British Trust for Ornithology

BTO Research Report No. 269

A Winter Bird Audit for the Colworth Estate 1999/2000, 2000/2001

Authors

I.G. Henderson, N.A. Clark & S. Gough

A report by the British Trust for Ornithology under contract to
Unilever UK Central Resources Ltd

October 2001

British Trust for Ornithology, The Nunnery, Thetford, Norfolk, IP24 2PU
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1. INTRODUCTION

The Colworth Estate is partly located along the Central Geensand Ridge and is one of only two remaining areas of extensive semi-natural woodland in Bedfordshire. The woodland area is a County Wildlife site comprising ash, maple and oak, mainly with an open, light understorey of hazel and bramble-dominate scrub (also Spindle and Guelder Rose). In many parts the understorey is underdeveloped either due to a high density of young trees or as a result of deer browsing. The current management policy for the woodland includes coppice regrowth and some replanting of woodland. There is, however, little evidence of dead timber or fallen wood that is normally a valuable commodity for wildlife.

The woodland occupies around 20% of the area of Colworth Estate. Arable land occupies around 75% of the estate with recreational areas accounting for perhaps 5%. Scrub and hedgerows make up around 1% of the area. A history of hedgerow and scrub management at Colworth includes widespread removal particularly during the early period of the 20th century. This was followed by extensive re-establishment during 1990s. Apart from birds, the estate is notable for butterflies, such as Marbled White *Melanargia galathea* and mammals such as the Dormouse *Muscardinus avellanarius*. The farmed area is mainly conventionally managed, productive arable land, subject to Good Arable Practice cultivation, weed and pest control. Within the estate, is an area of around 60 ha (1/5th of the estate) that is allocated to research and sustainable agriculture. In 1999/2000, this area was mainly arable land, with additional grass margins, hedgerows and woodland edge (Fig. 1). The arable land was a complex of cereal stubbles, winter cereals and oilseed rape.

2. SURVEY METHODS

The BTO carried out a total of five morning survey visits (between 0930 and 1330 hrs) to the estate. Two visits occurred between December 1999 and January 2000 and three visits occurred between December 2000 and February 2001. The observer in each case circumnavigated the estate including the woodland areas and sample transects across open areas of farmland. Bird numbers were counted on each visit to provide a measure of relative abundance of diurnal species (Marchant *et al.* 1990). The areas of six distinct habitats: arable; grassland; recreational land; woodland; hedgerows/scrub and yards (including dwellings) were estimated from maps of the site and bird densities calculated for each habitat. No counts were carried out in heavy rain or winds greater than force 4. Although the whole site was covered in the survey, the survey is a sample from which relative estimates of bird numbers (densities) and variety (species richness) are generated for different winter habitat categories.

3. SPECIFIC HABITATS

3.1 Woodland

Although there are some wildlife management initiatives implemented on the Colworth Estate (Shepherd 1994), game interests are mainly implicit within the historical and current management strategies. The woodland area is subject to a management system that favours natural regeneration, and thus maintains a varied structure and character for the woodland as a whole, but presents a fairly open and accessible composition within the interior. Large patches of deadwood are particularly lacking in parts of Colworth Thicket and Round Wood. The woodland areas were, nevertheless, highest among habitat categories in terms of species richness (37 species) and abundance (Table 1; Fig. 1), although many of the birds recorded there (including Chaffinch, Yellowhammer, Dunnock) were associated with feeders set up to encourage game birds (i.e. Pheasant, Grey Partridge and Red-legged Partridge). Typical woodland birds were well represented and varied, including Greater Spotted Woodpecker, Robin, Blackbird, and tit species (especially Blue, Great, Marsh and Long-tailed Tits), Nuthatch, Treecreeper, Dunnock and Goldcrest). The mature content of the woodland areas was reflected in the relatively common occurrence of Nuthatch (up to eight calling birds) and Treecreeper. The Bullfinch, which has declined nationally by around 40% since the 1970s, was also well represented (13 individuals recorded), although the densities were not exceptional, being equivalent to only one third of those recorded in exceptional prime breeding habitats (i.e. 0.25 *pairs* ha^{-1}; Newton 1979). The presence of Bullfinch, however, reflects the variable structure of the woodland fringe, including a well developed shrub edge. Brambles, dock seeds and ash buds are principal winter foods of Bullfinch (Lack 1986) so woodland edge thickets and scrub would benefit this species. In contrast, Wren were not commonly encountered within the woodland areas. Although their numbers fluctuate widely from winter to winter according to weather extremes, following two mild winters, their relative scarcity probably reflects the lack of low-growing understorey within the woodland interior.

