C5. Birds of the wider countryside and at sea

a. Farmland birds

b. Woodland birds

c. Wetland birds

d. Seabirds – *not updated, see note under figure C5di*

e. Wintering waterbirds

Type: State Indicator

Summary

In 2016 the farmland bird index was less than half its 1970 value. Short term, between 2010 and 2015, the smoothed index decreased by 9%.

The woodland bird index was 23% less than its 1970 value in 2016. Short term, between 2010 and 2015, the smoothed index showed no significant change.

In 2016 the water and wetland bird index was 8% lower than in 1975. Short term, between 2010 and 2015 the smoothed index showed no significant change.

Indicator Description

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

In 2015 the breeding seabird index was 22% below its 1986 value. Short term, between 2009 and 2014 the index declined by 6% - *see note under figure C5di.*
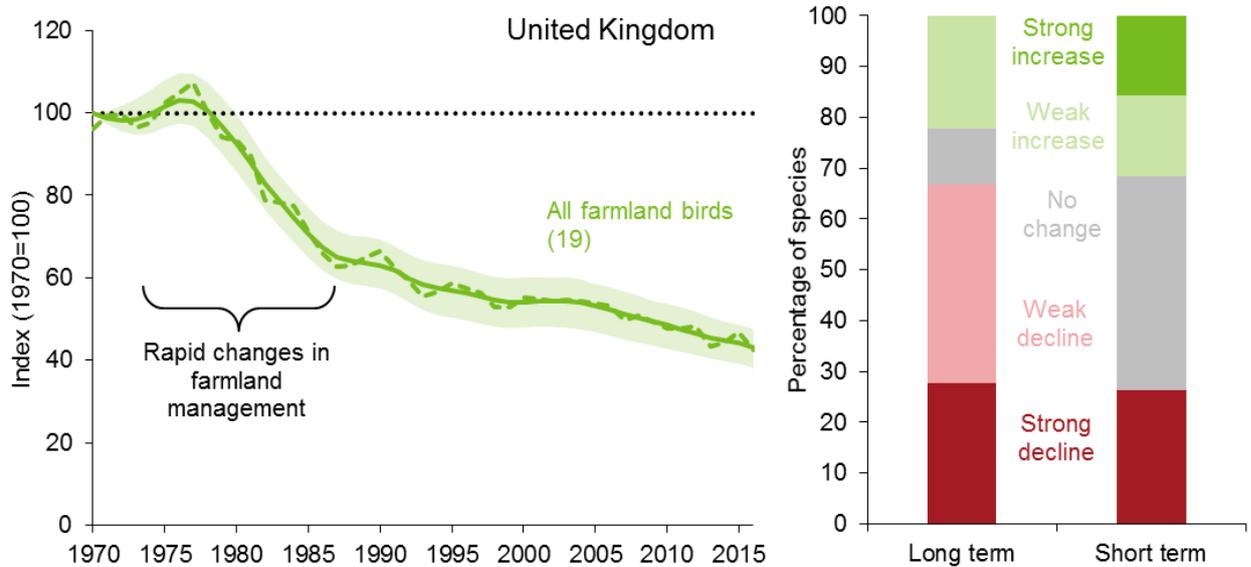
In 2015/16, the wintering waterbirds index was 87% higher than in 1975/76. Short term, between 2009/10 and 2014/15, the smoothed index fell by 8%.

