

C5a Birds of the Countryside: Farmland Birds

This Evidence Statement should be read in conjunction with the *Summary of Evidence* document (Annex 3). Assertions in bold text have been assigned a confidence rating following assessment by a panel of independent experts (see main report for details).

A. Background, structure and statistical issues/biases

- This indicator describes trends in the UK's native breeding farmland birds from 1970-2014. It is based on counts of 19 species identified as mainly using farmland during the breeding season and for which sufficient data exist. The species include several migratory species that spend the winter outside the UK. The population trends reflect changes of the entire populations of species, not just of the proportion using farmland.
- Indices are derived from the Common Bird Census (CBC: up to 2000) and its successor, the Breeding Bird Survey (BBS: since 1994). Within the measures, each species is given equal weighting, and the annual index is the geometric mean of the individual species indices for that yearⁱ. Species indices are derived from a statistical model of both datasets.
- The BBS employs a random stratified sampling approach and has good coverage of UK habitatsⁱⁱ, although the CBC did not. England is over-represented in the BBS compared with other countriesⁱⁱⁱ, but a statistical correction at the region level is applied to counter any spatial bias.
- Assessment of the farmland bird index is relatively robust to temporal biases^{iv}.

B. Representation

1. **The indicator is the average trend in relative abundance, during the breeding season, of common and widespread farmland bird species, but prior to 1994 is likely to show some geographical bias** ^[High]. It does not measure the average trend of populations living on farmland.
2. **There is some evidence that bird populations respond in a similar way to other farmland wildlife** ^[Medium]. A range of taxonomic groups respond positively at a local scale to agri-environment schemes targeted towards bird species^v.

C. The Trend

3. The headline indicator declined by 54% from 1970-2014^{vi}. The long term decline has been consistent since 1980, with no evidence for a change in trajectory associated with the switch in data source from CBC to BBS^{vii}. **The magnitude of the change and the narrow confidence intervals constitute strong evidence for a decline in the abundance of farmland birds** ^[High].
4. Eleven species (58%) declined in the long-term and four (21%) increased. The rates of change among declining species were on average much larger than among increasing species^{viii}. Compared with other indicators, the species contributing to the farmland bird indicator are moderately coherent in trajectory^{ix}. **There is strong evidence for declines among a majority of species contributing to the indicator, although a small minority have increased** ^[High].
5. **There is good evidence that declines are ongoing** ^[High]. The indicator declined 10% in the short term (2008-2013), during which time 11 species (58%) declined and six (32%) increasedⁱⁱ.
6. The England farmland bird indicator exhibits a similar decline in the long and short term as for the UK. Comparable indicators do not exist for other nations. Indicators for Scotland and Wales (since 1994) show some differences in trajectory, but the loss of range in a number of farmland birds between periodic atlases since 1968^x suggests that the same general pattern of loss occurred across the UK. Thus, **available evidence suggests broadly consistent patterns across the UK, with some differences in magnitude and timing** ^[High].

D. Wider Application

7. Half (11/19) of species on the farmland bird indicator are predominantly insectivorous during the spring and summer. Therefore they have potential to play a role in the regulation of moths and other insect pests of agricultural crops^{xi}, although few hard data exist on the effectiveness of birds as biocontrol agents. Moreover, little is known about the nature of the relationship between abundance or species richness of birds and the level of pest control provided, so it

remains unclear how changes in the indicator could be used as a measure of pest control services.

8. Birds are charismatic and highly visible animals that provide an important way for people to connect with nature (i.e. cultural ecosystem services)^{xii}. However, the link between species status and cultural services is not well-established, so it remains unclear how changes in the indicator could be used as a measure of cultural ecosystem services.
9. **The trend in farmland birds is a reasonable measure of progress towards components of Aichi Target 7** ^[High], about the sustainable management of agricultural land^{xiii}. However, the indicator includes data from all habitats, requiring caution in how the trend is interpreted.
10. **The status of farmland birds should not be used to measure progress towards Aichi target 12** ^[High] (extinction of threatened species)^{xii}. Most farmland birds remain common: the subset that are rare or declining also contribute to indicator C4a, which is a more direct measure of progress towards Aichi target 12.

E. Drivers of change

11. The most significant drivers of change of the farmland bird index relate to the intensification of agricultural management, which can be sub-divided as production-driven farm management, pesticide and herbicide use, intensive grazing, and fertiliser use. Production-driven farm management is exemplified the switch to autumn sowing of crops, which has led to the loss of winter stubbles that provide food for seed-eating birds. There is very good evidence on the extremely strong negative impact of these drivers^{xiv}, which can be linked to changes in management driven by the Common Agricultural Policy. **Agricultural intensification is largely responsible for the decline in the indicator** ^[High].
12. **There is very good evidence that drivers acting outside the UK are partially responsible for declines in migratory species that overwinter in sub-Saharan Africa**^{xv} ^[Medium].
13. **There is evidence that climate change has had a moderate net positive effect on farmland birds** ^[Low]. This is mainly due to the trend towards milder winters, which has led to a net increase in survival of several species^{xvi}.
14. **There is very good evidence that declines in farmland birds have been somewhat mitigated by conservation actions**^{xvii} ^[Medium]. In particular, agri-environment schemes (subsidy-supported wildlife-friendly management of farmland) have been beneficial to many species.

Endnotes refer to the “Technical Report – Summary of Evidence” document, unless otherwise stated

ⁱ http://jncc.defra.gov.uk/docs/UKBI2015_TechBG_C5_Final.doc

ⁱⁱ Table 2.3, section 2.2.8

ⁱⁱⁱ Table 2.3

^{iv} Sections 2.3.4 – 2.3.6, notably figure 2.6.

^v Section 3.4.1.3.

^{vi} <http://jncc.defra.gov.uk/page-4235>

^{vii} <http://www.bto.org/sites/default/files/u196/downloads/rr303.pdf>

^{viii} http://jncc.defra.gov.uk/docs/UKBI2015_DS_C5_Final.xlsx

^{ix} Section 2.1.5, table 2.1.

^x Balmer *et al.* (2013) *Bird Atlas 2007-11*. BTO, Thetford.

^{xi} Oliver *et al* (2015) *Nature Communications* 6, 10122

^{xii} Section 3.4.2.1

^{xiii} <http://jncc.defra.gov.uk/page-6121>

^{xiv} Section 3.2.3 especially table 3.11, subsections 3.2.3.1 & 3.2.3.5.

^{xv} Section 3.2.3 especially table 3.11, subsections 3.2.3.4 & 3.2.3.5

^{xvi} Section 3.2.3 especially table 3.11, subsections 3.2.3.3 & 3.2.3.5.

^{xvii} Section 3.2.3 especially table 3.11, subsections 3.2.3.2 & 3.2.3.5.