



**BTO Research Report No. 305**

**An update on  
Waterbird Populations  
on the River Wharfe**

**Authors**

**A. C. Joys & J. H. Marchant**

A report by the British Trust for Ornithology  
for Scott Wilson Kirkpatrick & Co Ltd

**November 2002**

**© British Trust for Ornithology**

British Trust for Ornithology, The Nunnery, Thetford, Norfolk, IP24 2PU  
Registered Charity No. 216652



# CONTENTS

	Page No.
List of Tables .....	3
EXECUTIVE SUMMARY .....	5
1. INTRODUCTION .....	7
2. METHODS AND SURVEY COVERAGE .....	9
2.1 The methodology of the Waterways Bird Survey (WBS) .....	9
2.2 The methodology of the Waterways Breeding Bird Survey (WBBS) .....	9
2.3 WBS and WBBS coverage on the River Wharfe .....	9
3. REGIONAL AND NATIONAL WATERWAYS BIRD DENSITIES .....	11
4. WBS RESULTS FROM THE RIVER WHARFE .....	13
4.1 Otley Bridge to Pool Weir (plot 392) .....	13
4.2 Thorpe Arch to Tadcaster (plot 363) .....	15
5. WBBS RESULTS FROM THE RIVER WHARFE .....	17
6. DISCUSSION .....	19
7. CONCLUSION .....	21
References .....	23



## **List of Tables**

	<b>Page No.</b>
<b>Table 2.3</b> WBS and WBBS coverage on the River Wharfe .....	9
<b>Table 3.1</b> Regional territory densities on WBS plots between 1974 and 2001 .....	11
<b>Table 3.2</b> National territory densities on WBS plots between 1974 and 2001 .....	12
<b>Table 4.1</b> WBS results from Otley Bridge to Poole Weir (3.8km) between 1999 and 2002.....	14
<b>Table 4.2</b> WBS results from Thorpe Arch to Tadcaster (6.2km) between 1999 and 2002 .....	15
<b>Table 5.1</b> WBBS results from between 1999 and 2000 for the single stretch on the River Wharfe ...	18



## EXECUTIVE SUMMARY

1. This report provides an update to the earlier BTO Research Report No. 207 (Waterbird populations on the River Wharfe and River Ure) with new results for two plots on the River Wharfe surveyed between 1998 and 2002.
2. Waterbird densities and population trends from the Waterways Bird Survey for two plots on the River Wharfe are compared with those derived from the national and regional datasets. Total counts of birds are also provided for one new plot on the River Wharfe using the Waterways Breeding Bird Survey method.
3. Over half of the species recorded holding territories on both of the plots have experienced population declines. Some of these species show similar directional changes in population at both the regional and national level, but others show opposite trends. A smaller number of species, including Greylag Goose and Canada Goose, have increased on the River Wharfe, in agreement with national and regional trends.
4. A number of bird species, including the red-listed Reed Bunting and the amber-listed Lapwing, Curlew, Kingfisher and Yellow Wagtail, occur at higher densities on at least one of the plots than nationally. However, densities of Curlew are lower than regional densities and densities of Oystercatcher are lower than regional and national averages.
5. Because the plots considered in this report are restricted to the middle and lower reaches of the River Wharfe, an expansion of monitoring work to the upper sections of the River Wharfe would be required to assess the population change of four key riparian specialists, Goosander, Common Sandpiper, Grey Wagtail and Dipper. None of these species are well covered by the continuing plots, but were detected in previously surveyed plots in the upper reaches of the river.





## 1. INTRODUCTION

This report provides an update to the earlier BTO Research Report No. 207 (Wilson 1998) on Waterbird populations on the River Wharfe and River Ure, with new results for two Waterways Bird Survey (WBS) plots surveyed since 1998 on the River Wharfe. In addition counts of birds are provided for a Waterways Breeding Bird Survey (WBBS) plot on the River Wharfe in 1999 and 2000. For a background description of the national WBS scheme, methodology and all summaries of results up to 1998, see Wilson (1998).