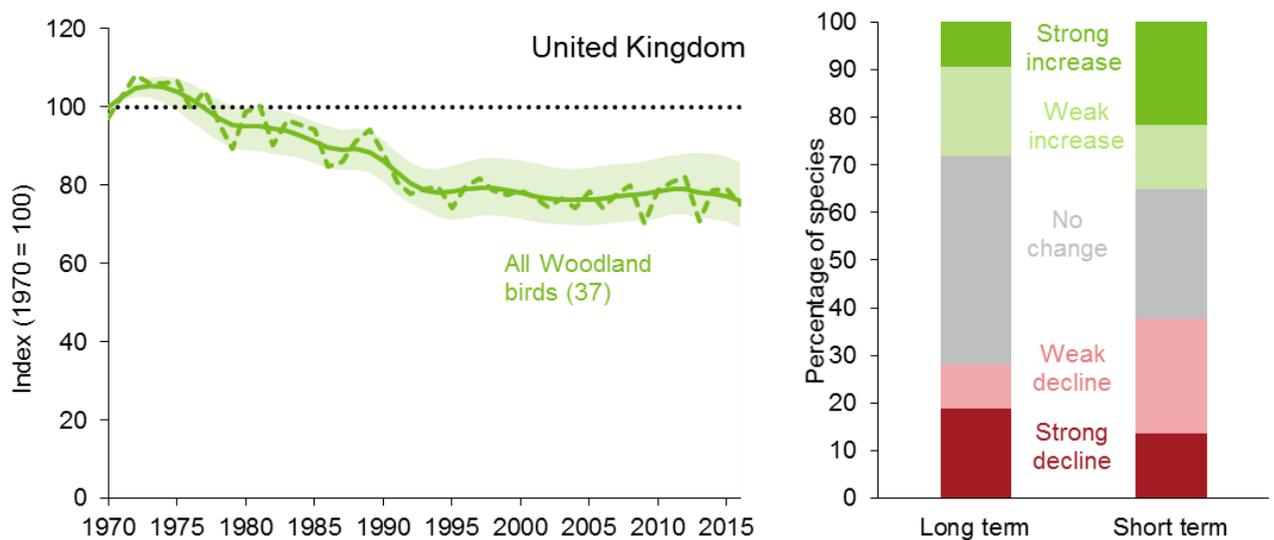**Figure C5ai. Breeding farmland birds in the UK, 1970 to 2016**

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% 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 annual change.

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

Figure C5bi. Breeding woodland birds in the UK, 1970 to 2016
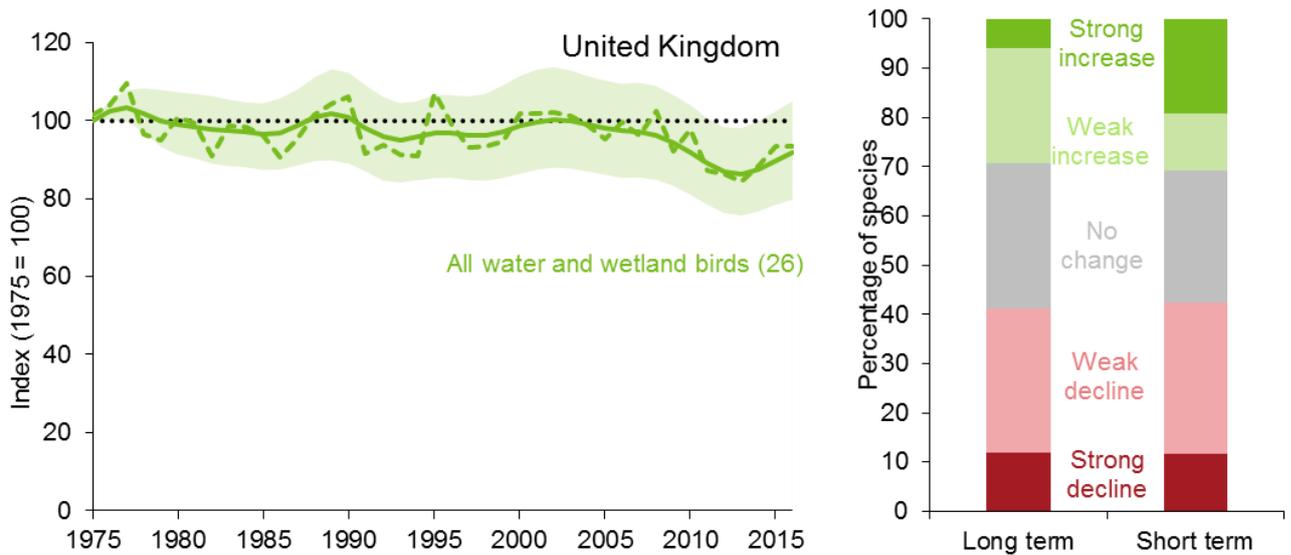

Notes:
1. The figure in brackets shows the number of species.
2. The line graph shows the unsmoothed trend (dashed line) and smoothed trend (solid line) with its 95% confidence intervals.
3. The bar chart shows the percentage of species within the indicator that have increased, decreased, or shown no change, based on set thresholds of annual change.

