 2000–2015	✓ 2010–2015	Increased (2015)

- Genetic diversity is an important component of biological diversity. Rare and native breeds of farm animals are part of our cultural heritage and are often associated with traditional land management required to conserve important habitats. There has been no reported UK extinction of any breeds of goats, pigs, horses, sheep or cattle since 1973.

- The genetic diversity in UK breeds can be assessed by the effective population size, 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.

- In the 2016 UK Farm Animal Genetic Resources Breed Inventory, all five native breeds of goats, all 11 native breeds of pigs, 16 of 21 native horse breeds, 46 of 59 native sheep breeds, and 29 of 38 native cattle breeds were classified as Native Breeds at Risk. Data for as many of these breeds as possible are included in this indicator.

- In the long term, between 2000 and 2015, the average effective population size of the 88 native breeds at risk included in this indicator decreased from 177 to 157 for pigs, decreased

from 179 to 138 for horses, increased from 229 to 372 for sheep, and increased from 91 to 224 for cattle. The dataset for goats starts in 2004 when it was 63, increasing to 83 in 2015; prior to 2004, effective population size could only be calculated for one breed.

- In the short term, between 2010 and 2015, the average effective population size of native breeds at risk for goats increased from 75 to 83, increased from 326 to 372 for sheep, and increased from 191 to 224 for cattle, but decreased from 250 to 157 for pigs, and decreased from 179 to 138 for horses.

- The *average* effective population sizes calculated between 2000 and 2015 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 2015, of the Native Breeds at Risk, one goat breed, three horse breeds, and four cattle breeds had effective population sizes below this threshold. No breeds of sheep or pig had effective population sizes below the threshold in 2015.

b. Plant genetic resources – Enrichment Index

Type: State / Benefit Indicator

Figure C9bi.   Cumulative Enrichment Index of plant genetic resource collections held in the UK, 1960 to 2015.
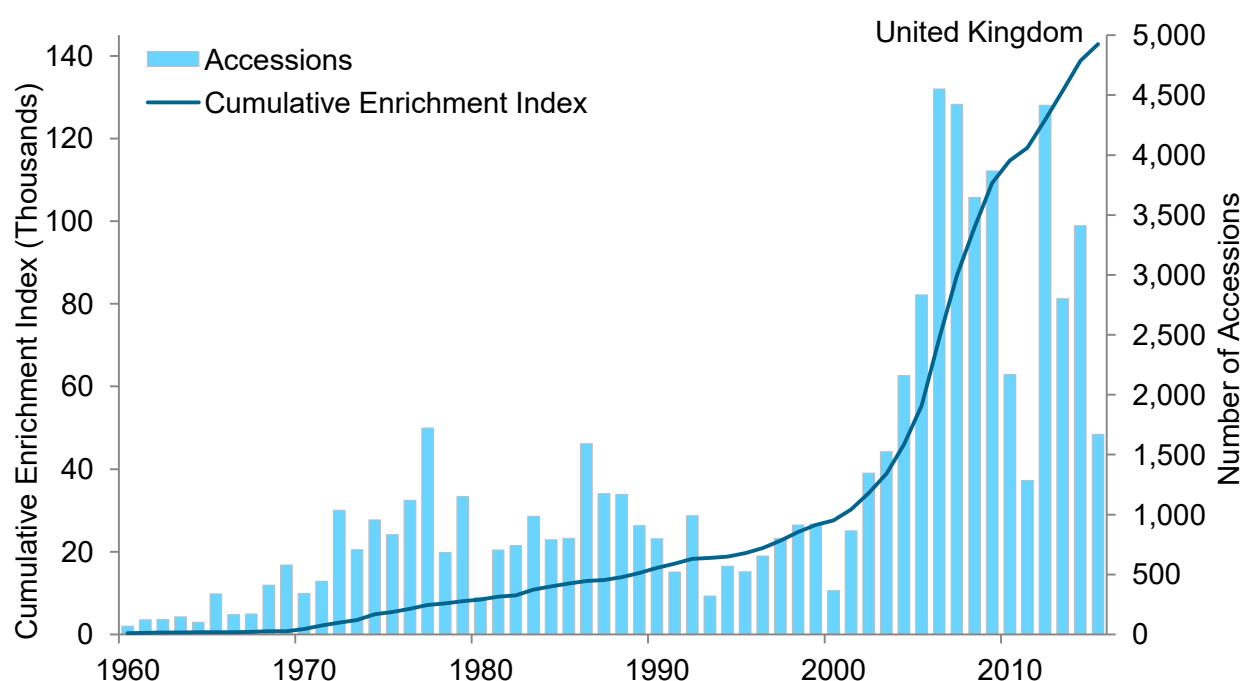
Notes:

