South Downs Farmland Bird Initiative

Monitoring farmland birds in the South Downs National Park 2014-2019

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Introduction

The South Downs Farmland Bird Initiative (SDFBI) monitoring project started in 2014 and aims to determine breeding population trends of farmland birds within the South Downs National Park (SDNP) in Sussex and Hampshire. The project is a collaboration between the Royal Society for the Protection of Birds (RSPB), Natural England, the Game and Wildlife Conservation Trust, the South Downs National Park Authority (SDNPA), the British Trust for Ornithology (BTO) and the South Downs Land Management Group. The project combines data from the BTO Breeding Bird Survey (BBS) with additional data from randomly-selected 1x1-km squares within the South Downs National Park that are surveyed annually.

The South Downs Farmland Bird Initiative is a wider scheme which involves working with farmers and landowners to provide safe nesting areas, summer feeding areas and winter feeding areas for farmland birds. Focusing on lapwing, grey partridge and corn bunting, the habitat created for these species should also benefit other bird species such as skylark, linnet and yellowhammer, as well as other farmland wildlife including brown hares, rare arable plants and bumblebees. The monitoring project is an attempt to assess the effectiveness of this work across the SDNP. Although lapwing, grey partridge and corn bunting are the three bird species of particular conservation concern (Eaton *et al*. 2009), these species occur in low numbers and are not widely distributed across the whole area of the SDNP, which means that it is difficult to monitor population levels of these species using a survey of this type. Instead, the aim of this monitoring project is to monitor numbers of more common farmland species (skylark, linnet and yellowhammer) with the idea that these will act as indicators of the quality of the farmland for birds and other wildlife. In addition, buzzard and red kite are monitored.

Monitoring methods

The starting aim of the monitoring project was for volunteers to survey randomly-selected 1x1-km squares that are within the SDNP and that contain predominantly farmland (more than half the area being arable land or grassland). Initially, existing BBS 1x1-km squares within the SDNP were considered in terms of the predominant habitat within them, partly by inspection of maps and partly by contacting the existing volunteer surveyors, and it was found that there were 68 squares containing predominantly farmland. Further 1x1-km squares were randomly selected across the entire area of the SDNP, using land-use data to ensure that these squares contained predominantly farmland; an initial selection of 100 squares was made but some of these were BBS squares and some were found to be unsuitable for various reasons so that initially 94 of these squares were included in the survey. Since the start of the project in 2014, more BBS squares have been selected within the SDNP, two of which were existing SDFBI survey squares; this means that in 2019 there were 75 BBS squares and 92 additional squares available to be surveyed by volunteers.

Volunteers who were already surveying BBS squares at the start of the project in 2014, and those taking on BBS squares since 2014, were asked to simply conduct their BBS visits in the normal way and to submit their results to the BTO in the normal way. BBS volunteers visit each square twice during each breeding season; the early visit should be made between early April and mid-May and the late visit between mid-May and the end of June. On each visit a volunteer walks an established transect route across their square in the early morning; the volunteer should walk at a slow methodical pace and record all birds seen and heard along the route (Crabtree 2009).

The aim of the SDFBI monitoring project is to collect data from the additional randomly-selected squares in such a way that this data can be combined with similar data from the BBS squares. Although bird numbers are recorded for the BBS separately in 200-m sections along the route and in distance bands parallel to the route, this level of detail in the data collection was felt to be unnecessary for the additional squares. Instead, volunteers were asked to establish a transect route in each of these squares according to the BBS instructions (two parallel lines across the square), and then to walk these transect routes twice in

each breeding season exactly according to the BBS instructions, but to then simply record one total for each species for each entire visit to each square. Similar totals for each species can then be obtained for each BBS square and the results from all the squares can be combined.

Volunteers surveying BBS squares record all individual birds seen and heard of all species and volunteers surveying the additional squares are asked to do the same. Only counts of the farmland species of interest are collated for this monitoring project; these species are lapwing, grey partridge, corn bunting, skylark, linnet, yellowhammer, buzzard and red kite. In each square, the maximum count for each of these species of interest from the two visits in each breeding season is used for the data analysis.

In the autumn of 2019 all volunteers were invited to make one visit to their square (including BBS squares) during the winter period from the beginning of November 2019 to the end of January 2020. Volunteers were asked to walk their normal survey routes and to record bird numbers using the same method as used in the breeding season in the additional squares.

