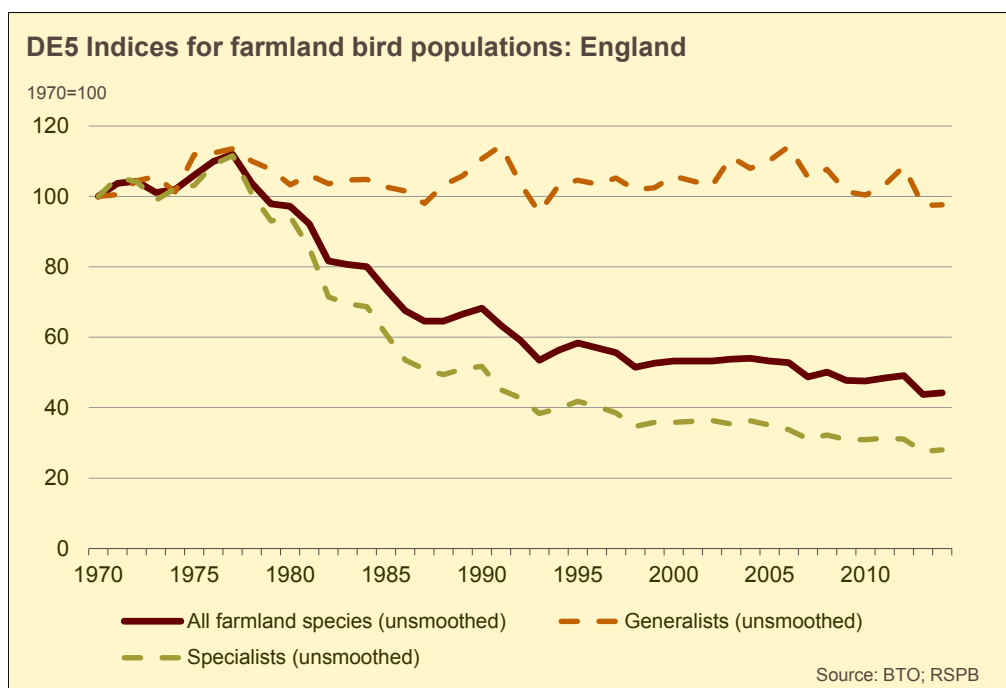


Observatory monitoring framework – indicator data sheet

Environmental impact: Biodiversity

Indicator DE5: Farmland bird populations

This indicator shows farmland bird populations in England from 1970 expressed as an index with 1970 = 100. The farmland bird index comprises 19 bird species (12 specialist species and 7 generalist species).



In 2014, the farmland bird index had fallen by 56% to a level less than half that of 1970.

Most of the decline occurred between the late seventies and the early nineties, driven by the decline of those species that are restricted to or highly dependent on farmland habitats (the 'specialists') which have decreased by 72% since 1970. By contrast, the index of those species found on farmland and other widespread habitats (the 'generalists') was 2% below its 1970 baseline level in 2014.

However, between 2008 and 2013, the smoothed index of all farmland species showed a significant decline of 8%.

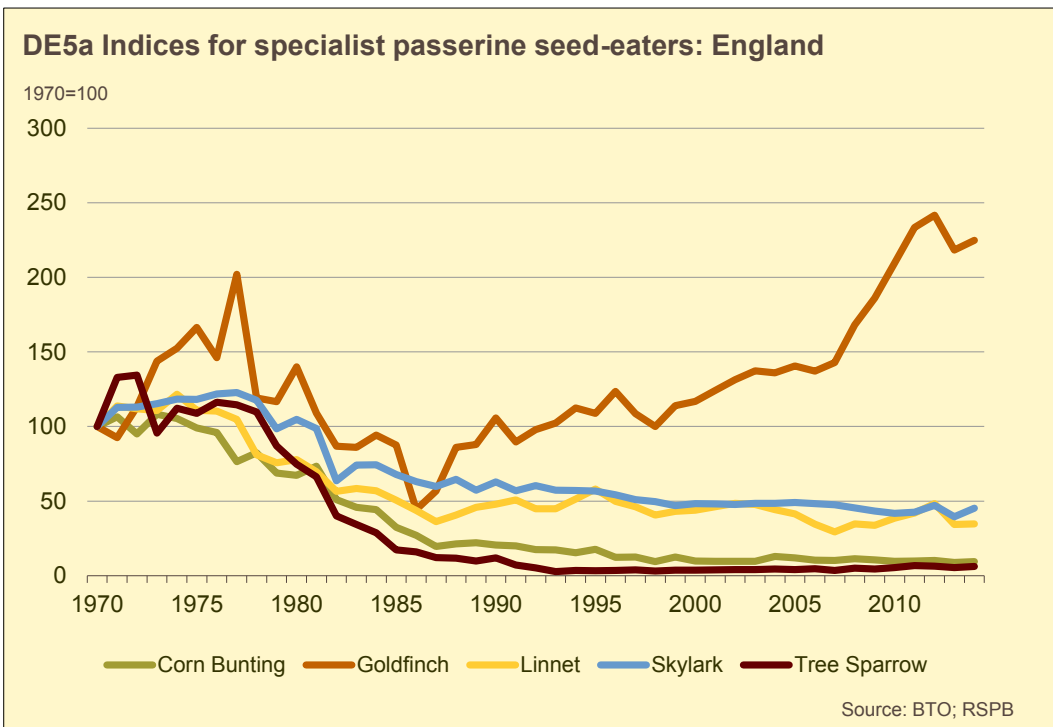
Between 2013 and 2014 two specialist and two generalist species declined. For specialists declines were seen for Turtle Dove (-36%) and Grey Partridge (-7%). For the generalists declines were observed for Greenfinch (-13%) and Woodpigeon (-12%).