Other notable species included Woodcock, which are often associated with the type of open coppice woodland found at Colworth, and were common within the wooded areas of the site (eight recorded). Also very large numbers of Woodpigeons (over 2000) were recorded around the farm, of which the majority were roosting within the wooded areas.

3.2 Scrub and Hedgerows

Scrub, in the form of hawthorn, rose species and hazel, and thickets (such as blackthorn) are particularly valuable as cover and a source of food for many bird species in both winter and summer. The scrub and hedgerow areas that currently exist, occupy only a very small proportion of the area of the estate (less than 1%) and in general the habitat was relatively impoverished. The majority of hedgerows were less than 2 m wide and less than 1.5 m tall, and often highly fragmented with gaps, with a thin, underdeveloped base and little or no grass fringe along the hedge bottom. Despite this, scrub and hedgerows supported the highest densities of at least four bird species at Colworth (Table 6, Fig. 2), they being Wren, Dunnock, Blackbird and Chaffinch.

Tall, well developed hedges, or thickets in the corners of fields, and particularly along south-facing borders of woodlands, would greatly increase the value of the site for two of the BAP species recorded in winter, Bullfinch and Song Thrush. Other species, including those

currently in decline on farmland (e.g. Turtle Dove in summer, Blackbird and Yellowhammer) would very much benefit from a well developed woodland edge/hedgerow/scrub mosaic.

3.3 Arable Fields

Beyond the SAP area, the arable fields represented 66% of the surveyed area but supported very few birds, with the exception of a large flock of Woodpigeons (over 500 in one particular count) and one significant flock of Lapwing (47) on winter cereals. Rook (up to 10) were occasionally recorded foraging on fields, but expected species such as Meadow Pipit and Skylark were relatively scarce during the survey (e.g. averaging at best, only one Skylark per 40 hectares for that species). In the first year of the survey, no large flocks of finches, buntings or sparrows were recorded on the arable land. However, in 2000/2001 flocks of around 30 Linnet and 20 Tree Sparrow (both important BAP species) and up to 70 Yellowhammer were being recorded on farmland. These birds tended to use the intact late winter stubble fields on the SAP area and adjacent farmland, emphasising the importance of such habitats for the provision of winter food for seed-eating birds.

3.4 Golf Course

A golf course offers a grassland habitat for Blackbird, Rook and Starling due to the mown grassland that presents an accessible resource of earthworms. Most species were at low density. There is increasing interest in managing the fringes and fairways of golf courses to be more acceptable to wildlife, but clearly this has to be managed within the framework of the obvious recreational constraints applied to such sites. Unsprayed, infrequently cut rough areas around the fairways and greens would provide good winter habitats for Grey Partridge(BAP), Song Thrush(BAP), Blackbird, Skylark(BAP) and Meadow Pipit.

4. DISCUSSION: SPECIES COMPOSITION AND ABUNDANCE

In total 55 bird species were recorded on site (Table 1). They included eight species of high conservation concern that are the subject of national Biodiversity Action Plans (BAP) (BAPs), such as, Grey Partridge, Skylark, Song Thrush, Tree Sparrow, Bullfinch, Linnet and Reed Bunting. Yellowhammer are considered of medium conservation interest having suffered a more recent decline of 40% on farmland since the late 1980s (Fuller *et al.* 1995). At Colworth, this species was encountered across the farmland areas where it appears to hold a strong winter population.