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

### Figure C5ci. Breeding water and wetland birds in the UK, 1975 to 2016

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) and its 95% 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 annual change.

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

Figure C5di. Breeding seabirds in the UK, 1986 to 2015 – *not updated, see note below.*
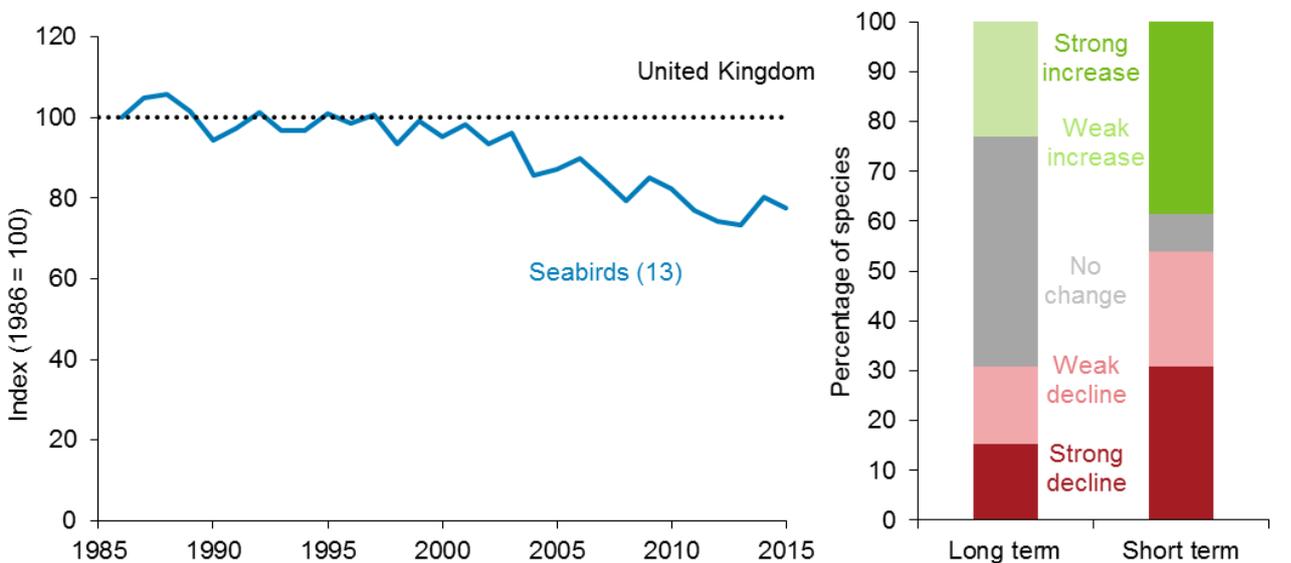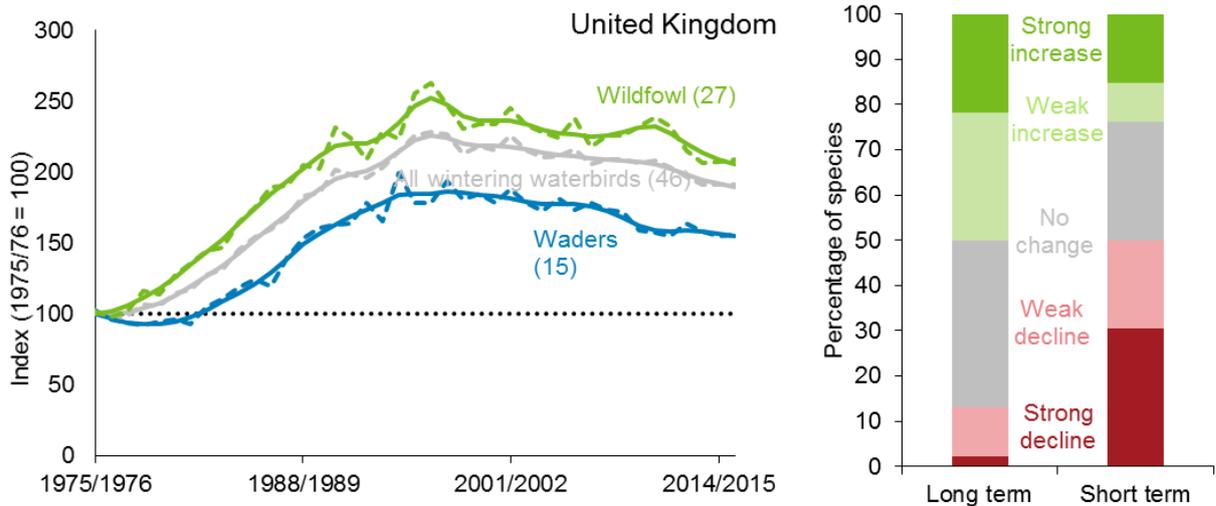

