

Report of a survey of the parks, woodlands and open spaces in the City of Sheffield, 1995-1996

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Introduction

A survey was undertaken by members of the Sheffield Bird Study Group (SBSG) to establish the status and density of birds within the parks, open spaces and woodlands of the city of Sheffield. It was completed during the period 1995-1996, apart from two areas, poorly surveyed during 1995/6 which were also visited in 1997. Results are compared with those obtained during a previous survey conducted by the Group in 1975 - 1976 (Smith 1977).

The survey area (as in 1975/6) was confined to localities within a 12 x 12 km square centered on Sheffield Town Hall. Forty-nine localities, associated, at least in part, with urban and suburban development, were surveyed, including 34 of the 36 localities surveyed in 1975/6.

Methods

Areas were visited at random, with observers indicating the presence or absence of each species during the winter, summer and passage periods. Observers were asked to record any breeding activity using codes similar to those used in the national breeding bird survey (Gibbons *et al* 1993).

Species density was determined from line transects undertaken during February, May and November in the final year of the survey. Transects were planned by participants to take in all habitat types in the locality. Each contact made on the transect route was recorded with the length of the route. Nearly 80% of localities were surveyed in this manner, but not all sites were surveyed three times during the year. Some observers submitted more than three transects and in these cases the transect nearest the mid-month date was used for density analysis. Species density was determined per km for winter periods (a combination of both February and November counts) and summer periods (May counts only).

Habitat questionnaires, asking for details of the broad habitat classes present in the locality, were completed for each area surveyed. The habitat classification categories used in the questionnaire are shown in Appendix 1 and Habitat classes present at each locality in the survey in Appendix 2.

Results

A total of 112 species was recorded during the survey, excluding escapes and ornamental species. Of these 109 were recorded in the 34 localities also covered during the 1975/6 survey, whereas only 92 species were found there in 1975/6. The number of species recorded at each locality was generally greater in 1995/6 than in 1975/6.

1. Analysis of distribution and density.

1.1 Most widespread species

Tables 1 and 2 show the most "widespread" birds, measured as the total number of localities reporting each species. Table 1 includes all the localities surveyed in 1995/6, with Table 2 only including those localities covered in both surveys.

TABLE 1				TABLE 2			
Most widespread species				Most widespread species			
1995/96 survey (all localities)				1995/96 survey (only localities surveyed both in 1975/6 and 1995/6)			
Rank	Species	Number of Localities	% of Localities	Rank	Species	Number of Localities	% of Localities
1	Common Woodpigeon	49	100	1	Common Woodpigeon	34	100
1	European Robin	49	100	1	European Robin	34	100
1	Common Blackbird	49	100	1	Common Blackbird	34	100
1	Blue Tit	49	100	1	Blue Tit	34	100
1	Great Tit	49	100	1	Great Tit	34	100
1	Black-billed Magpie	49	100	1	Black-billed Magpie	34	100
7	Winter Wren	48	98	7	Winter Wren	33	97
7	Hedge Accentor	48	98	7	Hedge Accentor	33	97
7	Mistle Thrush	48	98	7	Mistle Thrush	33	97
7	Carion Crow	48	98	7	Carion Crow	33	97
7	Chaffinch	48	98	7	Chaffinch	33	97
12	Song Thrush	46	94	7	European Greenfinch	33	97
12	Redwing	46	94	13	Black-headed Gull	32	94
12	European Greenfinch	46	94	13	Song Thrush	32	94
				13	Redwing	32	94
				13	Common Starling	32	94
				13	House Sparrow	32	94

Comparison between Tables 1 and 2 shows there to be very little difference in the ranking of the most widely reported species in the 1995/96 survey, despite the differences in the number of localities and habitats. This may be expected in that there is much common data in both tables, with all localities in an urban or suburban environment and both tables containing the same proportion of woodland habitats compared to other habitat types.

Comparison between the two surveys shows declines in House Sparrow *Passer domesticus*, Common Bullfinch *Pyrrhula pyrrhula* and Common Starling *Sturnus vulgaris* since 1975/6. Song Thrush *Turdus philomelos*, although showing no change in the percentage of localities, shows a lower ranking, indicative of a reduction in distribution, which reflects national (Gibbons *et al* 1996) and local trends. A wider distribution is shown by Chaffinch *Fringilla coelebs*, Redwing *Turdus iliacus* and Carion Crow *Corvus corone*, which were absent from the top 14 in 1975/6, and Common Wood Pigeon *Columba palumbus*, Great Tit *Parus major* and European Robin *Erithacus rubecula* show substantial increases.

Comparison of the most widespread species in the 1995/6 survey with national BTO Breeding Bird Survey (BBS) data for 1995/6 (Gregory *et al* 1997) shows a good correlation, with 11 of the top 14 birds on the most widespread lists in both surveys. Mistle Thrush *Turdus viscivorus*, European

Greenfinch *Carduelis chloris* and (unsurprisingly) Redwing are absent from the BBS list, with Black-billed Magpie *Picapica* much less prominent. Common Starling, Sky Lark *Alauda arvensis* and Barn Swallow *Hirundo rustica* are present on the BBS list but absent from the SBSG survey.