The objectives are to:

- Update the previous report to include two plots surveyed since 1998 for the years 1999, 2000 and 2002 using the WBS. No data were collected for year 2001 due to the restrictions imposed by Foot and Mouth disease.
- Calculate the population trends from the start year of the plot to year 2000 and compare with the regional WBS for the Environment Agency North East region and the national WBS for the same period.
- Provide data for an additional plot on the River Wharfe using the Waterways Breeding Bird Survey (WBBS) for 1999 and 2000. It is important to note that this would consist of total counts of each species and not territory measures as in the WBS. Due to the short time period covered by the WBBS no population trends can be provided.
- Indicate those riparian species that are of conservation concern and which are amber or red listed.

WBS is a national scheme that has monitored the population levels of riparian bird species since 1974. It provides estimates of the numbers of territories for each species during the breeding season for each survey plot. For further details regarding the background of the WBS see the earlier BTO Research Report No. 207.

For each plot surveyed a summary of the WBS results is given. The relative importance of the two rivers for birds will be assessed by comparing densities of riparian bird species with regional and national averages. A similar comparison will be made between the population trends for riparian species on the rivers concerned and national trends over the same time period.

The Waterways Breeding Bird Survey (WBBS) was started in 1998 and has several differences to the well-established and recognised WBS. As for the WBS, a stretch of linear waterway is surveyed but following similar methods to those employed in the Breeding Bird Survey (BBS). An important distinction is the survey effort required for the WBBS. Only three visits are needed and counts of birds are only recorded on two visits; the initial visit being used to record habitat details. Consequently no territories are mapped and therefore it is not possible to compare results with densities of species derived from the WBS. A summary of the WBBS results for the single plot on the River Wharfe is provided, consisting of total counts of each species detected.



## 2. METHODS AND SURVEY COVERAGE

### 2.1 The methodology of the Waterways Bird Survey (WBS)

For details of the methodology of the WBS and the scope of national coverage see the previous BTO report (Wilson, 1998).

### 2.2 The methodology of the Waterways Breeding Bird Survey (WBBS)

The Waterways Breeding Bird Survey (WBBS) started in 1998 and follows similar methods to those employed in the Breeding Bird Survey (BBS). Unlike the WBS, sites are allocated to volunteers using a stratified random design. Volunteers are required to make three site visits made between April and June. The initial visit is simply to record habitat details, with the latter two recording bird registrations by both sight and sound. Birds are recorded along transects that lie along a waterway and these are divided into sections of 500m length. This contrasts with the BBS in which the transects are roughly parallel lines across a 1-km square in the National Grid, each about ten 200 m length sections. On the WBBS, all bird registrations (both sight and sound) are recorded into either one of three distance categories (<25m, 25-100m and beyond 100m) along the transect or noted as in flight, for each of the 200m sections. Density estimates for different species can be obtained using distance analysis but require sufficiently large samples. For most uses of the WBBS, the number of birds of each species recorded includes birds in all distance categories and in flight (summed) and the maximum of the counts from the two visits is used. As it involves only counts of birds, no subsequent territories are mapped.

### 2.3 WBS and WBBS coverage on the River Wharfe

The River Wharfe has been relatively well covered by the WBS since the 1970's, but despite the good coverage, there are insufficient data to calculate reliable population indices specifically for this river. The two continuing WBS plots cover the middle and lower reaches of the River Wharfe (Table 2.3). There are no plots from the upper reaches of the river, which differ from the previous BTO report. There is only one extra stretch that is covered by the WBBS (Table 2.3).

**Table 2.3** WBS and WBBS coverage on the River Wharfe

Plot number	Grid-references		Plot length (km)	Altitude range (m)	Overall gradient (m/km)	Years covered <sup>a</sup>
	Upstream limit	Downstream limit				
WBS coverage						
363	SE440453	SE472447	6.2	10-15	0.8	1990-2002
392	SE201459	SE232457	3.9	46-61	3.9	1991-2002
WBBS coverage						
1km grid reference	Grid-references		Number of 500m sections surveyed 1999 & 2000			
	Upstream limit	Downstream limit				
SD9664	SE004633	SD981659	8			

<sup>a</sup> excluding year 2001 due to Foot and Mouth Disease (FMD)

For locations of the WBS plots on the River Wharfe see Figure 2.3 in the earlier BTO Research Report No. 207 (Wilson, 1998).