Notes:

1. In 2016, the Seabird Monitoring Programme Steering Group made the decision to put the analysis and publication of the annual SMP report on hold for two years. The reason for this was to enable staff time to be dedicated to the breeding seabird census, Seabirds Count. Although data is still being collected, and in higher volumes for the census, the absence of analysed data for 2016 means this indicator has not been updated.
2. The figure in brackets shows the number of species.

3. 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.

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

Source: British Trust for Ornithology, Defra, 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 2015/16

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.
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 annual 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	⊗ 1970–2015	⊗ 2010-2015	Decreased (2016)
Woodland birds	⊗ 1970–2015	≈ 2010–2015	Decreased (2016)
Wetland birds	≈ 1975–2015	≈ 2010–2015	No change (2016)

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Assessment of change in bird populations			
	Long term	**Short term**	**Latest year**
Wintering waterbirds	✔️ 1975/76–2014/15	❌ 2009/10–2014/15	No change (2015/16)

Notes:
1. Whilst latest year percentage changes in these indices are reported based on the most recent unsmoothed data point (2016), the formal long-term and short-term assessments of the statistical significance of these changes are made using the smoothed data to 2015. This is because the most recent smoothed data point (2016) is likely to change in next year's update when additional data are included for 2017.
2. Analysis of the underlying trends is undertaken by the data providers. Smoothed data are available for farmland, woodland, wetland and wintering waterbirds, but not for seabirds.
3. The traffic light assessment for the seabirds measure has been removed until a way of assessing variability is devised. This follows recommendations in a quality assurance science panel report, dated January 2016.

The long-term decline of farmland birds in the UK has been driven mainly by the decline of those species that are restricted to or highly dependent on farmland habitats (the 'specialists', which account for 12 of the 19 species in the indicator). Between 1970 and 2016: the index of farmland specialists declined by 70%; and the index of farmland generalists declined by 12%. Of the 12 farmland specialist species, four have declined by 90% or more relative to 1970 levels (grey partridge, turtle dove, tree sparrow and corn bunting) largely due to changes in farmland practices that started in the 1970s. Two farmland specialists (stock dove and goldfinch) have more than doubled over the same period, illustrating how pressures and responses vary between species. Generalist species have fared better than specialists although the rates of decline have been closer in the last decade. Amongst generalist species: woodpigeon and jackdaw populations have more than doubled relative to 1970 levels, whereas the yellow wagtail has declined by over 67%; kestrel by 50% and greenfinch by 46%. As for other farmland species, this is largely due to changes in the suitability of farmland for breeding and wintering as well as pressures faced by those that undertake long migrations, but the recent decline in greenfinch is attributable to the disease trichomonosis.

The woodland bird index contains data for 37 species. The relatively flat trend for all woodland birds from the mid-1990s masks different underlying trends for: specialist species, those which are highly dependent on particular woodland habitats; and generalist species, which are found in a wide range of habitats, including woodland. Between 1970 and 2016, the woodland specialists index declined by 43% while the woodland generalist index increased by 12%.

Indices for four generalist woodland species (bullfinch, song thrush, dunnock and tawny owl) have declined more than 25% or more since 1970; and song thrush by 50%. In contrast, indices for wren, great tit and long-tailed tit increased by more than 50% over the same period.