1.2 Changes in distribution between 1975/6 and 1995/6.

Changes in distribution between the two SBSG surveys are shown below. However, because of better coverage in the 1995/6 survey, caution must be exercised in the interpretation of the results. Small declines in distribution can be as significant as larger increases and this must be borne in mind when analysing the data in Figs 1 and 2.

Figure 1. Species showing the greatest reductions in distribution

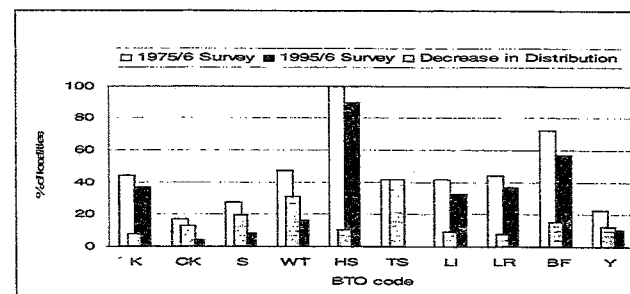


Fig.1 shows the species with the greatest reductions in distribution between the two SBSG surveys. These reductions all follow national trends (Marchant & Wilson 1996, Gregory *et al* 1997) and emphasise the worrying declines in farmland bird populations. The declines in Tree Sparrow *Passer montanus*, Willow Tit *Parus montanus* and Sky Lark distribution are very marked, especially if the increased coverage in 1995/6 is taken into account.



Fig.2 illustrates the species showing expansion in distribution between the two surveys. Black-headed Gull *Larus ridibundus* and Herring Gull *L. argentatus* (with increases of 54% and 37% respectively) have been omitted because many of the reports related to fly-overs.

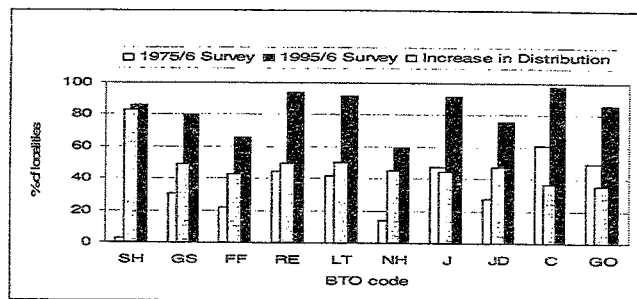


Figure 2. Species showing the greatest expansion in distribution.

The data show Eurasian Sparrowhawk *Accipiter nisus* numbers to have increased significantly, reflecting its expansion into parks and large gardens of towns and cities since its sustained national recovery. BTO Common Bird Census data (Marchant & Wilson 1996) indicate Great Spotted Woodpecker *Dendrocopos major* numbers have declined since the early 1980s, but since they relate to farmland and woodland, they do not reflect urban habitats where local observers have noticed increases.

Fieldfare *Turdus pilaris* and Redwing distributions appear to have increased, although numbers of these species vary considerably from year to year as both move widely in response to weather conditions and food availability (Lack 1986). Long-tailed Tit *Aegithalos caudatus* numbers can fluctuate with winter weather and the 1995/6 survey was completed during and after a series of relatively mild winters which may account, at least in part, for the expansion in distribution between the two surveys. Wood Nuthatch *Sitta europaea* increases follow national trends.

The distribution of Eurasian Jay *Garrulus glandarius*, Carrion Crow and Eurasian Jackdaw *Corvus monedula* has increased, reflecting national trends and a recent movement into the urban environment (Cramp & Simmons 1994). Other corvid species also show increases, with Rook *C. frugilegus* up by 26% and Black-billed Magpie by 8%. In rookery surveys conducted by the SBSG between 1985 and 1995 in the city 10 km square, a 7% decrease in nest numbers was noted (Falshaw *et al* 1999) but nationally the Rook has increased substantially. The Black-billed Magpie has been periodically surveyed in the Sheffield area, with its breeding population showing an increase of 200% during the period 1976-1991 (Clarkson 1992).

European Goldfinch *Carduelis carduelis* is a nationally increasing species with a preference in the breeding season for parks, gardens and cemeteries (Cramp & Simmons 1994), which are well represented in the survey.

1.3 Most abundant species

Table 3 shows the 14 most abundant species counted in the parks during the winter and summer periods. Abundance is measured as bird density per kilometre of transect. The sample size in summer was smaller than that in winter.

TABLE 3. Most abundant species.

(a) Winter counts			(b) Summer counts		
Rank	Species	Density /km	Rank	Species	Density /km
1	Blue Tit	13.1	1	Starling	10.1
2	Common Starling	10.4	2	Blue Tit	8.8
3	Common Wood Pigeon	8.9	3	Blackbird	8.1
4	Black-billed Magpie	7.2	4	Common Wood Pigeon	6.6
5	Redwing	5.5	5	Black-billed Magpie	5.2
6	Great Tit	5.1	6	European Robin	5.1
7	Common Blackbird	5.1	7	Winter Wren	4.3
8	Rook	4.7	8	Carrion Crow	3.8
9	European Robin	3.5	9	Great Tit	3.3
10	Feral Pigeon	3.2	10	House Sparrow	2.8
11	Carrion Crow	2.7	11	Common Swift	2.0
12	Long-tailed Tit	2.5	12	Feral Pigeon	1.9
13	House Sparrow	2.3	13	Long-tailed Tit	1.6
14	Winter Wren	2.3	14	Chaffinch	1.4

Both of these abundance lists are dominated by the resident species. Summer migrants, in particular, tend to be present at lower densities than resident species. Of the 14 most abundant species in each season, 12 appear on both lists, with Redwing and Rook absent from the summer list and Common Swift *Apus apus* and Chaffinch absent from the winter list.