### 3. REGIONAL AND NATIONAL WATERWAYS BIRD DENSITIES

In the following tables (Table 3.1 and 3.2), we provide summaries of the regional and national WBS results for five time periods between 1974 and 2001 for comparison with data from the plots on the River Wharfe. The first three time periods match those in Wilson (1998) and the most recent period is divided into two equal time periods of five years each (1992-96 and 1997-2001). The regional data is obtained from all plots on rivers within the Environment Agency North East region. The number of plots in this region ranged from 22 to 24 in the period 1992 to 1996 and 13 between the period 1997 to 2001.

**Table 3.1** Regional territory densities on WBS plots between 1974 and 2001

Species <sup>a</sup>	Mean territory density/10km				
	1974-79	1980-85	1986-91	1992-96	1997-2001
Little Grebe	0.1	0.3	0.1	0.1	0.1
Great Crested Grebe	*	*	*	*	*
<i>Mute Swan</i>	0.3	0.3	0.6	1	0.8
Greylag Goose	0.0	0.4	0.1	1.4	2.2
Canada Goose	0.03	0.5	0.3	0.7	3.7
<i>Teal</i>	0.2	0.6	0.1	0.5	0.8
Mallard	13.4	26.9	33.0	33.1	50.5
Tufted Duck	0.1	0.7	1.0	3.3	1.1
Goosander	0.2	2.0	2.2	3.1	3.6
Moorhen	14.3	6.4	7.6	7.1	9.9
Coot	1.0	1.6	1.8	2.5	4.3
<i>Oystercatcher</i>	2.5	1.8	2.2	5	6.4
Little Ringed Plover	*	*	*	*	*
<i>Lapwing</i>	*	6.4	3.8	3.7	7.4
<i>Curlew</i>	*	2.7	1.6	2.2	4
<i>Redshank</i>	2.9	3.4	1.6	1.3	1.9
Common Sandpiper	2.9	3.6	5.4	4.8	6.1
<i>Kingfisher</i>	1.2	0.9	1.1	1.3	1.3
Sand Martin	*	*	*	*	*
<i>Yellow Wagtail</i>	2.4	1.0	0.9	0.9	1.5
<i>Grey Wagtail</i>	3.9	4.2	7.6	4.8	5.5
Pied Wagtail	8.3	5.6	5.5	6.4	5
Dipper	3.7	4.9	6.4	3.5	4.1
Sedge Warbler	0.5	0.6	1.4	7.4	4.4
Whitethroat	1.3	1.0	1.1	4.8	7
<b>Reed Bunting</b>	4.0	0.6	1.0	3.4	2.6

\* insufficient data

a species in bold are those categorised as red and those italicised are amber according to the Birds of Conservation Concern listing (Gregory *et al.* 2002).

**Table 3.2** National territory densities on WBS plots between 1974 and 2001

Species <sup>a</sup>	Mean territory density/10km				
	1974-79	1980-85	1986-91	1992-96	1997-2001
Little Grebe	2.1	1.8	1.7	1	0.6
Great Crested Grebe	0.7	0.7	1.1	1	1
<i>Mute Swan</i>	2.0	1.9	2.2	2.5	3
Greylag Goose	0.0	0.1	0.2	0.9	1.4
Canada Goose	1.6	2.3	2.0	3.6	5.2
<i>Teal</i>	0.1	0.2	0.2	0.2	0.3
Mallard	23.8	31.2	38.6	41	51.3
Tufted Duck	1.9	2.3	2.4	1.9	2.1
Goosander	0.8	1.2	1.7	1.5	1.2
Moorhen	23.0	17.7	19.0	16.3	16.6
Coot	5.3	6.6	7.2	6.8	7.8
<i>Oystercatcher</i>	5.5	6.9	6.3	4.1	4.6
Little Ringed Plover	0.02	0.06	0.06	0.1	0.1
<i>Lapwing</i>	1.3	5.2	5.1	3.3	3.6
<i>Curlew</i>	1.0	1.5	1.7	1.1	1.4
<i>Redshank</i>	3.4	3.6	3.1	1.2	1.2
Common Sandpiper	3.6	4.2	4.1	2.6	2.4
<i>Kingfisher</i>	1.5	1.0	1.3	1.1	1
Sand Martin	*	*	*	*	8
<i>Yellow Wagtail</i>	3.7	2.8	2.1	0.6	0.5
<i>Grey Wagtail</i>	3.4	2.8	3.8	3.3	2.9
Pied Wagtail	8.5	7.9	7.0	4.7	3.9
Dipper	1.7	1.9	2.4	2.1	1.7
Sedge Warbler	3.4	6.0	10.6	11.1	12.3
Whitethroat	1.8	1.7	2.1	4.9	6.9
<b>Reed Bunting</b>	9.0	5.5	5.8	6.4	6.7

\* insufficient data

<sup>a</sup> species in bold are those categorised as red and those italicised are amber according to the Birds of Conservation Concern listing (Gregory *et al.* 2002).