Fifteen species increased (10 specialists and 5 generalists) between 2013 and 2014. The largest increases for the specialists were observed for Tree Sparrow (+15%), Skylark (+15%) and Whitethroat (+13%). The largest increase for the generalists was observed for Yellow Wagtail (+18%).

Descriptions for individual species are based on unsmoothed indices.

Chart DE5a shows how populations have changed for specialist “seed-eaters”.

NB. These also feed on invertebrates in the summer, particularly to provide food to chicks.



- Following declines during the 1980s, Skylark, Corn Bunting and Tree Sparrow population have now levelled off. Declines in Corn Bunting and Skylark populations have been linked to fewer late season breeding attempts and the reduction of overwintering stubbles.
- The decline of Goldfinch into the early 1980s has been followed by an increase to 125% above the 1970 level in 2014. This increase may be linked to the use of food resources associated with gardens.

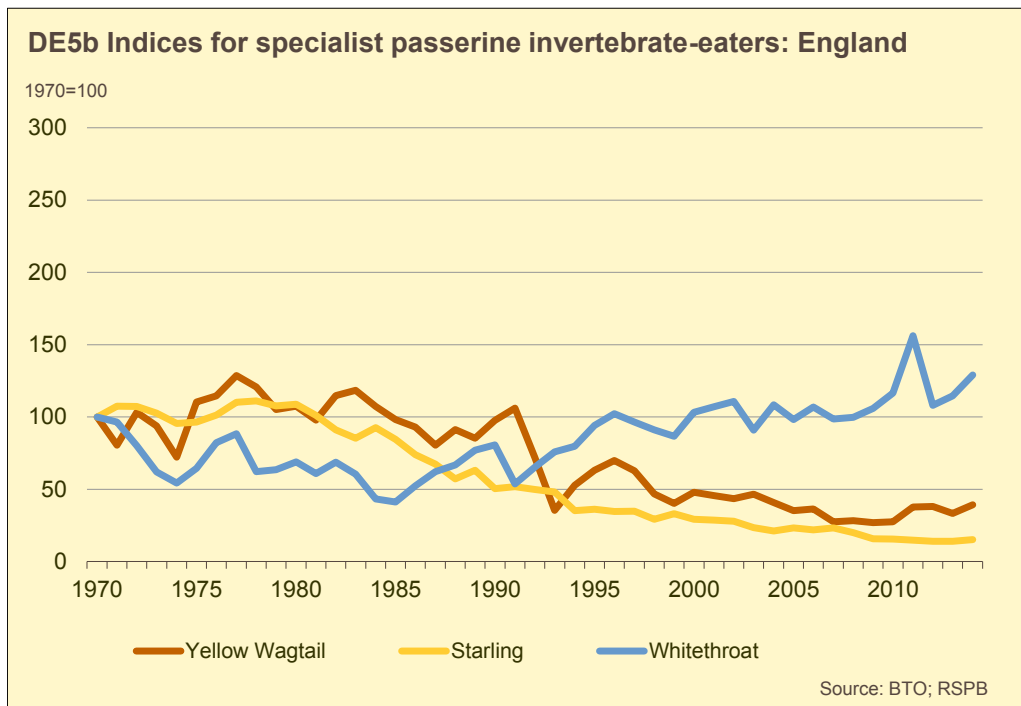
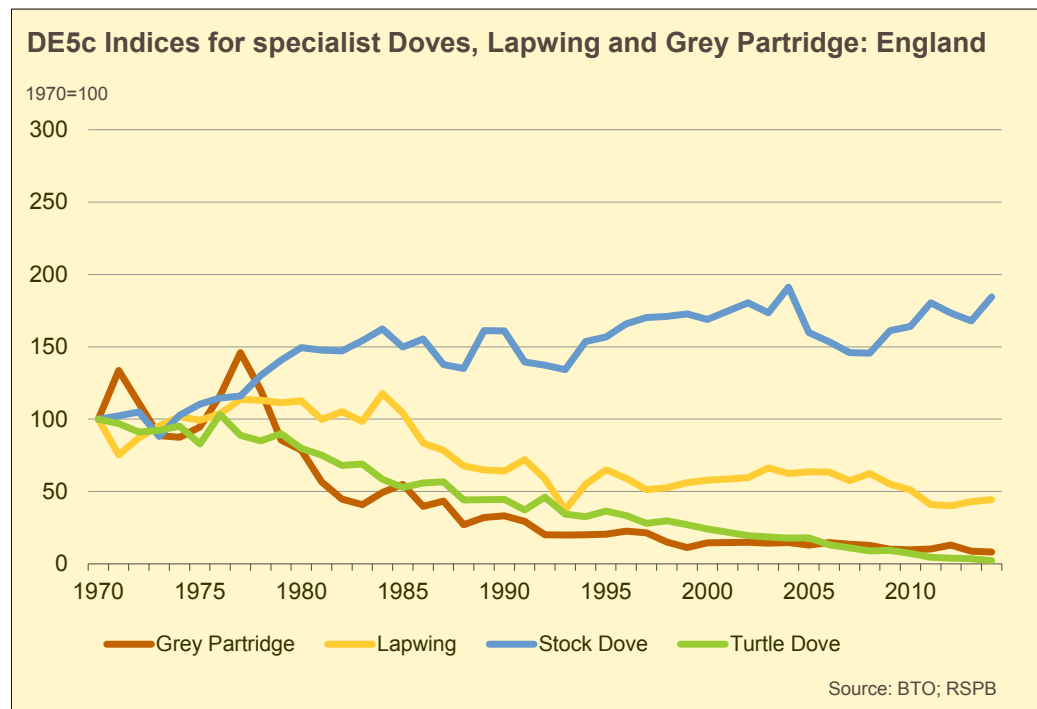


Chart DE5b shows population changes for three species which are largely dependent on invertebrates, regardless of their habitat preferences (Yellow Wagtail and Whitethroat are summer visitors and Starling is resident).

- Whitethroat numbers declined rapidly in the early 1970s, but after a period of fluctuating numbers, began to gradually increase after the mid-1980s, peaking in 2011 at 56% above 1970 levels. Population changes appear to be linked to conditions in the overwintering grounds in Africa.
- Reasons for the long-term declines in numbers of Starling (more than 80%) and Yellow Wagtail (60%)

are not fully understood, but it is likely that drainage has played a part in the Yellow Wagtail decline and intensification of livestock rearing may have affected the Starling.

Chart DE5c shows the changes in populations of four larger species.



- Lapwings require open areas for nesting and grassland rich in invertebrate prey. Their decline is likely to be due to increased autumn sowing of crops, intensification of grassland and declines in mixed farming. After some levelling of numbers from the late 1990s, since 2007 they have declined by 33%.
- The two species of Dove show contrasting trends. Populations of Stock Dove increased strongly from the mid 1970s to 2004, although numbers then declined, but overall by 2014 numbers have increased to 84% above the 1970 level. Populations of Turtle Dove have declined by more than 90% since 1970, probably due to a combination of reduced breeding success, as a result of a decline in the availability of weed seeds, and increased mortality from hunting during migration. The disease Trichomonosis may have also affected this species.
- Grey Partridge have also declined by more than 90% since 1970 as a result of lower productivity caused by lack of chick food (arthropods). The use of pesticides has been implicated in the decline.