1. An accession is a collection of plant material from a particular location at a point in time.

2. The Enrichment Index is an assessment of the genetic diversity held in gene banks; it is affected by the number of accessions which are added in a given year, but provides a better reflection of the genetic diversity already held in gene banks as reduced weight is given to new accessions of existing taxa.

3. The UK 2015 update of EURISCO included 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 version previously published.

Source: EURISCO Catalogue http://eurisco.ipk-gatersleben.de/apex/f?p=103:1; date of data consultation 16 November 2015; based on UK contributions from: Genetic Resources Unit, Aberystwyth; Heritage Seed Library, Garden Organic; 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	✅ 1960–2015	✅ 2010–2015	Increased (2015)

- 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.

- 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 68,741 accessions by November 2015. There was a 25 per cent increase in the Enrichment Index between 2010 and 2015. A rapid rise in the Enrichment Index since 2000 can be attributed to a concerted collection effort by the Millennium Seed Bank.

- 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.

D1. Biodiversity and ecosystem services

a. Fish size classes in the North Sea

Type: State / Benefit Indicator

Figure D1ai. **Proportion of large fish (equal to or larger than 40cm), by weight, in the North-western North Sea, 1983 to 2014.**
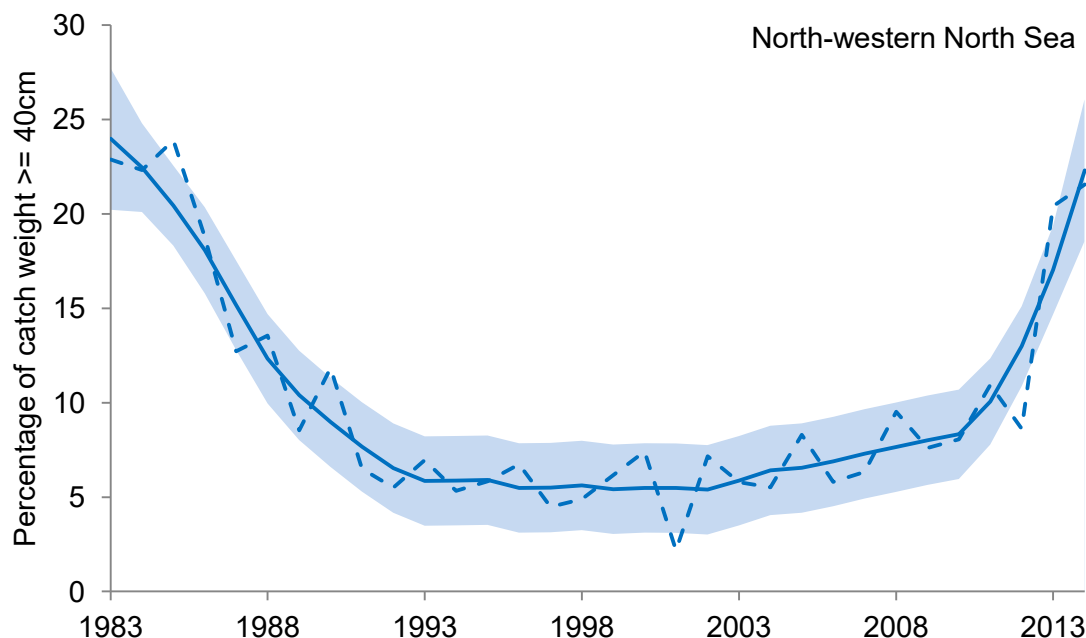
Notes: The line graph shows the unsmoothed trend (dashed line) and a LOESS smoothed trend (solid line) with the shaded area showing the 95 per cent confidence intervals around the smoothed trend.