Other than very large numbers of Woodpigeons, the commonest recorded species on site were Great and Blue Tits, Chaffinch, Robin and Blackbird (Table 1). These species were common and widespread throughout the woodland areas of the estate. They reflect the well developed tree canopy and a relatively tall understorey. By contrast, in woodland areas, Wrens were relatively scarce and mainly recorded along the woodland fringe. Their scarcity may have reflected a lack of low shrubby herbage within the woodland interiors. The most effective policy for maintaining the bird interest of the woodland areas of the estate would be to encourage the development of the understorey (by thinning trees and creating glades), as well as the scrub and thicket boundaries and by allowing dead wood to create gaps, structure and a resource of food and shelter. Browsing by deer may deter some scrub development but careful tree thinning to allow light through the canopy and sympathetic management of field boundaries along woodland edges would benefit the winter bird populations on the estate. Such habitats create opportunities for birds within the woodland in summer too. Nightingales and Garden Warblers, both of which were surprisingly scarce as breeding birds at Colworth, would be two summer migrants likely to benefit from a thicker understorey.

On farmland, Woodpigeon, Skylark, Jackdaw, Rook, Carrion Crow and Yellowhammer were the commonest species, with each one exploiting recently turned stubbles and tending to aggregate on the SAP area. After the second winter, the densities of Woodpigeons, crow species and, in particular, Yellowhammer, Tree Sparrow and Linnet were higher than average for much current lowland farmland in England. Skylarks were patchily distributed, but again in 2000/2001, larger flocks aggregated in open areas where turned soil or stubbles were present. In general, the density of Skylark was about average for lowland arable, and much lower than densities on weed fallows (e.g. set-aside) in other studies (Buckingham *et al.* 1999), but their numbers in winter appeared to be increasing. Grey Partridges were only occasionally recorded as one or two birds, with no large groups found. This species is now very scare in southern Britain, but undisturbed, unsprayed weedy grass margins and stubbles would help establish this species at Colworth. Also just one large flock of Lapwing was recorded on site (Table 1) and in general this species remained scarce even though flocks frequently passed overhead. Again, for this species, extensive, late-winter weedy fallow land, set-aside or lightly cultivated stubbles would provide appropriate habitat outside of the breeding season, as well as benefit Grey Partridge, Reed Bunting, Yellowhammer, Linnet, Skylark and Tree Sparrow on the site.

5. SUMMARY POINTS

Colworth supports a very varied landscape and bird community. The habitats include: open farmland (for Lapwing, Skylark, Meadow Pipit); enclosed farmland with well-developed hedgerows (for thrushes, finches and Yellowhammer); limited areas of damp grassland (essential for Snipe and Reed Bunting); grassland margins (for Grey Partridge, pipits, thrushes, finches and buntings); young and mature woodland (for all typically woodland canopy species). There is limited scrub along the boundaries of some woodlands (for Wren, Dunnock and Bullfinch). The woodland areas held the greatest variety of birds, supporting typical species (tits, thrushes, Treecreeper, Nuthatch and Wren), but the contribution of scrub and hedgerow habitats was highest in proportion to the area covered.

5.1 Potential Improvements

- More extensive areas of weedy fallow land (e.g. set-aside) or longer-term over-winter stubbles would encourage Lapwing, Skylark, buntings and Tree Sparrow onto open areas.

- Infrequently cut (bi-annually) grass margins would benefit many species, including Grey Partridge, Goldfinch, Greenfinch and Linnet, Reed Bunting and Yellowhammer.

- Thinning out of some of the woodland saplings (e.g. in parts of Colworth Thicket and Round Wood) and perhaps occasional mature trees would encourage glades and a thicker understorey. This would benefit Wren, Dunnock and thrush species in winter, warbles and Nightingales in summer. Since dead wood was especially lacking in many areas of woodland, fallen trees that are left to rot *in situ* would add an exceptionally valuable habitat component, providing structure, food provision and sites of shelter for many birds, such as Greater and Lesser Spotted Woodpeckers, tits, Treecreepers and Nuthatches.