Both lists show good correlation with the most widespread species in Table 1. Feral Pigeon *Columba livia*, Long-tailed Tit, Starling and House Sparrow do not appear on the most widespread list but do feature in the most abundant list, perhaps indicating the relatively high densities of these species. Conversely, the widespread Song Thrush, Mistle Thrush, Hedge Accentor *Prunella modularis* and European Greenfinch occur at low densities.

Comparison of the May transects for the 12 most abundant species in the SBSG survey with BBS data for 1996 (Gregory *et al* 1997) shows that 8 species occur on both lists. Black-billed Magpie, Feral Pigeon, Common Swift and Great Tit are absent from the BBS list, and Sky Lark, Rook, Eurasian Jackdaw and Chaffinch absent from the Sheffield list. Sheffield birdwatchers are well aware of the high population of Black-billed Magpies, and it is no surprise that the relative densities of Feral Pigeon and Common Swift are higher than nationally. The high Great Tit density

in the SBSG survey may be explained by this species' preference for mixed and open woodland, and even fragmented and scattered trees, well adapting it to life in city parks and cemeteries (Cramp & Simmons 1994).

The low Sky Lark, Eurasian Jackdaw and Rook densities may be due to a lack of suitable undisturbed habitat for feeding and/or breeding in the survey area. The low Chaffinch density is more difficult to explain, but may be due to the lack of the species preferred habitat of mixed deciduous woodland in the survey area.

1.4 Comparison of winter and summer densities

Fig. 3 shows a comparison of the winter and summer densities for the more common resident species. Densities tend to be higher in winter than in summer with c.65% of common resident species demonstrating this trend. This, perhaps, demonstrates the expected movement of birds into the urban environment in winter, due to food shortages, but the pattern is unclear. Errors inherent in census techniques (Bibby *et al* 1992), such as bias due to seasonal variation in detectability, could be affecting the results. European Robin, Winter Wren *Troglodytes troglodytes* and Common Blackbird *Turdus merula* show higher densities in summer but are much more vocal in the breeding season and therefore more likely to be detected by observers. Thus results for these species may be biased towards higher summer densities.

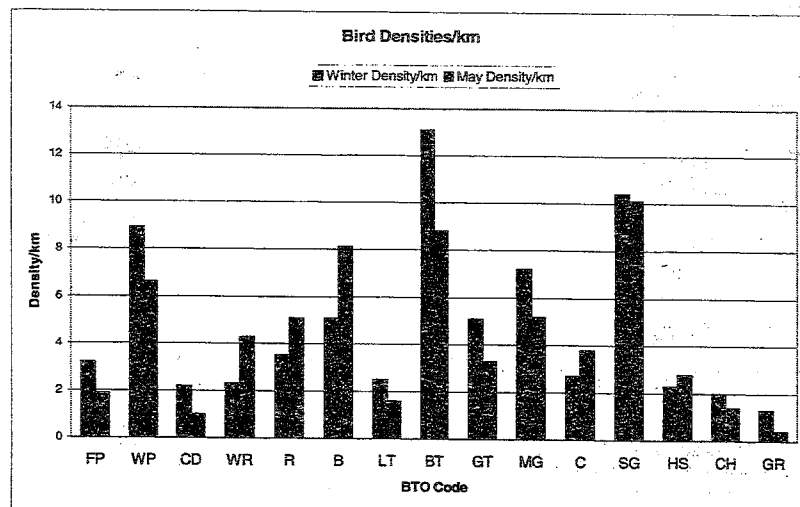


Figure 3. Comparison of winter and summer densities for 15 of the commoner species.

2. Breeding data

Observers were asked to record breeding activity using the system pioneered in the national atlas (Gibbons *et al* 1993).

In the 1995/6 survey 49 species were confirmed as breeding with another 15 probably breeding. The high number of localities with species reported as present in the breeding season indicates this to be an understatement, showing more work is needed to produce a fuller picture. If the area covered by the 1995/6 survey is compared with the 1975-80 tetrad breeding survey conducted by the SBSG (Hornbuckle & Herringshaw 1985), the total species reported breeding represents

about 75% of the species recorded in the tetrad survey. As expected, the species on the most widespread list were confirmed as breeding at the greatest number of localities.

TABLE 4. Most widespread breeding species.

Species	Number of localities with:	
	Probable Breeding	Confirmed Breeding
Common Blackbird	15	30
European Robin	18	26
Winter Wren	29	14
Blue Tit	4	38
Common Wood Pigeon	23	14
Hedge Accentor	25	12
Great Tit	10	27
Song Thrush	30	6
Black-billed Magpie	7	26
Chaffinch	24	9
Willow Warbler	25	6
Blackcap	24	6
Mistle Thrush	10	19
Collared Dove	19	9
European Greenfinch	19	9
Long-tailed Tit	3	20
Common Chiffchaff	21	1
Common Starling	3	18
House Sparrow	6	15
Garden Warbler	16	2

Table 4 shows the 20 most widespread breeding species i.e. those having the greatest total of probable and confirmed breeding records. The list is dominated by the resident species, with Willow Warbler *Phylloscopus trochilus* and Blackcap *Sylvia atricapilla* being the most widely distributed migrant breeders; Common Chiffchaff *P. collybita* and Garden Warbler *S. borin* also feature highly. The majority of reports for warblers were of singing birds. Although unsurprising, this does demonstrate the need for further work to clarify the breeding status of these birds.