DE5d Indices for generalist passerine seed-eaters: England

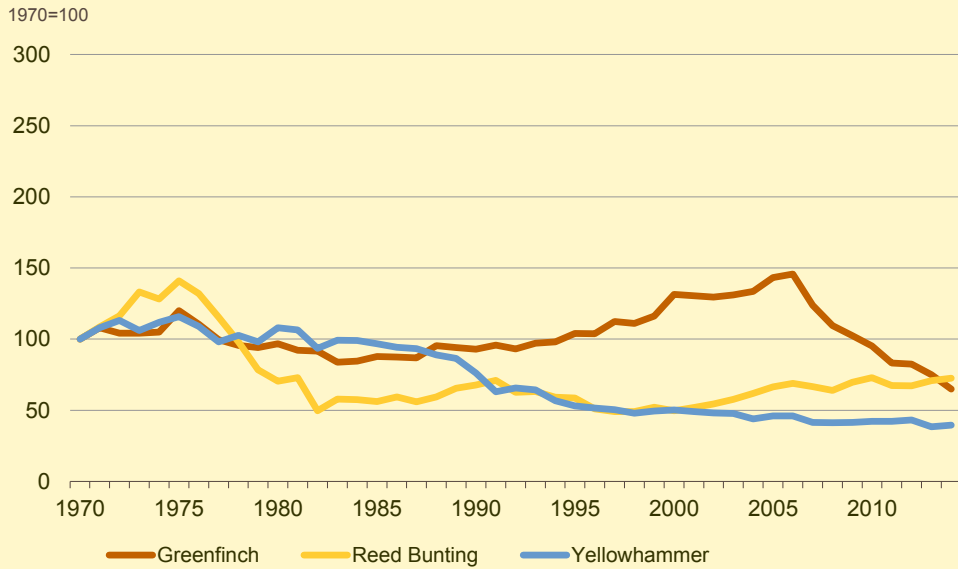


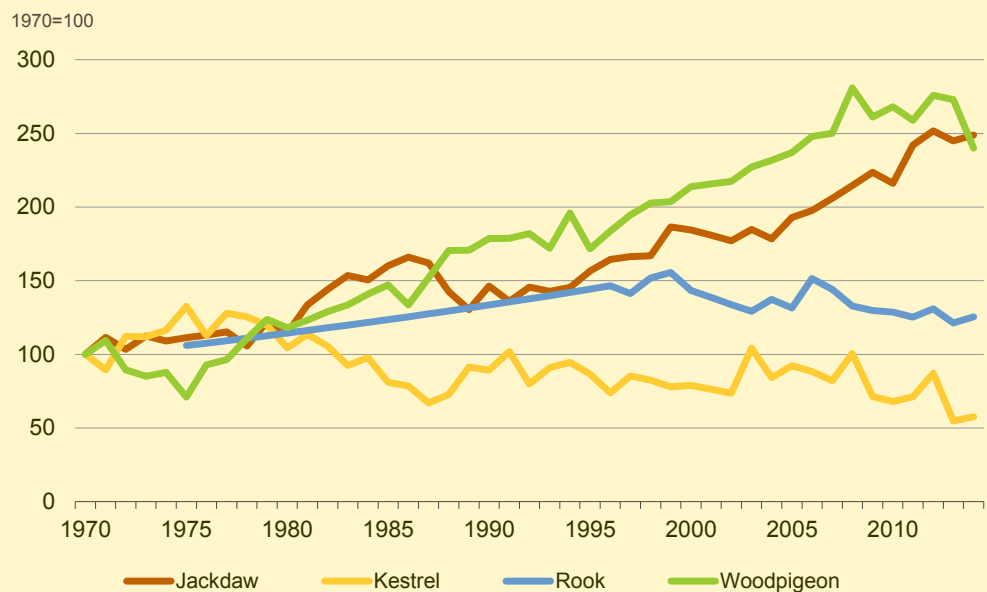
Chart DE5d shows the changes in populations of generalist seed eating species.

Source: BTO; RSPB

- The decline in Yellowhammer numbers occurred later than for a number of other species. This may be largely due to reduced availability of weed seeds and grain in winter. Reduced productivity in recent years, possibly exacerbated by pesticide use, may also have had an effect.
- Reed Buntings declined rapidly in the late 1970s and early 1980s. The rate of decline then slowed and since 2000, numbers have generally shown an upward trend. In 2014 numbers are 73% of the 1970 level. Agricultural intensification and increased nest losses are thought to be important factors.
- In contrast, Greenfinch numbers rose during the 1980s through to a peak in 2006, possibly linked to increased use of garden feeding stations. The subsequent decline has been driven by increased prevalence of the disease Trichomonosis. In 2014, the index was 55% lower than in 2006.

Chart DE5e shows the changes in populations of the larger generalist farmland bird species.