Survey coverage and results

Figure 1 shows the numbers of squares that have been surveyed in the SDNP since the beginning of the project in 2014; all these squares are distributed across the SDNP in Hampshire and Sussex. In the winter period November 2019 to January 2020 a total of 48 squares were surveyed (including 18 BBS squares).
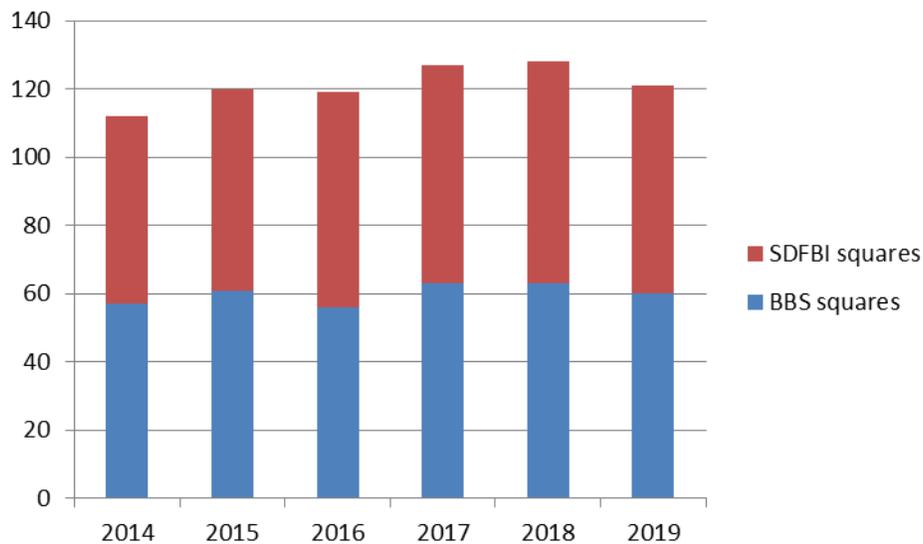

Figure 1. *The numbers of randomly-selected 1-km squares surveyed in the South Downs National Park in each year during the period 2014-2019. Blue bars, squares surveyed for the BTO Breeding Bird Survey (BBS) and judged to contain predominantly farmland; red bars, squares specifically selected for this monitoring project.*

Lapwing, grey partridge and corn bunting are the three bird species of particular conservation concern, but these species are recorded in insufficient numbers of squares in this monitoring project (as shown in Table 1) for the results to have any significance (the BBS only monitors species that are recorded in >30 squares). These small numbers are the reason why it is difficult to monitor these key farmland species using a survey of this type, but the aim of this monitoring project is to monitor more common farmland species with the idea that these will act as indicators of the quality of the farmland for birds and other farmland wildlife.

Table 1. *The numbers of surveyed squares in which the three species of highest conservation concern were recorded in each year 2014-2019 inclusive.*

	2014	2015	2016	2017	2018	2019
Total no. squares	112	120	119	127	128	121
Lapwing	12	12	12	12	9	9
Grey partridge	3	6	5	5	4	5
Corn bunting	16	17	13	17	21	20

Figure 2 shows the breeding season percentage square occupancies (the numbers of squares in which each species is recorded expressed as percentages of the total numbers of squares surveyed) for skylark, yellowhammer, linnet, buzzard and red kite. This shows that skylark is the most widespread species across the SDNP with yellowhammer and linnet being slightly less widespread. The limited timescale of the monitoring project to date means that any conclusions about trends in the data must be extremely cautious but it would appear that skylark and yellowhammer percentage square occupancies are remaining stable whilst the linnet percentage square occupancy may be declining. Figure 2 also shows that buzzard is widespread across the SDNP whilst red kite is much more localized but with the percentage square occupancy clearly increasing.
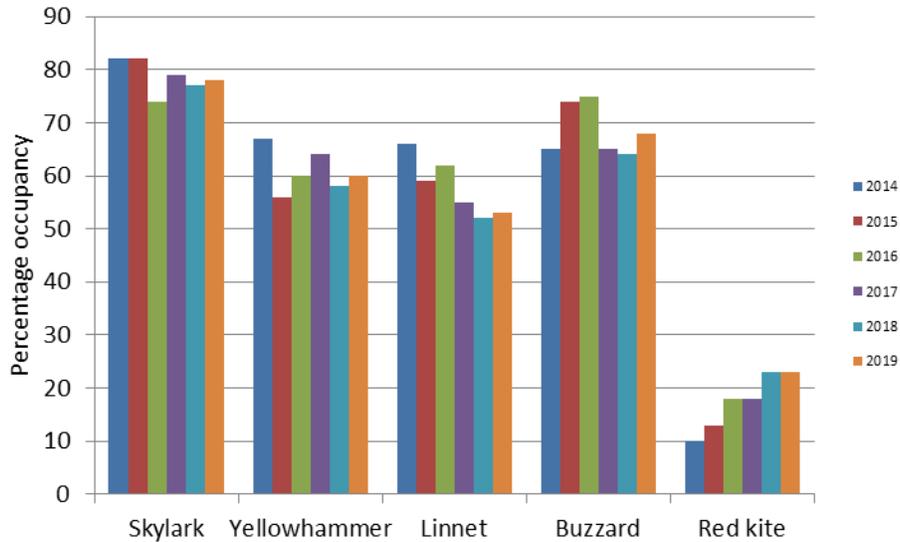