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-western North Sea	≈ 1983–2014	✓ 2009–2014	Increased (2014)

Notes: 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. LOESS is a non-parametric regression method; it may be understood as standing for "LOcal regrESSion".

- Changes in the size structure of fish populations and communities reflect changes in the state of the fish community.

- This indicator shows changes in the proportion of fish which are large (40cm or greater in length) in the North-western part of the UK area of the North Sea.

- In 2014, large fish in the North-western North Sea made up almost 22 per cent of the weight of the fish community. This was very nearly the same as the 23 per cent in 1983; however it is an increase from a low of 2.2 per cent in 2001. While there was a clear decline in the indicator from 1983 to 1993, there has been rapid recovery since 2003, which accelerated after 2010.

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

- The measure for the North-western North Sea is used as the main indicator because it is based on the largest dataset and provides the most reliable indicator of change.

b Removal of greenhouse gases by UK forests

Type: Benefit Indicator

Figure D1bi. Cumulative net removal of greenhouse gases by UK forests, 1990 to 2013.
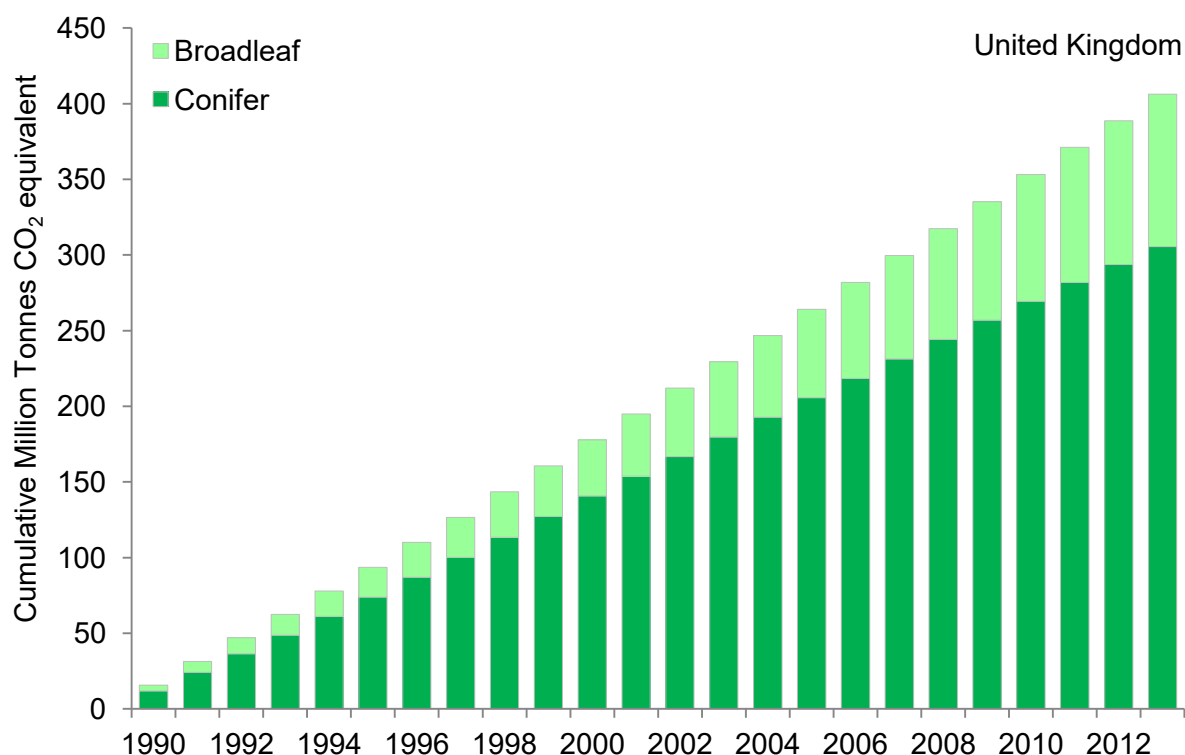
Notes:

1. The bar graph shows the cumulative net removal 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 CO_2 equivalent.

2. Revised in 2015 to reflect improved modelling of GHG emissions and removals.

Source: DECC Land Use, Land Use Change and Forestry 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	✓ 1990–2013	✓ 2008–2013	Increased (2013)

- This indicator shows the cumulative net removal of greenhouse gases from the atmosphere by UK forests between 1990 and 2013. It is split between type of woodland (conifer and broadleaf).