3. Distribution and density in different habitat types

The different environments covered in the survey have been broken down into four broad habitat groups (See Appendix 3): -

- Type 1: parks and open spaces without woodland
- Type 2: parks and open spaces with woodland
- Type 3: woodland
- Type 4: allotments and cemeteries

3.1 Type 1: parks and open spaces without woodland.

Seventeen sites are included in this category, mostly of limited size and situated in built-up areas. Typically, regularly mown greensward dominates with these areas used as playing fields and for recreation. Most have formal flowerbeds and shrubberies. Woodland is absent at some sites, and only present to a limited extent in the others. Trees are present in small groups or in lines, usually at the edges of paths. Water is present at some localities as streams or small artificial lakes, with Tyzack's Dam, included in this category, the largest body of water in the survey, producing the greatest number of wildfowl species. The Ponderosa and Shirecliffe sites both incorporate rough grass and waste-ground, with Shirecliffe including a landfill site which attracts large numbers of corvids and gulls.

A total of 98 species was recorded in this habitat type, more than in any other habitat, and included several species reported only on passage. Twenty-five species were present in more than 75% of the localities. This included all 10 species recorded in more than 75% of similar sites in the 1975/6 survey (see Table 5).

Data from line transects taken through localities in this habitat type showed the average number of contacts of all species to be 139/km in winter and 102/km in summer. However, these figures are inflated by a small number of species; in particular in winter by feeding flocks of Common Starling (24/km) and Redwing (13/km), and in summer by post-breeding Common Starling flocks (31/km). This habitat type, with its high percentage of grassland compared to the other habitats surveyed, supports good numbers of ground-feeding birds, particularly in winter, with high densities of Pied Wagtail *Motacilla alba*, thrushes (except Song Thrush) and corvids (except Eurasian Jay). It also has high densities of species associated with urban environments such as Feral Pigeon, Common Swift and House Sparrow.

Unusual records from this habitat category include: Whinchat *Saxicola rubetra*, Northern Wheatear *Oenanthe oenanthe*, Mediterranean Gull *L. melanocephalus* and Merlin *Falco columbarius* (Concord Park); Arctic Redpoll *C. hornemanni* (Botanical Gardens); Firecrest *Regulus ignicapillus* (Ponderosa); Common Sandpiper *Actitis hypoleucos* (Hillsborough Park); Yellow Wagtail *M. flava* (Meersbrook Park) and Common Teal *Anas crecca*, Northern Pintail *A. acuta*, Common Goldeneye *Bucephala clangula*, Northern Shoveler *A. clypeata* (Tyzack's Dam), Iceland *L. glaucoides* and Glaucous Gulls *L. hyperboreus* (Shirecliffe).

3.2 Type 2: parks and open spaces with woodland

Nine sites are included in this category. Typically they have large areas of greensward, most of which is mown regularly, but some do have areas of rough grass present thanks to the council policy of varying the habitats within the parks. All have sizeable areas of deciduous woodland as well as isolated groups or lines of trees. The woodland typically lacks a good shrub and field layer, although Tinsley Golf Course and Graves Park have a rich field layer in parts. Most of the areas have streams and some have millponds and ornamental lakes. Included in this category is Middiewood Hospital, the grounds of which have large areas of rough grass and broad-leaved woodland.

A total of 86 species was reported from this habitat type, with 33 present in more than 75% of the localities. This includes 18 of the 19 species recorded in more than 75% of similar sites in the 1975/6 survey (see Table 5). Of these 19 species, Bullfinch showed a decline since 1975/6, being recorded in only 67% of the sites in the 1995/6 survey.

Data from line transects taken through localities in this habitat type show the average number of contacts of all species to be 84/km in winter and 64/km in summer. Presumably because neither greensward nor woodland predominate, overall species densities in this habitat type tended to be intermediate between Type 1 and Type 3 areas.

Unusual records from this habitat included: Snipe (Graves Park and Limb Valley); Common Sandpiper and Yellow Wagtail (Graves Park); Common Buzzard *Buteo buteo* and Merlin (Rivelin Valley).

3.3 Type 3: woodland

Seventeen sites are included in this category. As Smith (1977) states "Sheffield is exceptionally well endowed with woodland as distinct from public parks". Typically these are broad-leaved, although mixed woodland is present at some sites and the Limb Valley has areas of coniferous woodland. As with the woodlands described in "Type 2" above, the shrub and field layers tend to be poor. Nearly all the woodlands have streams flowing through them, and millponds and ornamental lakes are a feature at some localities.

A total of 93 species was recorded, with 33 present in more than 75% of the localities. This latter includes 19 of the 21 species recorded in more than 75% of similar sites in the 1975/6 survey (see Table 5) with two species, Common Bullfinch and Willow Tit, showing declines since the 1975/6 survey. In the 1995/6 survey Bullfinch was recorded in only 65% of the sites and Willow Tit in only 24%.