## 4. WBS RESULTS FROM THE RIVER WHARFE

Results are given for each WBS plot separately; giving the number of territories per 10 km for each of the three years surveyed (1999, 2000 & 2002) and also summary statistics including the mean number of territories per 10 km for the three years. The two plots are listed sequentially from upstream to downstream. Species which are categorised as red or amber according to the Birds of Conservation Concern listing (Gregory *et al.* 2002) are highlighted in bold or italicised respectively. The tables also report the population trends for the period from the start of the survey for each plot to 2002, alongside the national and regional trends for the same time period (up to year 2000). The population trend for each of the species for the individual plot is assessed from the change in the number of territories from the start year to the end year (2002). This is summarised into four main types of trend;  $\geq 50\%$  increase = 'large increase', 1 to 49% increase = 'increase', constant = no change, 1 to 49% decrease = 'decrease' and  $\geq 50\%$  = 'large decrease'. For the national and regional trends, the percent change over the period concerned is indicated, with the symbol '↑' for a percent increase and '↓' for a decline. One must exercise caution when drawing conclusions from the regional trends, due to the small number of plots from which the trends for particular species are derived.

### 4.1 Otley Bridge to Pool Weir (plot 392)

A total of 20 species are recorded holding territories along this stretch of the River Wharfe (Table 4.1). Two species, Pochard and Goosander, are new to the list of territory-holding species since 1998, whilst four species; Little Grebe, Little Ringed Plover, Sand Martin and Sedge Warbler, which all held territories prior to 1998, are no longer recorded.

Fourteen out of the total of 20 species have shown population declines on this plot since 1991; twelve of these have been declines equal to or greater than 50%. Some of the species that have experienced large declines on this plot; Moorhen, Coot, Oystercatcher, Curlew and Grey Wagtail have seen small population increases nationally. Mute Swan, Mallard and Whitethroat have experienced larger national increases than the previous five mentioned species, and also showed large declines on this plot. Only Lapwing, Dipper, and Reed Bunting show the same direction of population change for both plot and national population trends. Only for Pied Wagtail has there been an increase in the population on the plot compared to the decline experienced nationally. Yellow Wagtail has experienced the largest decline in population nationally over this time period, but numbers on this plot have remained constant. Regional and national trends are similar for the majority of species concerned, the main exceptions being Lapwing, which increased regionally relative to national and plot trends, Kingfisher which increased regionally in line with national trends but decreased on this plot and Pied Wagtail which increased regionally on this plot compared to a decline nationally.