- Around farmland, corners for scrub or thickets of blackthorn, hawthorn and brambles are key habitats for woodland edge birds, especially Bullfinch, but also tits, thrushes, Dunnock, finches and buntings.

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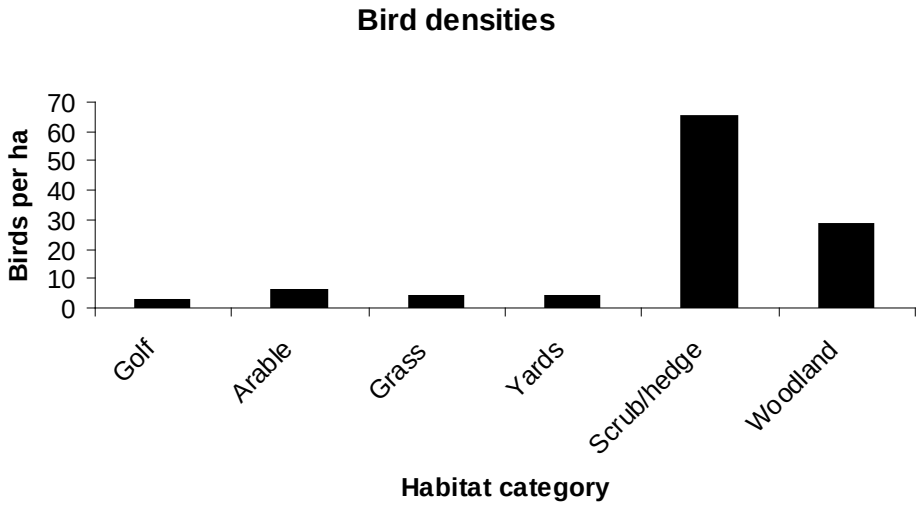
	Maximum counts per visit						Maximum densities per visit					
Species	**Golf**	**Arable**	**Grass**	**Yards**	**Scrub/ hedge**	**Wood**	**Golf**	**Arable**	**Grass**	**Yards**	**Scrub/ hedge**	**Wood**
Sparrowhawk	0	0	0	0	0	2	0.00	0.00	0.00	0.00	0.00	0.02
Buzzard	0	0	0	0	0	1	0.00	0.00	0.00	0.00	0.00	0.01
Kestrel	0	0	0	1	1	0	0.00	0.00	0.00	0.16	0.37	0.00
Merlin	0	1	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00
R-l Partridge	0	0	0	0	4	3	0.00	0.00	0.00	0.00	0.70	0.04
Grey Partridge	0	2	0	0	2	0	0.00	0.01	0.00	0.00	1.48	0.04
Pheasant	0	0	0	1	52	41	0.00	0.00	0.00	0.16	19.26	0.50
Moorhen	0	0	0	0	1	0	0.00	0.00	0.00	0.00	0.37	0.00
Lapwing	0	47	0	0	0	0	0.00	0.20	0.00	0.00	0.00	0.00
Golden Plover	0	10	0	0	0	0	0.00	0.04	0.00	0.00	0.00	0.00
Woodcock	0	0	0	0	0	7	0.00	0.00	0.00	0.00	0.00	0.09
Snipe	0	0	2	0	0	0	0.00	0.00	0.12	0.00	0.00	0.00
LB-b Gull	6	0	0	0	0	0	0.37	0.00	0.00	0.00	0.00	0.00
B-h Gull	6	0	0	0	0	0	0.37	0.00	0.00	0.00	0.00	0.00
Stock Dove	0	9	0	0	2	4	0.00	0.04	0.00	0.00	0.74	0.05
Woodpigeon	0	601	0	0	8	2000	0.00	2.50	0.00	0.00	2.96	24.45
Collared Dove	2	0	0	0	0	0	0.12	0.00	0.00	0.00	0.00	0.00
Little Owl	0	0	0	0	1	0	0.00	0.00	0.00	0.00	0.37	0.00
G. Woodpecker	0	0	1	0	0	2	0.00	0.00	0.06	0.00	0.00	0.02
GS Woodpecker	0	0	0	0	0	3	0.00	0.00	0.00	0.00	0.00	0.04
Skylark	0	53	0	0	0	0	0.00	0.12	0.00	0.00	0.00	0.00
Pied Wagtail	2	9	0	2	1	0	0.12	0.04	0.00	0.31	0.37	0.00
Starling	3	48	28	0	0	3	0.18	0.20	1.68	0.00	0.00	0.04
Jay	0	0	0	0	1	3	0.00	0.00	0.00	0.00	0.37	0.04
Magpie	0	0	0	0	1	2	0.00	0.00	0.00	0.00	0.37	0.02