Data from line transects taken through localities in this habitat type show the average number of contacts of all species to be 74/km in winter and 75/km in summer. As would be expected, this habitat has higher densities of woodland species than the other park types, with densities of tit species, Wood Nuthatch, Winter Wren and Eurasian Jay greater than in other habitats.

Unusual species reported include: Firecrest, (Woolley Woods), Arctic Redpoll (Beeley Wood), Water Rail *Rallus aquaticus* (Forge Dam) and Whimbrel *Numenius phaeopus* (over Woolley Woods).

3.4 Type 4: allotments and cemeteries

Three cemeteries and three allotment sites are included in this category. Typically more structured than other areas in the survey, with woodland virtually confined to isolated groups of trees and hedgerows with greensward absent from the allotment sites.

Sixty-one species were recorded, with 26 present in over 75% of the localities in the 1995/6 survey. A hunting Barn Owl was recorded at Morley Street Allotments.

The sample size from line transects taken through this habitat was too small for comments on the density of species to be made.



3.5 Distribution of species in the different habitat types

TABLE 5. Distribution of species in the different habitat types

Species	% of type 1 localities	% of type 2 localities	% of type 3 localities	% of type 4 localities
Eurasian Sparrowhawk	76	78	94	100
Black-headed Gull	100	89	76	83
Feral Pigeon	94	100	59	83
Stock Dove	24	78	29	33
Common Wood Pigeon	100	100*	100*	100
Collared Dove	94	89	88	62
Common Swift	88	100	76	100
Great Spotted Woodpecker	59	100	94	67
Pied Wagtail	94	67	47	83
Winter Wren	94	100*	100*	100
Hedge Accentor	94*	100*	100*	100
European Robin	100*	100*	100*	100
Common Blackbird	100*	100*	100*	100
Fieldfare	71	89	47	67
Song Thrush	94*	89*	100*	83
Redwing	94	100	88	100
Mistle Thrush	94*	100*	100*	100
Garden Warbler	29	78	53	50
Blackcap	35	78	88*	83
Common Chiffchaff	35	67	82	50
Willow Warbler	65	100*	88*	67
Goldcrest	65	78	100	50
Long-tailed Tit	82	89	100*	100
Coal Tit	59	89	94*	67
Blue Tit	100*	100*	100*	100
Great Tit	100	100*	100*	100
Wood Nuthatch	35	67	88	33
Eurasian Treecreeper	35	78*	82*	33
Eurasian Jay	76	100	100*	100
Black-billed Magpie	100*	100*	100	100
Common Jackdaw	71	67	82	83
Rook	71	56	76	100
Carion Crow	100	100*	94	100
Common Starling	94*	89*	88*	100
House Sparrow	100	89*	82*	83
Chaffinch	100	89*	100*	100
European Goldfinch	82	89*	82	100
European Greenfinch	100*	89*	100*	67

Table 5 shows the most widespread species reported in the survey and the percentage of localities, in each habitat type, in which they were recorded. It includes all species recorded in 75% of the localities of any habitat type. An asterisk denotes the species was recorded in more than 75% of sites, of a similar type, in the 1975/6 survey.

3.6 Density of species related to habitat type

TABLE 6a. Density of species in the different habitat types in the winter period.

Species	All Habitat Types Density/km	Type 1 Habitats Density/km	Type 2 Habitats Density/km	Type 3 Habitats Density/km
Feral Pigeon	3.2	5.8	3.6	0.9
Common Wood Pigeon	8.9	6.3	8.2	10.6
Collared Dove	2.1	8.3	2.0	0.2
Pied Wagtail	0.7	2.4	0.5	0.1
Winter Wren	2.3	1.4	1.7	3.1
Hedge Accentor	0.8	1.3	0.8	0.4
European Robin	3.5	3.9	2.8	4.1
Common Blackbird	5.1	7.6	5.1	3.8
Fieldfare	0.9	2.6	0.8	0.3
Redwing	5.5	12.7	3.0	3.4
Mistle Thrush	1.6	2.4	1.6	0.7
Long-tailed Tit	2.5	0.9	2.0	3.7
Blue Tit	13.1	10.8	11.2	15.9
Great Tit	5.1	3.4	3.1	7.9
Wood Nuthatch	0.5	0.1	0.4	0.8
Eurasian Jay	1.2	0.7	1.3	1.4
Black-billed Magpie	7.2	9.5	7.8	4.9
Common Jackdaw	1.5	4.6	0.9	0.5
Rook	4.7	11.8	6.4	0.2
Carion Crow	2.7	6.6	1.6	1.7
Common Starling	10.4	23.5	7.8	0.2
House Sparrow	2.3	6.0	1.9	0.7
Chaffinch	2.1	2.4	2.2	1.8
European Goldfinch	0.7	0.5	0.8	0.5
European Greenfinch	1.4	0.9	2.2	0.8

TABLE 6b. Density of species in the different habitat types in the summer period.

