The Sheffield Breeding Bird Atlas

Mapping breeding birds gives us a great insight into their abundance, distribution and habitat preferences, and conducting such studies over time also provides information on how these factors might be changing. During the period 1975 to 1980 breeding birds were surveyed on a tetrad (2x2km square) scale over the recording area of the Sheffield Bird Study Group (SBSG; Figure 1)[1]. This survey provided a huge amount of information on the distribution of breeding species in the area but in the 25 years since this survey was conducted there have been widespread changes in land-use, farming methods, human population and climate across the area that have impacted on bird populations. In 2003, to measure these changes and compare today's populations with those recorded in the late-seventies, a new project was started using the same study design in order that the results of this survey would be directly comparable to those of 25 years earlier. It is hoped that the survey work will be complete by 2007, and the results will provide us with information on any new and/or extinct breeding species in the area, contracting and expanding ranges and changes in abundance of breeding species. A comparison of the results from this study to national surveys will indicate if species in the Sheffield area are undergoing similar trends to those in other areas, and highlight any species doing exceptionally well or badly in our area that may require further study. Although the data collection is not yet complete, this article aims to look at some of the data collected so far and any patterns emerging from this.

The breeding atlas project was well underway in 2005, and 72 tetrads were surveyed in this year. For each tetrad all species present in suitable habitat during the breeding season were recorded as potential breeders. Additional observations such as singing or nest-building indicated that the species was probably breeding, and adults carrying food, the presence of an active nest or recently fledged young in the tetrad confirmed breeding.

This article will look in detail at the change in breeding species composition in one tetrad surveyed in 2005 in the north of the region, SK29Y. In addition, five species either lost or gained in this tetrad (Lapwing, Tree Sparrow, Nuthatch, Willow Tit and Reed Bunting) will be looked at in an additional 53 tetrads surveyed in 2005 in order to examine any noticeable patterns of change.

Tetrad SK29Y contains the built-up area of Deepcar and the areas to the south and west of this. The countryside is predominantly farmland, with some areas of deciduous woodland and rough pasture. The tetrad also includes an approximately 2km stretch of the River Don, and Wharncliffe Crags.

Species richness changed little in the period between the two surveys, with 57 species recorded during 1975-1980 and 61 recorded in 2005. However, eight species were lost and 12 new species recorded (Table 1).

Table 1. Breeding species recorded in tetrad SK29Y.

Species present in SK29Y in 1975-1980 and 2005	
Kestrel	Mistle Thrush
Pheasant	Whitethroat
Curlew	Blackcap
Feral Pigeon	Wood Warbler
Stock Dove	Chiffchaff
Wood Pigeon	Willow Warbler
Collared Dove	Goldcrest
Cuckoo	Spotted Flycatcher
Tawny Owl	Blue Tit
Nightjar	Great Tit
Swift	Treecreeper
Green Woodpecker	Jay
Great-spotted Woodpecker	Magpie
Swallow	Jackdaw
House Martin	Rook
Tree Pipit	Carrion Crow
Meadow Pipit	Starling
Grey Wagtail	House Sparrow
Pied Wagtail	Chaffinch
Dipper	Greenfinch
Wren	Goldfinch
Dunnock	Linnet
Robin	Bullfinch
Blackbird	Yellowhammer
Song Thrush	

Species lost – present in SK29Y in 1975-1980 but not recorded in 2005	
Moorhen	Redstart*
Common Sandpiper	Willow Tit*
Skylark*	Tree Sparrow*
Yellow Wagtail	Lesser Redpoll

Species gained – not present in SK29Y in 1975-1980 but recorded in 2005	
Heron	Long-tailed Tit*
Sparrowhawk	Coal Tit*
Lapwing*	Nuthatch*
Woodcock*	Raven
Kingfisher	Siskin
Garden Warbler*	Reed Bunting*