- Cumulatively, since 1990, the equivalent of 406 million tonnes of CO_2 has been removed from the atmosphere. In 2013, UK forests are estimated to have removed the equivalent of 17.6 million tonnes of CO_2 from the atmosphere.

- The proportion of removals by broadleaf woodlands has increased since 1990. Broadleaf woodland contributed 5.8 million tonnes of the removals (33 per cent) in 2013; an increase from the 3.7 million tonnes (24 per cent) removed in 1990.

c. Status of pollinating insects

Type: State / Benefit indicator

Figure D1ci.   Change in the distribution of UK pollinators, 1980 to 2010.
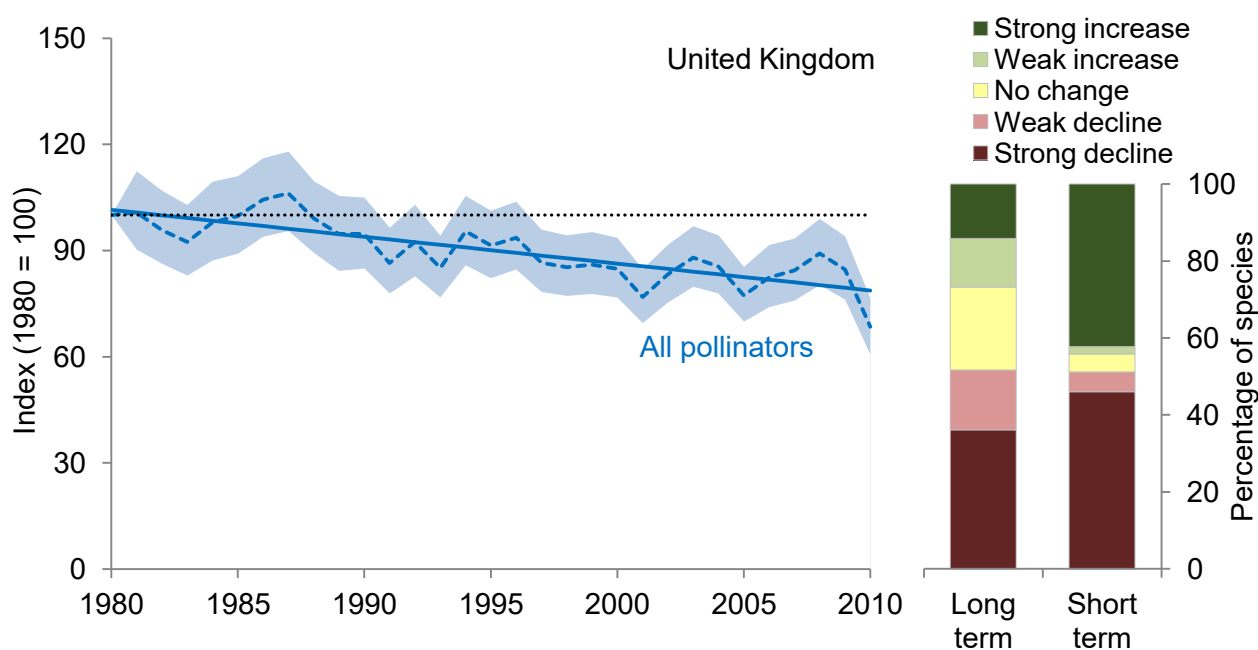
Notes:

1. Based on a total of 213 pollinators, comprising 105 wild bee species and 108 hoverfly species.

2. The line graph shows the unsmoothed trend (dashed line) and smoothed trend (solid line) with variation around the line (shaded) within which it is 90 per cent likely that the true value exists (credible interval).

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.

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

Assessment of change in distribution of pollinators in the UK			
	Long term	**Short term**	**Latest year**
Distribution of UK pollinators	❌ 1980–2010	❌ 2005–2010	Decreased (2010)

- The indicator shows the average relative change in distribution of 213 species of pollinator, as measured by the number of 1km grid squares across the UK in which they were recorded – this is referred to as the 'occupancy index'.