**Table 4.1** WBS results from Otley Bridge to Poole Weir (3.8km) between 1999 and 2002

Species <sup>a</sup>	Number of territories per 10 km for each year (density)			Mean number of territories per 10 km for 1999-2002 (3 years) <sup>b</sup>	Population trend between 1991 to 2002 <sup>c</sup>	Regional trend over the same period	National trend over the same period (up to year 2000) <sup>d</sup>
	1999	2000	2002				
Great Crested Grebe	11	5	5	7.0 ⊕	Large decrease	*	*
<i>Mute Swan</i>	3	3	3	2.6 ∇	Large decrease	83% ↑	47% ↑
Greylag Goose	16	16	32	21.1 ⊕	Large increase	>2000% ↑	>500% ↑
Canada Goose	29	26	32	28.9 ⊕	Large increase	>900% ↑	197% ↑
Mallard	166	139	121	142.1 ⊕	Large decrease	45% ↑	39% ↑
<i>Pochard</i>	0	0	3	0.9	Large increase	*	*
Tufted Duck	8	3	24	11.4 ⊕	Decrease	369% ↑	19% ↑
Goosander	3	3	3	2.6 ⊕	Large increase	*	61% ↑
Moorhen	5	3	5	4.4 ∇	Large decrease	39% ↑	7% ↑
Coot	32	16	18	21.9 ⊕	Large decrease	69% ↑	2% ↑
<i>Oystercatcher</i>	3	5	3	3.5 ∇	Large decrease	14% ↑	3% ↑
<i>Lapwing</i>	21	5	11	12.3 ⊕	Large decrease	19% ↑	14% ↓
<i>Curlew</i>	3	3	0	1.8 ⊕	Large decrease	23% ↓	11% ↑
<i>Kingfisher</i>	3	3	3	2.6 ⊕	Large decrease	8% ↑	14% ↑
Dipper	3	0	3	1.8 ⊕	Large decrease	14% ↓	4% ↓
Whitethroat	5	3	0	2.6 ∇	Large decrease	53% ↑	102% ↑
Pied Wagtail	3	5	3	3.5 ∇	Large increase	20% ↑	17% ↓
<i>Grey Wagtail</i>	3	5	5	4.4 ⊕	Large decrease	13% ↑	1% ↑
<i>Yellow Wagtail</i>	3	3	0	1.8 ⊕	No change	38% ↓	71% ↓
<b>Reed Bunting</b>	5	0	3	2.6 ∇	Large decrease	36% ↓	16% ↓

\* insufficient data

<sup>a</sup> species in bold are those categorised as red and those italicised are amber according to the Birds of Conservation Concern listing (Gregory *et al.* 2002).

<sup>b</sup> '⊕' indicates mean density on the plot is higher than national average between 1997-2001 and '∇' indicates mean density on the plot is lower than national average between 1997-2001

<sup>c</sup> Doubling or more (≥50%) = large increase, 1 to 49% increase = increase, constant = no change, 1 to 49% decrease = decrease and halving or more (≥50%) = large decrease

<sup>d</sup> symbol '↑' indicates % increase, '↓' indicates a decline



## 4.2 Thorpe Arch to Tadcaster (plot 363)

A total of 18 species are recorded holding territories along this stretch of the River Wharfe (Table 4.2). One species the Tufted Duck is new to the list of territory-holding species since 1998, whilst three species; Teal, Redshank and Common Sandpiper which all held territories prior to 1998 are no longer recorded.

**Table 4.2** WBS results from Thorpe Arch to Tadcaster (6.2km) between 1999 and 2002

Species <sup>a</sup>	Number of territories per 10 km for each year (density)			Mean number of territories per 10 km for 1999-2002 (density) <sup>b</sup>	Population trend between 1990 to 2002 <sup>c</sup> (12 surveys)	Regional trend over the same period	National trend over the same period (up to year 2000) <sup>d</sup>
	1999	2000	2002				
<i>Mute Swan</i>	2	2	3	2.2 ∇	Increase	18% ↓	54% ↑
Greylag Goose	6	10	10	8.6 ⊕	Large increase	>3000% ↑	>900% ↑
Canada Goose	15	16	6	12.4 ⊕	Large increase	>7000% ↑	190% ↑
Mallard	39	39	48	41.9 ⊕	Increase	39% ↑	49% ↑
Tufted Duck	2	3	5	3.2 ⊕	Large increase	201% ↑	17% ↑
Goosander	6	11	6	8.1 ⊕	Large increase	*	180% ↑
Moorhen	24	23	24	23.7 ⊕	Increase	24% ↑	6% ↑
Coot	2	3	2	2.2 ∇	Large increase	59% ↑	3% ↑
<i>Oystercatcher</i>	2	2	2	1.6 ∇	Large decrease	17% ↑	1% ↑
<i>Lapwing</i>	8	21	0	9.7 ⊕	Large decrease	7% ↓	18% ↓
<i>Curlew</i>	5	3	3	3.8 ⊕	Large decrease	2% ↑	11% ↑
<i>Kingfisher</i>	3	3	2	2.7 ⊕	Large decrease	18% ↓	18% ↑
Sedge Warbler	18	19	16	17.7 ⊕	Decrease	18% ↑	7% ↓
Whitethroat	2	6	5	4.3 ∇	Large decrease	13% ↓	120% ↑
Pied Wagtail	2	3	0	1.6 ∇	Large decrease	7% ↓	16% ↓
<i>Grey Wagtail</i>	0	2	0	0.5 ∇	Large decrease	25% ↓	4% ↓
<i>Yellow Wagtail</i>	2	2	0	1.1 ⊕	Large decrease	72% ↓	74% ↓
<b>Reed Bunting</b>	15	15	10	12.9 ⊕	Decrease	10% ↓	16% ↓

<sup>a</sup> species in bold are those categorised as red and those italicised are amber according to the Birds of Conservation Concern listing (Gregory *et al.* 2002).