Jackdaw	0	255	15	0	11	11	0.00	1.06	0.90	0.00	4.07	0.13
Rook	4	241	6	0	0	0	0.25	1.00	0.36	0.00	0.00	0.00
Carrion Crow	0	9	0	0	5	10	0.00	0.04	0.00	0.00	1.85	0.12
Wren	0	0	0	0	2	15	0.00	0.00	0.00	0.00	0.74	0.18
Dunnock	0	0	0	0	6	9	0.00	0.00	0.00	0.00	2.22	0.11
Goldcrest	0	0	0	0	0	12	0.00	0.00	0.00	0.00	0.00	0.15
Robin	0	0	0	2	19	28	0.00	0.00	0.00	0.31	7.04	0.34
Blackbird	6	10	2	4	18	28	0.37	0.04	0.12	0.63	6.67	0.34
Redwing	0	0	16	0	16	3	0.00	0.00	0.96	0.00	5.93	0.04
Song Thrush	0	1	0	0	4	5	0.00	0.00	0.00	0.00	1.48	0.06
Mistle Thrush	0	0	0	1	0	4	0.00	0.00	0.00	0.16	0.00	0.05
Fieldfare	0	0	0	4	48	10	0.00	0.00	0.00	0.63	17.78	0.12
Marsh Tit	0	0	0	0	1	16	0.00	0.00	0.00	0.00	0.37	0.20
Willow Tit	0	0	0	0	0	1	0.00	0.00	0.00	0.00	0.00	0.01
Blue Tit	1	0	0	4	8	29	0.06	0.00	0.00	0.63	2.96	0.35
Coal Tit	0	0	0	0	1	3	0.00	0.00	0.00	0.00	0.37	0.04
Great Tit	0	0	0	1	16	17	0.00	0.00	0.00	0.16	5.93	0.21
L-t Tit	0	0	0	0	14	22	0.00	0.00	0.00	0.00	5.19	0.27
Nuthatch	0	0	0	0	0	9	0.00	0.00	0.00	0.00	0.00	0.11
Treecreeper	0	0	0	0	2	4	0.00	0.00	0.00	0.00	0.74	0.05
Tree Sparrow	0	5	0	0	20	0	0.00	0.02	0.00	0.00	7.41	0.00
H Sparrow	0	0	0	5	0	0	0.00	0.00	0.00	0.78	0.00	0.00
Chaffinch	0	8	0	1	26	28	0.00	0.03	0.00	0.16	9.63	0.34
Bullfinch	0	0	0	0	13	4	0.00	0.00	0.00	0.00	4.81	0.05
Greenfinch	0	9	0	0	3	2	0.00	0.04	0.00	0.00	1.11	0.02
Siskin	2	0	0	0	0	3	0.12	0.00	0.00	0.00	0.00	0.04
Goldfinch	11	4	0	0	9	2	0.67	0.02	0.00	0.00	3.33	0.02
Redpoll	0	0	0	0	4	2	0.00	0.00	0.00	0.00	1.48	0.02
Linnet	0	26	0	0	4	0	0.00	0.11	0.00	0.00	1.48	0.00
Yellowhammer	0	78	0	0	35	2	0.00	0.32	0.00	0.00	12.96	0.02
Reed Bunting	0	3	0	0	3	0	0.00	0.01	0.00	0.00	1.11	0.00
	No. of species						**Total density of birds**					
	9	15	6	11	31	36	2.64	5.79	4.19	4.06	133.33	28.72

Table 1 Maximum counts and densities of birds per visit, recorded on six habitats following five winter survey visits to the Colworth Park Estate.