- Based on the unsmoothed data, there was an overall decrease in the indicator from 1987 onwards. The occupancy index fell by 32 per cent between 1980 and 2010.

- Between 1980 and 2010, 27 per cent of pollinator species become more widespread (14 per cent showed a strong increase), and 51 per cent became less widespread (36 per cent showed a strong decrease). Similar patterns occurred between 2005 and 2010, but with a greater proportion increasing and decreasing strongly.

- As individual pollinator species become more or less widespread, the communities in any given area become more or less diverse, and this may have implications for pollination as more diverse communities are, in broad terms, more effective in pollinating a wide range of crops and wild flowers.
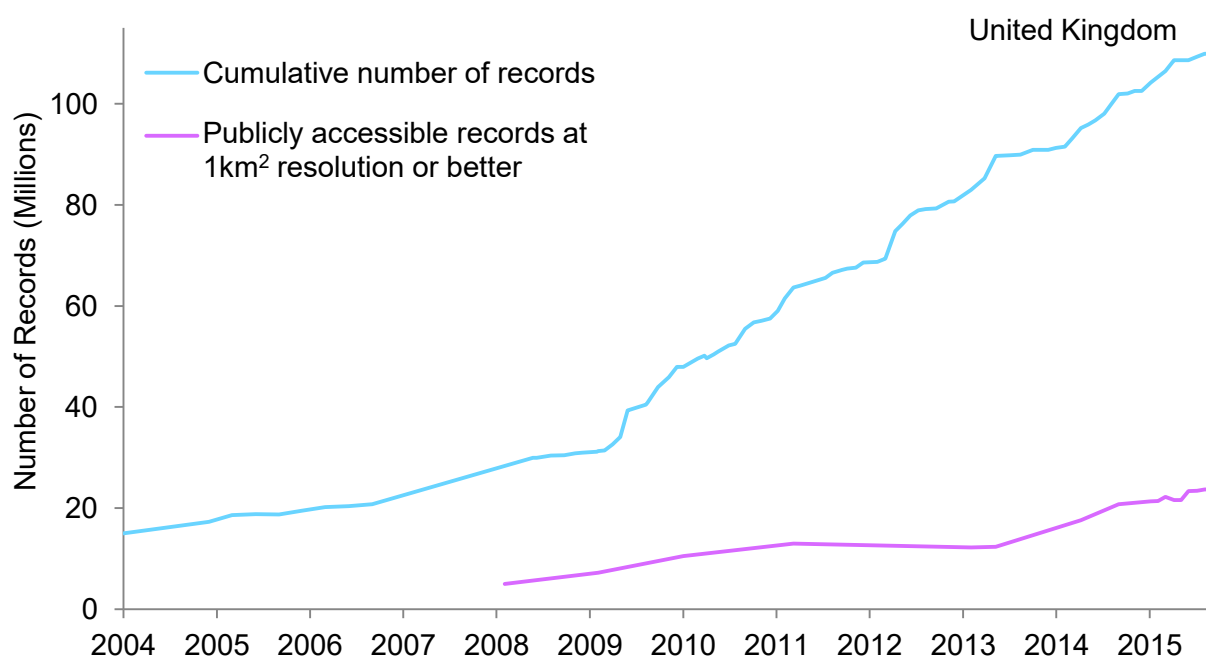
E1. Biodiversity data for decision making

a. Cumulative number of records

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

Type: State Indicator

Figure E1i.   Records added to the National Biodiversity Network Gateway, 2004 to 2015.

Notes: Data available to 7 September 2015.

Source: National Biodiversity Network.

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Assessment of change in data for decision making			
	Long term	Short term	Latest year
Cumulative number of records	✓ 2004–2015	✓ 2010–2015	Increased (2015)
Number of publicly accessible records at 1km^2 resolution or better	⋯	✓ 2010–2015	Increased (2015)

- The number of records within the National Biodiversity Network Gateway has increased from 15 million at the start of 2004 to 48 million at the start of 2010, and to over 109 million at the start of September 2015. Since the start of 2010 there has been an increase of nearly 62 million records.