Species	All Habitat Types Density/km	Type 1 Habitats Density/km	Type 2 Habitats Density/km	Type 3 Habitats Density/km
Feral Pigeon	1.9	5.3	0.8	0.3
Common Wood Pigeon	6.6	4.4	4.2	9.4
Collared Dove	1.1	1.5	1.2	0.5
Common Swift	2.0	3.5	1.6	1.4
Winter Wren	4.3	1.8	3.7	6.1
Hedge Accentor	0.8	1.2	0.4	0.7
European Robin	5.1	3.1	5.1	6.5
Common Blackbird	8.1	7.8	8.1	8.6
Song Thrush	0.8	0.6	0.7	1.1
Mistle Thrush	1.0	1.5	0.5	0.7
Blackcap	0.7	0.5	1.4	0.7
Willow Warbler	1.1	0.3	1.1	1.7
Long-tailed Tit	1.6	0.0	1.1	2.9
Coal Tit	1.3	0.3	0.0	2.6
Blue Tit	8.8	5.5	6.7	11.4
Great Tit	3.3	1.5	2.2	5.1

Eurasian Jay	1.3	0.5	1.1	1.7
Black-billed Magpie	5.2	7.8	5.5	3.3
Carrion Crow	3.8	9.3	1.6	2.2
Common Starling	10.1	30.5	8.8	0.1
House Sparrow	2.8	7.5	2.1	0.6
Chaffinch	1.4	0.3	1.6	1.8
European Greenfinch	0.5	1.2	0.0	0.3

Tables 6a and 6b show the variation in density of species within the different habitat divisions. Only species with an overall density of 0.5/km have been included in the table. Type 4 localities have been omitted from the table as the sample size was too small.

3.7 Breeding distribution in the different habitat types

TABLE 7. Distribution of breeding records in all habitat types

Species	% of all localities	% of type 1 localities	% of type 2 localities	% of type 3 localities	% of type 4 localities
Common Blackbird	90	88	100	94	67
European Robin	88	76	100	100	67
Blue Tit	86	76	100	94	67
Winter Wren	86	76	89	100	67
Great Tit	73	59	89	82	67
Hedge Accentor	73	82	78	71	50
Common Wood Pigeon	73	65	89	82	50
Song Thrush	71	59	78	88	50
Chaffinch	67	59	56	94	33
Black-billed Magpie	67	65	89	76	17
Willow Warbler	61	47	78	71	50
Mistle Thrush	59	76	56	53	33
Blackcap	59	29	67	82	67
Collared Dove	57	65	78	47	33
European Greenfinch	55	76	56	41	33
Long-tailed Tit	47	35	44	71	17
Common Chiffchaff	45	6	67	76	33
House Sparrow	41	47	44	35	33
Common Starling	41	65	56	18	17
Garden Warbler	37	18	67	41	33
Coal Tit	35	24	33	59	0
Carrion Crow	33	24	22	53	17
Eurasian Jay	31	6	33	53	33
Mallard	31	35	33	35	0
Great Spotted Woodpecker	29	6	22	59	17
Wood Nuthatch	27	0	44	53	0

Table 7 shows the distribution of probable or confirmed breeding records throughout the different habitat types. The records are expressed as percentages of the total localities in that habitat type and include only species breeding in over 25% of all 49 localities. Of the 64 species recorded as breeding in the survey area, only a relatively few common species have a widespread breeding distribution, with 14 species reported as breeding in only one locality. Type 2 habitats have the greatest number and diversity of breeding species, due to the availability of a greater range of habitats giving a greater range of both feeding and nest sites. However, the data must be treated with caution, as there is much need for further work in this area.

Summary and Conclusions

The 1995-1996 survey of Sheffield's parks, woodlands and open spaces analysed the distribution, density and breeding birds of those areas within a 12 x 12 Km square centred on Sheffield Town Hall. The survey showed a change in distribution for some species in the 20 years since the last survey carried out by SBSG. These changes broadly follow National trends and emphasise the worrying decline in farmland species. Those birds with the widest distribution and highest densities tend to be the resident species.

Analysis of breeding data showed that the most widespread breeding species were the common, resident, birds with Willow Warbler and Blackcap as the most widespread migrant breeders. Analysis of distribution and density in the different habitat types surveyed indicated that parks and open spaces without woodland held the highest density of species. These high-density figures, however, are due to a small number of species present at high levels. Only the common resident species showed a widespread breeding distribution throughout all the habitat types with parks and open spaces with woodlands holding the greatest diversity and number of breeding species.

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References

- Bibby, C.J., Burgess, N.D. & Hill, D.A. (1992). *Bird Census Techniques*. Academic Press, London.
- Clarkson, K. (1992). Magpie IV - just when you thought it was safe... *Birds in the Sheffield Area* 1991:12-14. SBSG
- Cramp, S. & Simmons, K.E.L. (1977-94). *Handbook of the Birds of Europe, the Middle East and North Africa: the Birds of the Western Palearctic*. Oxford University Press.
- Gibbons, D.W., Avery, M.I. & Brown A.F. (1996). Population trends of breeding birds in the United Kingdom since 1800. *British Birds* 89: 291-305.
- Gibbons, D.W., Reid, J.B. & Chapman, R.A. (1993). *The New Atlas of Breeding Birds in Britain and Ireland: 1988-1991*. Poyser, London.
- Gregory, R.D. & Bashford, R.I. (1997). *The Breeding Bird Survey 1994-5, Report No.2*. BTO.
- Hornbuckle, J. & Herringshaw, D. (1985). *Birds of the Sheffield Area*. SBSG & Sheffield Libraries.
- Lack, P.C. (1986). *The Atlas of Wintering Birds in Britain and Ireland*. Poyser, Calton.
- Marchant, J. & Wilson, A. (1996). Common Birds Census: 1994-95 index report. *BTO News* 204: 9-13.
- Smith, A.H.V. 1977. Birds of the Parks, Open Spaces and Woodlands within the City of Sheffield. *The Magpie* 1: 19-32

The survey period coincided with a "Waxwing year" and with the arrival of unprecedented numbers of Arctic Redpoll in the country. As a consequence Bohemian Waxwings *Bombycilla garrulus* were recorded at many localities and there were two records of Arctic Redpoll (both accepted by the *British Birds* Rarities Committee) in the survey area.