Five woodland specialists (lesser spotted woodpecker, lesser redpoll, spotted flycatcher, capercaille and willow tit) have declined by over 80% relative to 1970 levels, with the latter down by 93%. In contrast, blackcap and nuthatch have more than doubled over the same period and the great spotted woodpecker has more than trebled. This divergence in trends reflects differences in the pressures faced, specific responses to climate change, as well as in the type of woodland for which they are specialised.

The breeding water and wetland bird measure can be disaggregated to four sub-habitat indicators (birds of fast flowing water, birds of slow and standing water, birds of reedbeds and birds of wet grasslands) to show more specific habitat trends, although each is derived from relatively few species trends. Birds of slow flowing and standing water, such as mallard and coot, have shown the most positive trend, in 2016 the index was 44% higher than in 1975. The index of birds of wet grassland, including a number of wading species, decreased by 51%, and for birds of fast flowing water (such as dipper) decreased by 13% compared to 1975.

The seabird measure currently stands at 22% below the 1986 baseline. Despite fluctuations the indicator was largely flat from 1986 until the mid-2000s when seabird numbers started to decline, declining 6% between 2009 and 2014. Three of the 13 seabird species in the index have increased since the beginning of the index in 1986, razorbill and common guillemot by over 55% and Arctic tern by 39%. Two species have declined strongly, Arctic skua, by 80% and black-legged kittiwake by 62%. Declines of black-legged kittiwakes, which are surface feeders, have been linked to increases in sea surface temperatures.

The wintering waterbird measure increased steadily from the 1975/76 baseline to a peak in the late 1990s, and has declined since. The indicator in 2015/16 was 87% above its 1975/76 baseline. The separate wader and wildfowl indices show broadly similar patterns of increase than decrease, although the change in the wildfowl indicator has been greater. Amongst wildfowl, the Bewick's swan has declined by 85% since the 1975/76 baseline and continues to decline strongly in the short term. The indices for the European white-fronted goose, scaup and pochard have all halved. The Svalbard light-bellied brent goose, shows an almost 6-fold increase in the long term but shows a strong decline (39%) in the short term. The British/Irish greylag goose and gadwall both show increases, of 36-fold and 12-fold, respectively, since 1975/76, and while the index for gadwall shows no change in the short term, British/Irish greylag goose shows a 17% increase in the short term. Amongst waders, the indices for avocet and black-tailed godwit have increased over 7-fold (avocet was only included in the indicator since 1989/90). The short-term trend for the avocet is a weak 10% increase and for black-tailed godwit, a strong 25% increase. In contrast, the indices for ringed plover and dunlin showed the steepest declines, declining by 40% and 50% respectively since the winter of 1975/76. Turnstone numbers have shown no change over the long term and declined strongly, by 15%, since 2009/10.

Indicator description

The indices for farmland, woodland and breeding wetland birds show the year-to-year fluctuation in relative abundance, reflecting the observed changes in the survey results, and smoothed trends, which are used with their confidence intervals to formally assess the statistical significance of change over time. Smoothed trends reduce short-term peaks and troughs resulting from, for example, year-to-year weather and sampling variations.

Data from surveys of wintering waterbirds are based on full counts on wetland and coastal sites of markedly varying size. This means the standard bootstrapping methods used to estimate confidence intervals for the farmland, woodland and wetland indices, which are based on standardised sample-based surveys, cannot be applied. Assessments of change for the waterbird index are therefore made using a '5% rule'. If the index has increased or decreased by greater than or equal to 5%, the index is given a green or a red traffic light respectively. The traffic light assessment for the seabirds measure has been removed until a way of assessing variability is devised. This follows recommendations in a quality assurance science panel report, dated January 2016.

Composite indicators can mask a lot of variation among the species within them. The bar chart provided alongside each habitat chart above shows the percentage of species within that indicator that have increased, decreased or shown no change.

The bar chart provided alongside the headline chart shows the percentage of species within that indicator that have increased, decreased or shown no change. Whether an individual bird species is defined as increasing or decreasing has been decided by its rate of annual change over the time period (long or short) of interest. If the rate of annual change would lead to a population decrease of 50% (halving), or a population increase of 100% (doubling) or more over 25 years, the species is said to have shown a 'strong decline' or a 'strong increase' respectively. Rates of change less than these but above +33% (increase) or below -25% (decrease) are labelled 'weak'. Asymmetric thresholds are used for declines and increases to represent symmetrical proportional change in an index. These thresholds for decline are based on the rates used in the Birds of Conservation Concern status assessment for birds in the UK. Note that for most species, particularly over the longer period, the change is statistically significant.