Figure 2. *The percentage square occupancies (the numbers of squares in which each species is recorded expressed as percentages of the total numbers of squares surveyed) for the key species of interest in the South Downs National Park in each year during the period 2014-2019.*

Figure 3 shows the breeding season densities in occupied squares (the total numbers of individuals counted divided by the numbers of squares in which each species is recorded) for skylark, yellowhammer, linnet, buzzard and red kite. This shows that skylark is the most numerous species in occupied squares, with linnet being slightly less numerous and yellowhammer being present at significantly lower densities. Buzzard and red kite are both recorded in low densities in occupied squares, with between one and two birds being recorded in each occupied square, although the average density is slightly lower for red kite than for buzzard.
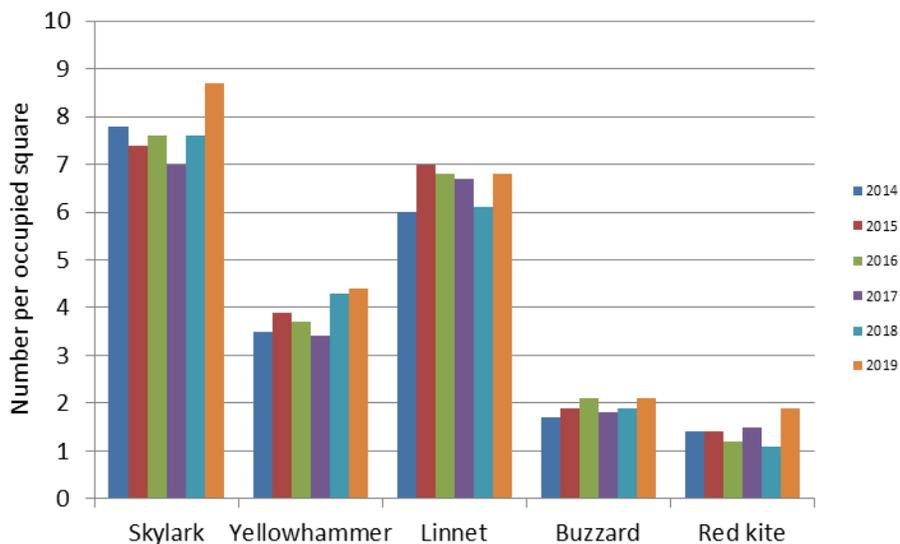

Figure 3. *The densities in occupied squares (the total numbers of individuals counted divided by the numbers of squares in which each species is recorded) for the key species of interest in the South Downs National Park in each year during the period 2014-2019.*

Figure 4 shows the winter percentage square occupancies (the numbers of squares in which each species is recorded expressed as percentages of the total numbers of squares surveyed) for skylark, yellowhammer, linnet and buzzard, compared with the breeding season percentage square occupancies for the years 2014-2019 inclusive.
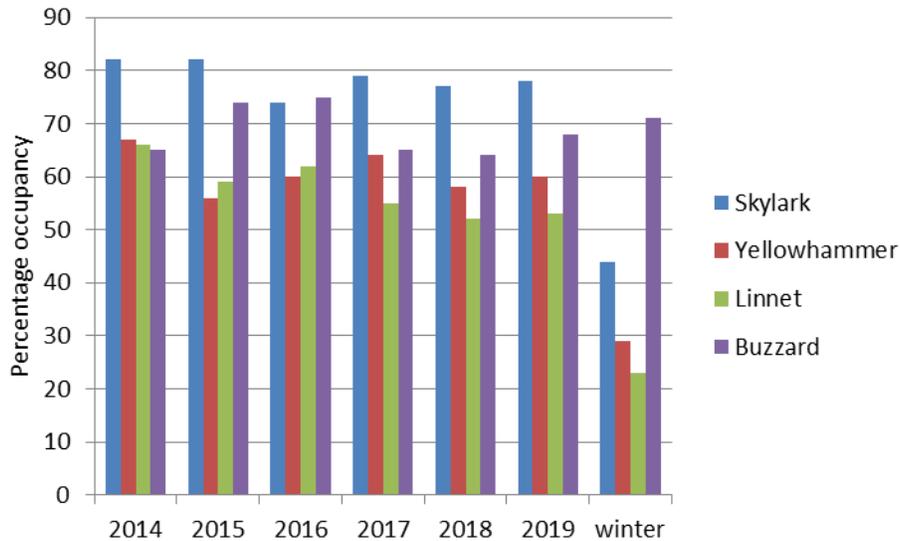