**denotes species was recorded as probably or confirmed to be breeding for the last two lists*

In order to see if observations in this tetrad represented general trends in the SBSG recording area, a subset of species lost or newly recorded here were examined in a further 53 tetrads (Figure 1). Species lost in 29Y between the two surveys included Willow Tit and Tree Sparrow. Data for these species from additional tetrads also show these species to be in decline in the area as a whole; a decrease of 43% for Willow Tit and 84% for Tree Sparrow (Figure 2; Table2). Nationally, both species show a long-term trend of rapid decline and are on the UK red-list of bird status due to a decline in population size of greater than 50% in the last 25 years[2]. The Willow Tit decline has continued nationally over recent years, although a decline of just 43% the species in the Sheffield area suggests it may be less affected by causes of decline in the area compared to elsewhere. The Tree Sparrow has undergone a 95% population decline in England between 1979 and 2004, although between 1994 and 2004 has shown a 25% increase[2]. A decline of 84% in the Sheffield area between the late seventies and 2005 could be the result of a steep decline followed by a recent increase. However, areas surveyed during 2005 do not include some of the strongholds for this species in our area and the present status of the Tree Sparrow in Sheffield may differ from the data presented here.

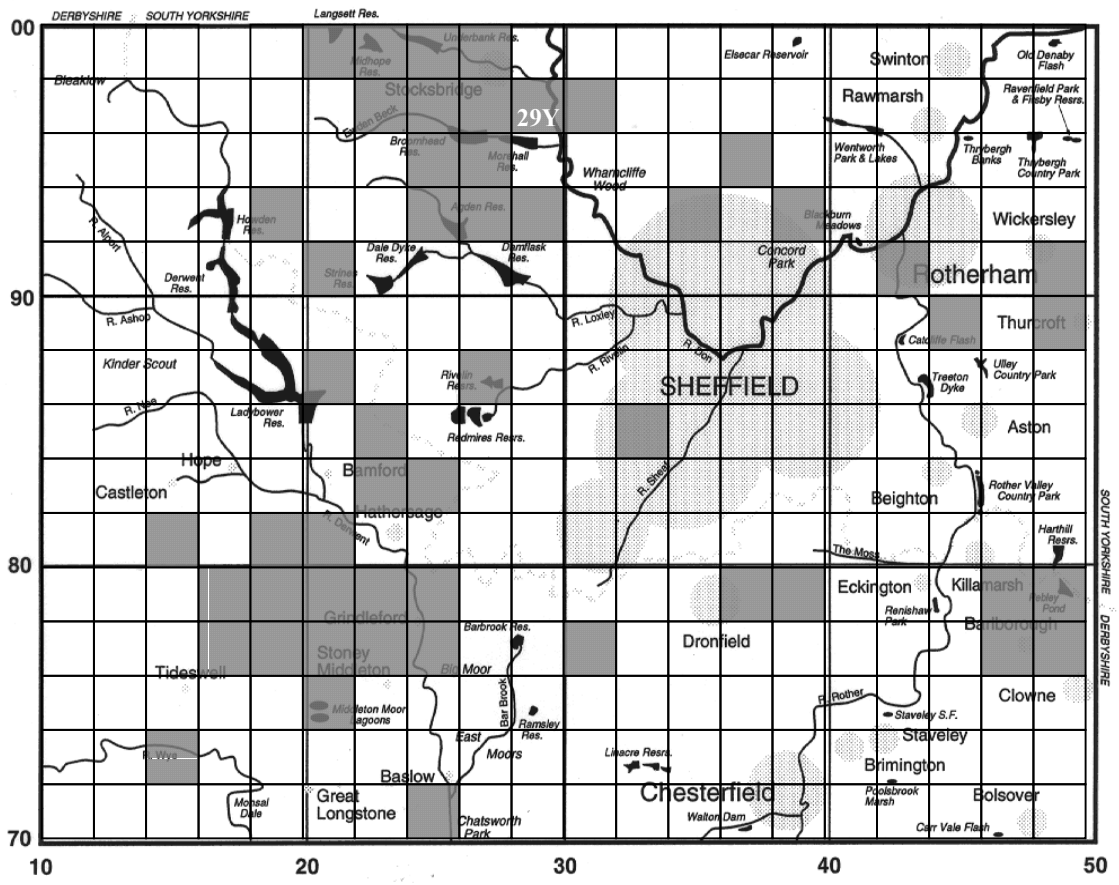
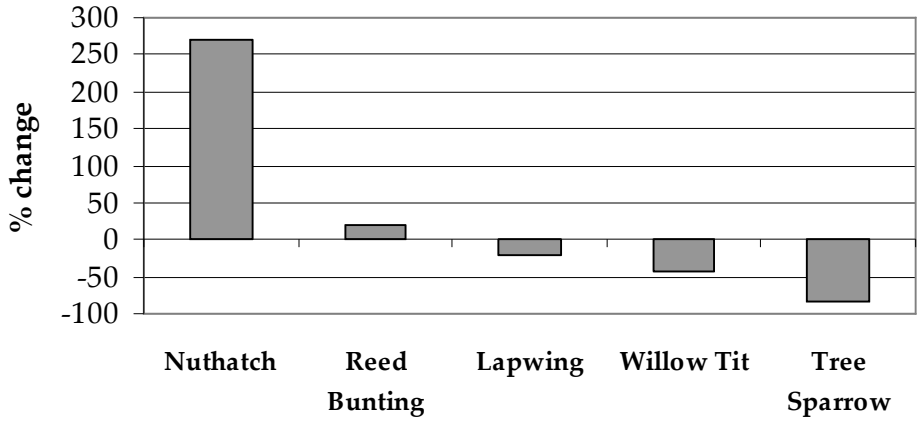