<sup>b</sup> '⊕' indicates mean density on the plot is higher than national average between 1997-2001 and '∇' indicates mean density on the plot is lower than national average between 1997-2001

<sup>c</sup> Doubling or more (≥50%) = large increase, 1 to 49% increase = increase, constant = no change, 1 to 49% decrease = decrease and halving or more (≥50%) = large decrease

<sup>d</sup> symbol '↑' indicates % increase, '↓' indicates a decline

Ten out of the eighteen species have experienced declines in population since 1990 on this plot, with all but two of these undergoing declines equal to or greater than 50%. All but four of these species have experienced similar national declines. Whitethroat has experienced a large national increase, but shows a large decline on this plot. Mute Swan, Mallard, Tufted Duck, Moorhen and Coot have shown population increases on this plot and nationally. In drawing comparisons with the regional trends over the same period, it is important to be cautious, due to the small number of plots from which the trends are derived. Regional and national trends are similar for the majority of the species concerned. The main exceptions being Sedge Warbler, which increased regionally relative to national and plot trends, and Kingfisher and Whitethroat, which increased nationally but decreased regionally and on this plot.

## **5. WBBS RESULTS FROM THE RIVER WHARFE**

Results are given for the single WBBS plot; giving the counts of birds for each of the two years surveyed (1999 & 2000) and also the mean count of birds for the two years (Table 5.1). In addition to the information on territories of riparian species obtained from the WBS plot analyses, the list from WBBS includes a number of non-riparian species. These are total counts and not territories. A number of riparian species recorded holding territories on WBS plots on the River Wharfe are absent from the WBBS list; Mute Swan, Greylag Goose, Canada Goose, Pochard, Coot, Kingfisher, Whitethroat, Reed Bunting and Sedge Warbler. Due to the short time period covered (two years), no population trends are provided.

**Table 5.1** WBBS results from between 1999 and 2000 for the single stretch on the River Wharfe

Species	Maximum number of birds recorded <sup>a</sup>			Species	Maximum number of birds recorded <sup>a</sup>		
	1999	2000	Mean		1999	2000	Mean
Grey Heron	2	1	1.5	Dipper	4	2	3
Wigeon	0	2	1	Wren	1	4	2.5
Mallard	66	85	75.5	Dunnoek	1	1	1
Tufted Duck	0	1	0.5	Robin	3	4	3.5
Goosander	8	4	6	Blackbird	15	13	14
Pheasant	2	6	4	Song Thrush	2	4	3
Moorhen	2	3	2.5	Mistle Thrush	5	2	3.5
Oystercatcher	10	16	13	Garden Warbler	1	1	1
Lapwing	1	0	0.5	Blackcap	2	2	2
Curlew	5	6	5.5	Wood Warbler	3	3	3
Common Sandpiper	8	9	8.5	Willow Warbler	16	16	16
Black-Headed Gull	9	12	10.5	Spotted Flycatcher	0	1	0.5
Lesser Black-Backed Gull	7	1	4	Blue Tit	14	17	15.5
Feral Pigeon	4	4	4	Great Tit	7	3	5
Stock Dove	1	0	0.5	Nuthatch	1	0	0.5
Woodpigeon	2	5	3.5	Treecreeper	1	0	0.5
Swift	50	19	34.5	Magpie	2	2	2
Green Woodpecker	0	2	1	Jackdaw	63	48	55.5
Great Spotted Woodpecker	1	0	0.5	Rook	13	5	9
Sand Martin	23	21	22	Carrion Crow	5	5	5
Swallow	1	7	4	Starling	31	18	24.5
House Martin	12	0	6	House Sparrow	3	6	4.5
Meadow Pipit	4	0	2	Chaffinch	38	30	34
Yellow Wagtail	1	0	0.5	Greenfinch	2	0	1
Grey Wagtail	3	4	3.5	Goldfinch	4	2	3
Pied Wagtail	2	5	3.5				

<sup>a</sup> The number of birds of each species recorded includes birds in the three distance categories and in flight (summed) and is taken as the maximum of the counts from the two visits. As it involves only counts of the birds, no subsequent territories are mapped.