- 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 23.7 million at the start of September 2015.

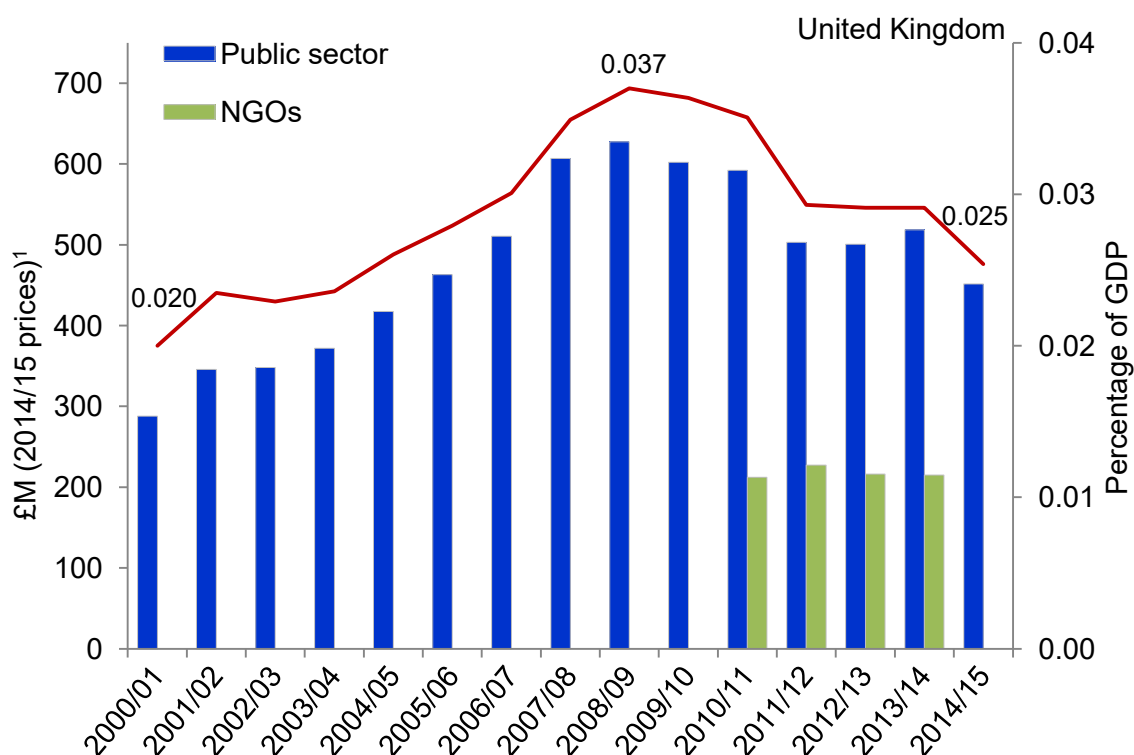## E2. Expenditure on UK and international biodiversity