Figure 1. Map of the SBSG recording area showing the location of SK29Y and the other 53 tetrads examined (highlighted grey).

Figure 2. Percentage change in tetrad occurrence of breeding birds between 1975-80 and 2005.



Species newly recorded in 29Y during 2005 included Nuthatch, Reed Bunting and Lapwing. Nuthatch has increased in the area markedly over the last 25 years, with a 270% increase recorded in the tetrads examined (Figure 2; Table 2). This mirrors a national long-term trend of rapid increase in abundance of 92% between 1979 and 2004, and range expansion northwards[2]. Although new to 29Y, Lapwing has shown a decrease of 20% overall (Figure 2; Table 2). Nationally the species had shown a moderate decline of 44% between 1979 and 2004, although an increase of 17% has been observed in more recent years (1994-2004)[2]. Reed Bunting, although showing a slight increase in occurrence in the area (Figure 2), has newly colonised a similar number of tetrads to that in which it has been lost (Table 2). It remains to be seen if this pattern will remain when data for all 300 tetrads has been analysed.

Table 2. Numbers gained and lost of five species in 54 tetrads between 1975-1980 and 2005.

Species	Tetrads gained	Tetrads lost
Nuthatch	27	0
Reed Bunting	15	10
Lapwing	3	12
Willow Tit	3	16
Tree Sparrow	0	27

The national trend for Nuthatch is one of continued range expansion to the north, and this is well-reflected in our initial findings. Equally, the results for Lapwing, Willow Tit and Tree Sparrow mirror the large-scale, long-term declines these species have suffered over the past few decades. These initial results show an especially dramatic decline for Tree Sparrow, having been lost from 27 of the 32 featured tetrads they were recorded in during the 1975-80 survey.

More surprising is the pattern for Reed Bunting, which has disappeared from ten tetrads but overall increased in range, being present in 15 tetrads in which it was absent in 1975-80. The national long-term trend for this species is one of moderate decline, with a 24% decrease between 1979 and 2004[2]. It seems that this species is doing especially well in moorland and moorland fringe habitat, with 14 of the 15

tetrads gained being in the west of the region. The majority of the tetrads lost are in farmland and urban fringe areas to the north, east and south of Sheffield. It will be interesting to see if the change in tetrad occurrence recorded in this sample is reflected across the area as a whole, perhaps indicating widespread change in land management or even habitat preference by the birds themselves, or if this is merely a statistical artefact thrown up by the small sample size used here.

Data collected from the new atlas project is already providing useful information on the status of breeding birds in our area. Comparisons to national surveys of trends in breeding birds will help to highlight species which are doing well in this area, and similarly indicate species we are losing at odds to the national trends and for which action can be taken.

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References

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