Scientific Names of species not given in the text

Eurasian Collared Dove *Streptopelia decaocto*

Blue Tit *Parus caeruleus*

Coal Tit *Parus ater*

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Appendix 1

Habitat Classification Codes

		Code
Grassland	Greensward (mown regularly)	A1
	Playing fields/golf courses	A2
	Rough grass (mown 1/2 times per year)	A3
	Natural Grassland	A4
Woodland/Heathland	Bilberry/Heather Heath	B1
	Bush/Grass Heath	B2
	Isolated groups of trees	B3
	Lines of trees	B4
	Broad leaved Woodland	B5
	Mixed Woodland	B6
	Coniferous Woodland	B7
Farmland	Mainly arable	C1
	Mainly pasture	C2
	Hedgerows with trees	C3
	Hedgerows without trees	C4
	Allotments	C5
	Abandoned allotments	C6
Buildings	Industrial	D1
	Domestic (terraced)	D2
	Domestic (semi-detached)	D3
	Domestic (detached)	D4
	Domestic (scattered farm/estate buildings)	D5
	Domestic (flats with greensward)	D6
	Large houses/Civic buildings	D7
Waste Land		E
Water	Ornamental lakes	F1
	Mill ponds	F2
	Streams	F3

Appendix 2

Habitat Classes Present at Localities in the Survey

Park, Open Space or Woodland	Habitat Type	Grassland	Woodland/ Heathland	Farmland	Buildings	Waste Land	Water
Abbeyfield Park	1	A1	B4		(D2,D3),D7		
Bolehills Recreation Ground	1	A1,A2,A3	B5		(D2,D3)		
Botanical Gardens	1	A1	B3,B4		(D2,D3),D7		
Concord Park	1	A1,A2	B3,B4,(B5)		(D2,D3),D7		
Crookes Valley Park	1	A1,A2	B3,B4		(D2,D7)		F1
Earl Marshall Recreation Ground	1	A1	B3		(D2,D3)		
Firth Park	1	A1,A2	B3,B4,(B5)		(D2),D7		F3
High Hazels	1	A1,A2	B3,B4		(D2),D7		
Hillsborough Park	1	A1,A2	B3,B4		(D2),D7		F1
Jaunty Park	1	A2,A3	B2,B3,B4	(C5)	(D1,D3)		F3
Longley Park	1	A1,A2	B3,B4	C4	(D2),D7		
Meersbrook Park	1	A1,A2	B3,B4,B5	(C5)	(D2,D3),D7		
Millhouses Park	1	A1,A2,A3	B3,B4,(B5)		(D3),D7		F3
Ponderosa	1	(A1),A2,A3	B3,B4		(D2,D6)		
Shirecliffe	1	A3,A4	B2,B3,B4		(D2,D3,D7)	E	
Tyzack's Dam/Beauchief Gardens	1	A1	B4,(B5)		(D3)		F2,F3
Weston Park	1	A1	B3,B4		(D2),D7		F1
Bingham Park	2	A1,A2	B2,B5		(D2)		F2,F3
Endcliffe Park	2	A1,A2	B4,B5		(D2)		F1,F3
Gleadless Valley	2	A2,A3,A4	B2,B3,B4,B5	(C5)	(D6)	E	F3
Graves Park	2	A1,A2,A3	B3,B4,B5	C4	(D2,D3,D4),D5,(D7)		F1,F3
Middlewood Hospital	2	A3	B3,B4,B5		D2,D4,D7	E	
Norfolk Park	2	A1,A2	B3,B4,B5		(D3,D6)		F3
Roe Woods	2	(A2),A4	B2,B5	(C5)	(D2)		F3
Tinsley Golf Course	2	A2,A3	B2,B3,B4,B5		(D1)		F3
Wincobank	2	A2,A4	B2,B3,B4,B5		(D2)	E	
Beeley Wood	3		B5				F3
Bowden Housesteads Wood	3	A2,A4	B4,B5	C5	(D2,D3)		F3
Chancet Wood	3	(A2)	B5		(D3,D4,D7)		F3
Crabtree Pond	3		B5		(D2,D3)		F2,F3
Ecclesall Woods	3	(A2)	B5,B6	(C2)	(D3,D4)		F3
Hutcliffe Wood	3		B5		(D3)		
Ladies Spring Wood	3	(A1,A2)	(B3,B4),B5		(D3,D5)		F3
Lees Hall Wood	3	(A2,A3)	B5		(D6)	(E)	F3
Little Matlock Wood	3	A4	(B1),B2,B5	(C2)			F2,F3
Little Roe Woods	3	(A2)	B5		(D3)		F3
Parkbank Wood/Beauchief GC	3	A1,A2	B3,B4,B5		(D3),D7		F2,F3
Rivelin Valley	3	(A1)	(B1,B2,B4),B5	(C2,C5)	(D3)		F2,F3
Rollestone Woods	3	(A1)	B5		(D6)		F3
The Roughts	3	(A2)	B5	C5	(D3,D4)		F3
Whirlow Park/Limb Valley	3	A1,A3	B1,B2,B4,B5,B6,B7		(D4),D7		F1,F3
Whiteley Wood/Forge Dam	3	(A3)	B5	(C2,C3)	(D3)		F1,F2,F3
Woolley Wood	3	A1	B5,B6		(D1,D3)		F3
Burngreave Cemetery	4	A3	B3		D3		
General Cemetery	4	A1	B3,B4		(D1,D2,D3),D7		
Hagg Lane Allotments	4	(A4)	(B1),B6	C5,C6	(D3)		
Meersbrook Allotments	4		(B3,B4,B5)	C3,C4,C5,C6	(D3,D4)		
Mortley St Allotments	4		B3	C3,C5,C6			
Wardsend Cemetery	4		B5	(C6)			