a. Public sector expenditure on UK biodiversity

b. Non-Governmental organisation expenditure on UK biodiversity

c. UK expenditure on international biodiversity

Type: Response Indicator

Figure E2i. **Expenditure on biodiversity in the UK, 2000-01 to 2014-15.**
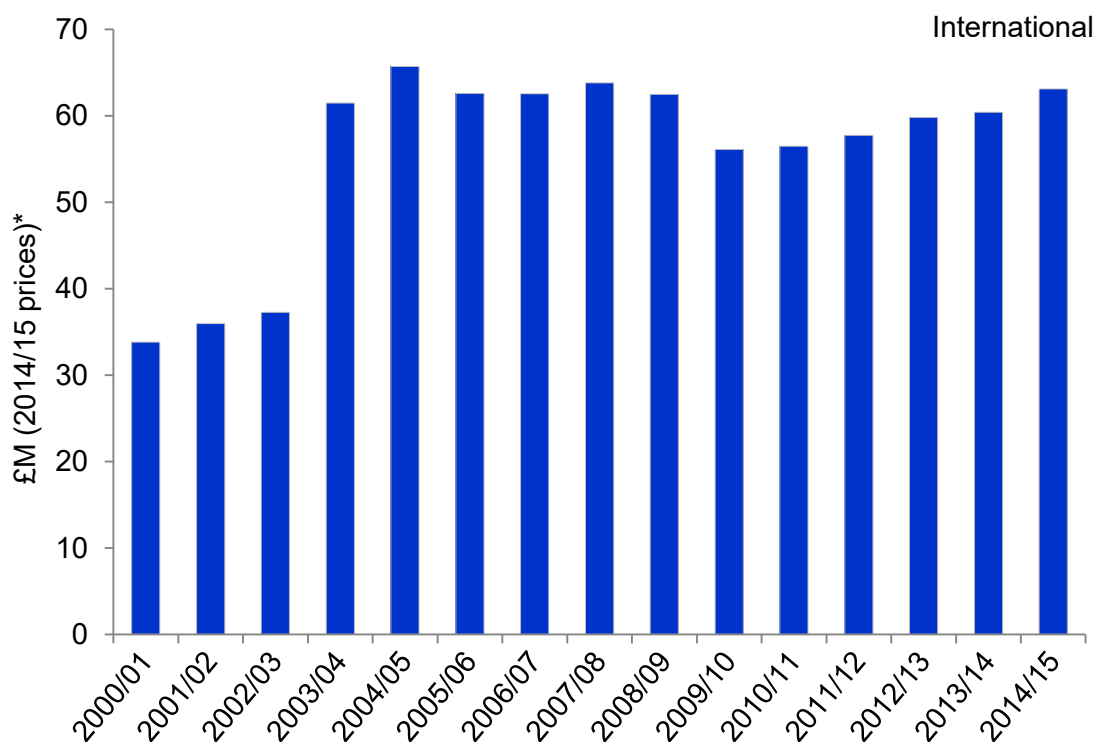

Notes:
1. Deflated using UK Gross Domestic Product Deflator.

2. Non-Governmental spend is net of government funding.

3. Small revisions to past data series as a result of improved estimation methodology can mean the indicator does not show exactly the same pattern between years.

Source: Defra, Her Majesty's Treasury.

Figure E2ii. **UK public sector expenditure on international biodiversity, 2000-01 to 2014-15.**

Notes: Deflated using UK Gross Domestic Product Deflator.

Source: Defra.

Assessment of change in public expenditure on biodiversity			
	Long term	**Short term**	**Latest year**
Public sector expenditure on biodiversity in the UK	✓ 2000/01–2014/15	✗ 2009/10–2014/15	Decreased (2014-15)
Non-Governmental organisation spending (net of Government funding) on biodiversity in the UK	⋯	⋯	No change (2013-14)
UK public sector expenditure on international biodiversity	✓ 2000/01–2014/15	✓ 2009/10–2014/15	Increased (2014-15)

- Spending is one way of assessing the priority that is given to biodiversity within the UK public sector. 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.

- In 2014-15, £452 million of UK public sector funding was spent on UK biodiversity; this value has decreased since 2013-14. Between 2000-01 and 2014-15, public sector spending on UK biodiversity increased by 57 per cent in real terms, although it declined by 26 per cent between 2009-10 and 2014-15.

- Public sector funding on UK biodiversity relative to GDP has change very little in 2014-15 compared to 2013-14. In 2014-15 approximately £3 was spent on biodiversity for every £10,000 of GDP.

- Spending on biodiversity in the UK by non-governmental organisations (NGOs) with a biodiversity or nature focus was £215 million in 2013/14 (net of Government funding). This value is likely to be an underestimate, as the indicator does not include all NGOs with a biodiversity or nature focus. Based on the data gathered by the current indicator, spending has increased slightly since the first year of data collection (2010-11) and has remained stable in the latest year between 2012-13 and 2013-14.

- In 2014-15, UK public sector funding for international biodiversity totalled £63 million. International spending by the UK public sector has increased by 87 per cent since 2000-01 in real terms. There was a reduction of 10 per cent in 2009-10 compared with 2008-09, since when spending has increased gradually.

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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For further details on all the indicators, including data sources and assessment methods, please visit the Joint Nature Conservation Committee (JNCC) website: http://jncc.defra.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 Official 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.

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

> B1. Area of forestry land certified as sustainably managed
>
> C5. Birds of the wider countryside and at sea

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.