Figure 4. *The percentage square occupancies (the numbers of squares in which each species is recorded expressed as percentages of the total numbers of squares surveyed) for the key species of interest in the South Downs National Park in each breeding season during the period 2014-2019 and also the winter season 2019-2020.*

Figure 5 shows the winter densities in occupied squares (the total numbers of individuals counted divided by the numbers of squares in which each species is recorded) for skylark, yellowhammer, linnet and buzzard, compared with the breeding season densities in occupied squares for the years 2014-2019 inclusive. These results clearly show that skylarks and buzzards are present in similar numbers of squares and at similar densities in the winter and the breeding season, but that yellowhammers and linnets are present in fewer squares and at much higher densities in occupied squares in the winter.
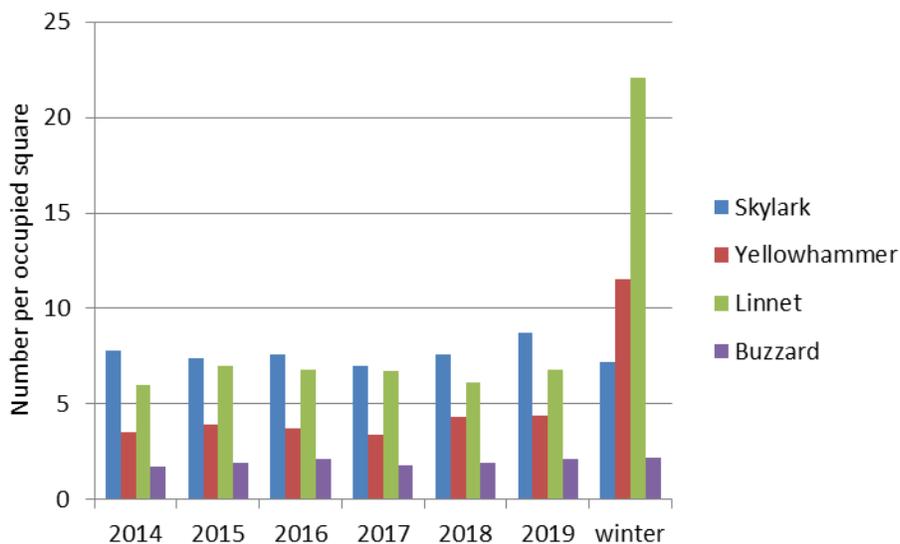

Figure 5. *The densities in occupied squares (the total numbers of individuals counted divided by the numbers of squares in which each species is recorded) for the key species of interest in the South Downs National Park in each breeding season during the period 2014-2019 and also the winter season 2019-2020.*

Discussion and conclusions
Farmland birds are relatively easy to survey and they can therefore be used as indicators of the general quality of the farmed environment. Nationally this is done through the UK Farmland Bird Indicators, which track the populations of 19 species that feed and/or breed in farmland using data collected by skilled

volunteers. The UK Farmland Bird Indicators have monitored populations of these 19 species since 1970, and the indicator for England has shown steep declines, particularly during the late 1970s and the 1980s, as shown in Figure 6 (DEFRA 2019). These declines in part led to the introduction of government agri-environment schemes, which provide payments to farmers and landowners to manage, restore and create wildlife habitats on their farms.