## 6. DISCUSSION

Otley Bridge to Poole Weir has the highest number of bird species of the two plots and has three species (Great Crested Grebe, Pochard and Dipper) which do not hold territories on the section between Thorpe Arch and Tadcaster. In contrast, the section between Thorpe Arch to Tadcaster has one species, the Sedge Warbler, that is not recorded at the other plot. For ten species (Greylag Goose, Canada Goose, Goosander, Oystercatcher, Lapwing, Curlew, Kingfisher, Whitethroat, Grey Wagtail and Reed Bunting), population trends are in the same direction on the two plots on the River Wharfe. In contrast, Mute Swan, Mallard, Tufted Duck, Moorhen, Coot, Pied Wagtail and Yellow Wagtail have contrasting population trends between the two plots.

Both plots have lower mean territory densities compared to the national WBS densities for Mute Swan, Oystercatcher, Pied Wagtail and Whitethroat. This is also the case for regional mean densities, except for Mute Swan. In addition, Curlew, Grey Wagtail and Dipper (plot 392 only) occur at lower densities on the two River Wharfe plots compared to the regional densities. However, the River Wharfe is important for a number of species that occur at higher densities there than regionally or nationally. Reed Bunting is a red-listed species and occurs at higher densities between Thorpe Arch to Tadcaster in both a regional and national context. The River Wharfe is also important for a number of amber-listed species; Lapwing, Curlew, Kingfisher and Yellow Wagtail (all of which occur at higher mean densities on the River Wharfe than nationally). In a regional context, this is also the case for Lapwing, Kingfisher, and Yellow Wagtail (plot 392 only). Amber-listed species which occur at lower mean densities on the River Wharfe plots than nationally include Mute Swan and Oystercatcher and in the regional context, Curlew and Oystercatcher.



## 7. CONCLUSION

The River Wharfe holds important numbers of birds and several bird species occur at higher mean densities in the middle to lower reaches of the river than nationally, for the period considered. This is the case for the sole red listed species, Reed Bunting and also amber listed species such as Lapwing, Curlew, Kingfisher and Yellow Wagtail. The area holds lower mean numbers of Curlew compared to regional densities and also lower densities of Oystercatcher in regional and national contexts.

The WBS monitors riparian species during the breeding season and does not cover species that breed away from the river, but may still make extensive use of riparian habitat. Hence, the River Wharfe and the surrounding habitats may be important for a number of additional species, such as Swallow and Grey Heron. For a more comprehensive assessment, it would be important to continue monitoring the River Wharfe and to expand coverage further upstream beyond the two plots included in this report. This would allow the monitoring of changes in the populations of a number of species more characteristic of the upper reaches of the Wharfe, such as Dipper and Common Sandpiper. The most recent population status of the Common Sandpiper is unknown as it was not recorded on either of the two plots. Dippers only occurred on the plot in the middle reach of the river and experienced a decline in agreement with national and regional trends over the same time period. Whether or not this decline is apparent in the upstream section is unknown. Grey Wagtail experienced a decline on both plots and has higher mean density compared to the national density on only one of the two plots. Goosander was identified as one of the key breeding species on the River Wharfe in the previous BTO report, and the species remains at a higher mean density than national averages. Dipper, Common Sandpiper, Grey Wagtail and Goosander have specific habitat requirements, unlike more generalist species that can utilise a range of habitat conditions. Further monitoring of the upper reaches would be necessary to ascertain their present population status of these species and identify any adverse effects of habitat alteration.





## References

Gregory, R. D., Wilkinson, N. I., Noble, D. G., Robinson, J. A., Brown, A. F., Hughes, J., Proctor, D. A., Gibbons, D. W. & Galbraith, C. A. (2002). *The population status of birds in the UK: Birds of conservation concern: 2002-2007*. *British Birds* **95**, 410-450.

Wilson, A.M. (1998). *Waterbird Populations on the River Wharfe and River Ure*. BTO Research Report No. 207. British Trust for Ornithology, Thetford.