DE5e Indices for generalist Corvids, Wood Pigeon and Kestrel: England



Source: BTO; RSPB

- Numbers of Woodpigeon have generally increased over the period shown, although there has been a recent decline since 2012 (-13%). Over winter survival rates have improved as a result of increases to the planting of oilseed rape, which has become a staple food source for this species.
- Increased populations of Jackdaw probably reflect their generalist feeding habits and adaptability, together with lower levels of persecution.
- The number of Rooks has tended to decline since 1999. Estimates for Rooks should be treated with care as they are based on interpolations for a significant number of years.
- The number of Kestrels, primarily predators of small mammals, declined during the late 1970s and early 1980s probably due to the effects of agricultural intensification on prey populations. Numbers have since tended to fluctuate annually and in 2014, its numbers were 42% below its 1970 baseline level.

This indicator was updated in July 2016. The next update is expected in December 2016.

Further information and contact

Background information can be found in the accompanying fact sheet.

For further queries or information on this indicator contact Defra's Observatory team on +44 (0)20 802 66202 or email Observatory@defra.gsi.gov.uk

Observatory monitoring framework – indicator fact sheet

Environmental impact: Biodiversity

Indicator DE5: Farmland bird populations

<i>Indicator</i>	Farmland bird populations
<i>Data</i>	Unsmoothed index of farmland bird populations
<i>Geographic coverage</i>	England
<i>Years</i>	1970 – 2014
<i>Source</i>	British Trust for Ornithology (BTO) and Royal Society for the Protection of Birds (RSPB)
<i>Origin of data</i>	Common Bird Census 1970 - 2000, Breeding Bird Survey (from 1994) and the Rook Survey (various dates)
<i>Updates</i>	This indicator will be updated annually. The next update will be in December 2016.
<i>Background</i>	<p>Bird populations are considered to be a good indicator of the broad state of wildlife and the countryside because they occupy a wide range of habitats and they tend to be near to or at the top of the food chain. This means that, as a rule, healthy bird populations signify a healthy state of the plants and invertebrates on which they feed. Data on wild bird populations have been collected since the 1960s meaning that there is a considerable time series available from which to examine changes.</p> <p>The indices used here are for farmland bird populations in England.</p> <p>Farmland birds contribute to the Farmland Species Biodiversity 2020 indicator. In England, this framework replaced the UK BAP in 2011 with priorities set at Country level. It also includes indices for woodland, wetland, urban and coastal species.</p>
<i>Statistical & methodological information</i>	<p>The farmland bird index is derived using trends for 19 species of native breeding farmland birds. This combines 12 farmland “specialist” species (those that breed solely or mainly on farmland) and 7 farmland “generalist” species (those breeding in farmland and other habitats).</p> <p>The Breeding Bird Survey is carried out annually within 1 km squares throughout the UK. The survey was not run in 2001 because of foot and mouth disease restrictions. Data for this year have been interpolated from 2000 and 2002 data. Detailed information on the methodology and survey design can be found in the BBS research pages on the BTO website. A link is given in the section below.</p> <p>The indices show the year-to-year fluctuation in populations, reflecting the observed changes in the survey results, and smoothed trends, which are used to formally assess the statistical significance of changes over time. Smoothing is a standard procedure in the generation and reporting of bird population trends by the BTO and partners in its major bird monitoring schemes, i.e. RSPB and JNCC. The smoothing methodology involves the application of a thin plate smoothing spline to remove the short-term peaks and troughs due to weather effects and any between year sampling error. Research by</p>

the BTO and RSPB further developed this procedure to enable the production of an indicator based on smoothed individual species' indices. Bootstrapping, a standard statistical technique, is used to calculate 95 per cent confidence intervals in the indicators and in change over any specified period.

Detailed results and methodology can be found within Defra's Environment and Wildlife statistics web pages.

Regional information was discontinued in 2011 due to resource constraints and changes in regional governance.

*Further
information*

The Statistics Notice can be found at: <https://www.gov.uk/government/statistics/wild-bird-populations-in-england> and the accompanying dataset can be found at: <https://www.gov.uk/government/statistical-data-sets/env08-wild-bird-populations-in-england>

Biodiversity 2020: A strategy for England's wildlife and ecosystem services can be found at: <https://www.gov.uk/government/publications/biodiversity-2020-a-strategy-for-england-s-wildlife-and-ecosystem-services>

Further information on the breeding bird survey can be found at: <http://www.bto.org/bbs/index.htm> and <http://www.rspb.org.uk/>

Information on BTO methodology can be found at: www.bto.org/birdtrends2010/methodology.htm