In 2020 these agri-environment schemes are still an important element in many farm businesses and include a number of management options that can be delivered for farmland birds. These schemes have been particularly popular across the South Downs, where measures have been introduced to target the priority species: corn bunting, lapwing and grey partridge. These measures will also benefit more widespread farmland birds including linnet, skylark and yellowhammer, as well as other farmland mammal, insect and plant species.
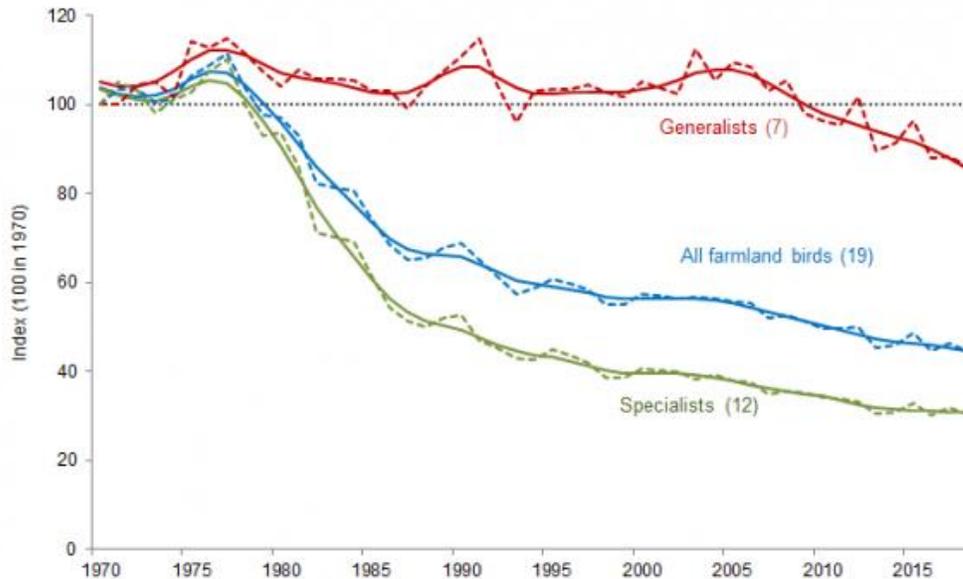

Figure 6. *The farmland bird indicator for England 1970-2018 (DEFRA 2019).*

Before this project started the information available about population levels of farmland birds in the South Downs National Park was limited to the results of the BTO Breeding Bird Survey. These results provide national, regional and county population trends for common farmland species, but not population trends for a smaller landscape area such as the South Downs National Park. In addition, the BBS population trends are calculated using survey results from sites covering all habitats including urban and woodland habitats as well as farmland habitats. The results from this SDFBI monitoring project, which uses only survey sites covering predominantly farmland habitats, will therefore provide information about population levels of farmland birds specifically in farmland within the South Downs National Park. Although there is insufficient data for the calculation of a farmland bird indicator comparable with the DEFRA indicators, the results can be used to monitor the effectiveness of farmland conservation management, and will help to inform future decision making and prioritisation of management schemes.

The limited timescale of the monitoring project to date means that any conclusions about trends in the data must be extremely cautious, but the intention is that this project will continue indefinitely with annual breeding season surveys, hopefully maintaining or increasing the level of coverage. With more breeding season data collected over a longer timescale it is hoped that increases in farmland bird population levels will be detectable, thus demonstrating the effectiveness of conservation measures and encouraging further efforts by farmers and land managers. Future developments of the project will hopefully include collecting simple habitat information and relating this to bird numbers, repeating the winter surveys and relating the results of these to winter farmland management practices, and increasing efforts to communicate the results of this monitoring project to farmers and land managers.

In summary, the South Downs Farmland Bird Initiative monitoring project has involved volunteers conducting breeding season surveys in randomly-selected 1x1-km predominantly farmland squares in the South Downs National Park during the period 2014-2019 inclusive. Volunteers also conducted surveys in the same squares during the 2019-2020 winter period. Lapwing, grey partridge and corn bunting are the three bird species of particular conservation concern, but these have been recorded in insufficient numbers of squares for the results to have any significance. Skylark, yellowhammer and linnet have been recorded in significant numbers of squares, and the percentage square occupancies and the densities in occupied

squares for these species are presented here for each year of the survey. Similar results are also presented for buzzard and red kite. The intention is that the project will continue and that further data will enable population trends for common farmland bird species within the South Downs National Park to be determined and compared with national trends and farmland bird indicators. New volunteers will be welcome to take part in this project and should contact the author for instructions.

Acknowledgements

References and further reading

Crabtree, H. 2009. Breeding Bird Survey (BBS) population trends in Sussex 1994-2009. Sussex Bird Report 2009, Sussex Ornithological Society.

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