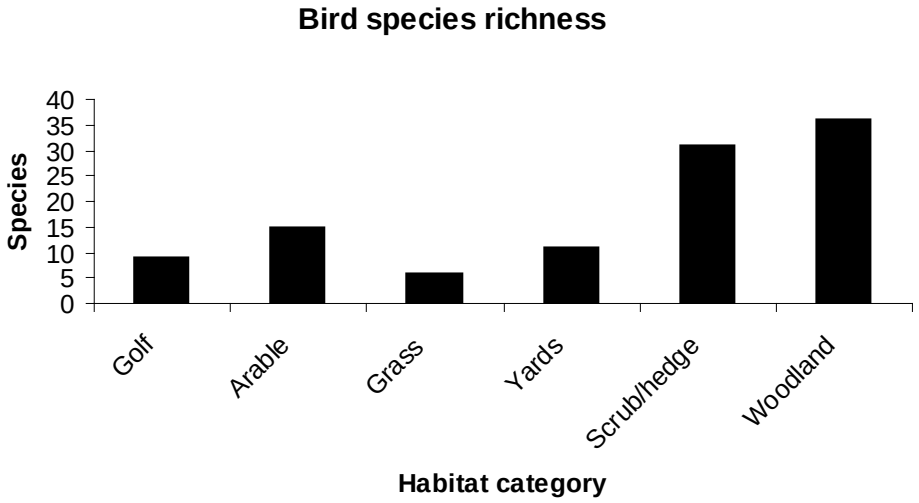


Figure 2 The maximum densities (all species combined) and total number of species associated with six habitat categories at Colworth Park.

APPENDIX 1

A list of bird species mentioned in the text, with scientific binomials

Species	Species
Mallard *Anas platyrhynchos* L.	Robin *Erithacus rubecula* L.
Kestrel *Falco tinnunculus* L.	Blackbird *Turdus merula* L.
Pheasant *Phasianus colchicus* L.	Song Thrush *T. philomelos* Brehm
Red-legged Partridge *Alectoris rufa* L.	Mistle Thrush *T. viscivorus* L.
Grey Partridge *Perdix perdix* L.	Rook *Corvus frugilegu* L.
Lapwing *Vanellus vanellus* L.	Jackdaw *C. monedula* L.
Turtle Dove *Streptopelia turtur* L	Carrion Crow *C. corone* L.
Collared Dove *S. decaocto* L.	Magpie *Pica pica* L.
Stock Dove *C. oenas* L.	Starling *Sturnus vulgaris* L.
Wood Pigeon *Columba palumbus* L.	House Sparrow *Passer domesticus* L.
Green Woodpecker *Picus viridis L.*	Tree Sparrow *Passer montanus* L.
Skylark *Alauda arvensis* L.	Siskin *C. spinus* L.
Meadow Pipit *A. pratensis* L.	Greenfinch *C. chloris* L.
Pied Wagtail *Motacilla alba* L.	Goldfinch *Carduelis carduelis* L.
Yellow Wagtail *M. flava* L.	Linnet *C. cannabina* L.
Wren *Troglodytes troglodytes* L.	Bullfinch *Pyrrhula pyrrhula* L.
Dunnock *Prunella modularis* L.	Chaffinch *Fringilla coelebs* L.
Whinchat *Saxicola rubetra* L.	Yellowhammer *E. citrinella* L.
Stonechat *Saxicola torquata* L.	Reed Bunting *Emberiza schoeniclus* L.
Wheatear *Oenanthe oenanthe* L.	Corn Bunting *Miliaria miliaria* L. GR