Relevance

Bird populations have long been considered to provide a good indication of the broad state of wildlife. Birds occupy a wide range of habitats and there are considerable long-term data on changes in bird populations, which help in the interpretation of shorter-term fluctuations in numbers. As they are a well-studied taxonomic group, drivers of change for birds are better understood than for other species groups, which allows for better interpretation of any observed changes. Birds also have huge cultural importance and are highly valued as a part of the UK's natural environment by the general public.

Background

The indicator has been compiled in conjunction with the Royal Society for the Protection of Birds (RSPB), the British Trust for Ornithology (BTO) and the Joint Nature Conservation Committee (JNCC). Data are obtained from a wide range of sources, principally:

- BTO/JNCC Common Birds Census;
- BTO/JNCC/RSPB Breeding Bird Survey;
- Waterways Breeding Bird Survey (now part of the BBS partnership, previously supported by BTO and Environment Agency);
- BTO/Wildfowl and Wetland Trust (WWT)/RSPB/JNCC Wetland Bird Survey (WeBS);
- WWT/JNCC/Scottish Natural Heritage (SNH) Goose & Swan Monitoring Programme; and
- Seabird Monitoring Programme (partnership led by JNCC).

Within the measures, each species is given equal weighting, and the annual index is the geometric mean of the individual species indices for that year. Populations of individual species within each measure may be increasing or decreasing irrespective of the overall trends. The individual species indices are largely derived by the modelling of sampled survey data, and estimates are revised when new data or improved methodologies are developed and applied retrospectively to earlier years. Further details about species and methods can be found on the British Trust for Ornithology website and the Joint Nature Conservation Committee website.

A table listing the species that are included in each index can be found in the datasheet. For each species, an estimate of change in the long-term and in the short-term is given, as well as an assessment of whether the species trend is increasing or decreasing.

Goals and targets

Aichi Targets for which this is a primary indicator

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

Target 7: By 2020, areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity.

Strategic Goal C. To improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity.

Target 12: By 2020, the extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained.

Aichi Targets for which this is a relevant indicator

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

Target 5: By 2020, the rate of loss of all natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced.

Strategic Goal C. To improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity.

Target 11: By 2020, at least 17 per cent of terrestrial and inland water, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscape and seascapes.

Web links for further information

Reference	Title	Website
British Trust for Ornithology	The Breeding Birds Survey Report	http://www.bto.org/volunteer-surveys/bbs/bbs-publications/bbs-reports
British Trust for Ornithology	Indicators of wild bird populations	http://www.bto.org/science/monitoring/developing-bird-indicators
British Trust for Ornithology	Waterways Breeding Bird Survey	http://www.bto.org/survey/wbbs.htm

Reference	Title	Website
British Trust for Ornithology	Wetland Bird Survey	http://www.bto.org/webs/index.htm
Royal Society for the Protection of Birds	State of UK's Birds 2017	https://www.rspb.org.uk/globalassets/downloads/documents/conservation-science/sukb-2017---web-version.pdf (PDF, 5.1 Mb)
Defra	Populations of wild birds 1970–2016	https://www.gov.uk/government/statistics/wild-bird-populations-in-the-uk
Joint Nature Conservation Committee	Seabird Monitoring Programme	http://www.jncc.defra.gov.uk/page-1550
Wildfowl and Wetlands Trust	National waterbird estimates	http://www.wwt.org.uk/research/monitoring/
Birds of Conservation Concern 4	Summary leaflet	https://www.bto.org/science/monitoring/psob

Full details of this indicator, including a datasheet and technical documentation is available at: http://jncc.defra.gov.uk/page-4235.

Last updated: July 2018

Latest data available: 2016 (farmland birds, woodland birds, wetland birds);

2015 (seabirds);

2015/16 (wintering waterbirds)