Habitat Type 1: Parks and Open Spaces without woodland

Habitat Type 2: Parks and Open Spaces with woodland

Habitat Type 3: Woodland

Habitat Type 4: Allotments and Cemeteries

Codes in brackets indicate additional habitat classes at the margins of the survey area.

Appendix 3

Area, Location and Species Records in all Localities Surveyed

Park, Open Space or Woodland	Habitat Type	1995/6 Survey Total Species (incl flyovers)	1995/6 Survey Total Species (excl flyovers & Feral Pigeon)	1975/6 Survey Total Species (excl flyovers & Feral Pigeon)	Area m ² /1000	Grid Reference	Distance from Town Hall (km)
Abbeyfield Park	1	25*	23	18	22	358894	2.3
Bolehills Recreation Ground	1	48*	45	22	146	328883	2.8
Botanical Gardens	1	49*	46	28	75	335863	2.0
Concord Park	1	56*	51	14	692	378923	5.9
Crookes Valley Park	1	70*	68	17	55	338675	1.6
Earl Marshall Recreation Ground	1	32*	27		43	365898	3.0
Firth Park	1	36*	33		114	368910	4.2
High Hazels	1	29*	28	11	140	400677	4.8
Hillsborough Park	1	36*	35	11	201	333903	3.7
Jaunty Park	1	44*	42	34	166	391839	5.1
Longley Park	1	35*	34	16	205	358914	4.4
Meersbrook Park	1	37*	36	15	169	352842	3.2
Milthouses Park	1	47*	46	20	133	334830	4.8
Ponderosa	1	52*	51		36	341877	1.4
Shirecliffe	1	60*	58	25	632	345903	3.3
Tyzack's Dam/Beauchief Gardens	1	31	31	29	16	325818	6.3
Weston Park	1	47*	43	25	52	340874	1.4
Bingham Park	2	58*	56	41	64	323857	3.6
Endcliffe Park	2	49*	48	51	153	328858	3.1
Gleadless Valley	2	43*	42	27	247	363838	3.6
Graves Park	2	85*	79	59	911	353823	5.1
Middlewood Hospital	2	42*	41		447	320915	5.3
Norfolk Park	2	34*	33	30	253	367860	1.8
Roe Woods	2	58*	49	23	93	357903	3.2
Tinsley Golf Course	2	45*	43	43	623	405880	5.5
Wincobank	2	40*	36	11	211	375907	4.3
Beeley Wood	3	46	40		223	320925	6.1
Bowden Housteads Wood	3	42*	40	54	292	397868	4.6
Chancet Wood	3	49	45	24	78	342822	5.2
Crabtree Pond	3	36*	33		13	362899	3.1
Ecclesall Woods	3	47	46	45	1385	320820	6.0
Hutcliffe Wood	3	39*	38		116	333826	5.0
Ladies Spring Wood	3	32	32		149	325815	6.3
Lees Hall Wood	3	29	28	23	126	367837	3.9
Little Matlock Wood	3	48	48	74	129	310894	4.9
Little Roe Woods	3	48*	43	21	37	357898	2.8
Parkbank Wood/Beauchief GC	3	39*	38		484	337819	5.6
Rivelin Valley	3	91*	84	42	758	315880	4.3
Rollestone Woods	3	37	35	23	124	372834	4.4
The Roughs	3	38*	36	48	192	315851	4.6
Whirlow Park/Limb Valley	3	61*	60	37	297	308832	6.3
Whiteley Wood/Forge Dam	3	57*	55	54	404	317853	4.2
Woolley Wood	3	63*	59	30	341	382927	6.5
Burngreave Cemetery	4	44	43		150	360893	2.3
General Cemetery	4	32*	31		56	342859	1.4
Hagg Lane Allotments	4	36	35		61	318877	3.6
Meersbrook Allotments	4	47*	27		164	360842	3.3
Morley St Allotments	4	45*	40		27	328892	3.6
Wardsend Cemetery	4	28*	24		25	341904	3.8

Habitat Type 1: Parks and Open Spaces Without Woodland

Habitat Type 2: Parks and Open Spaces With Woodland

Habitat Type 3: Woodland

Habitat Type 4: Allotments and Cemeteries

* Indicates Feral Pigeon included in this total.