10. Tables

Table 1. Land-use types on each of the six farms in the Sussex study area in 1970 and 1994, expressed as percentages of the total area that they cover on each farm. The total coverage is also given, in hectares.

Crop	Farm 1		Farm 2		Farm 3		Farm 4		Farm 5		Farm 6	
	1970	1994	1970	1994	1970	1994	1970	1994	1970	1994	1970	1994
Grass (r)	34	24	34	0	24	0	15	0	21	0	5	0
Grass (nr)	2	20	9	20	20	87	3	7	5	18	5	41
Miscellaneous	6	0	0	32	4	6	2	15	10	0	27	15
Spring barley/ wheat	29	25	27	0	24	5	57	3	54	1	20	5
Winter barley/ oats	0	0	7	17	0	0	3	14	5	0	18	5
Winter wheat	21	17	20	25	28	0	9	38	2	62	12	14
Set-aside	0	6	0	4	0	0	0	9	0	17	0	8
Woodland/ scrub	1	1	3	3	1	1	3	7	1	1	10	9
Scrubby downland	0	0	0	0	0	0	7	6	<1	<1	3	3
Downland turf	6	6	0	0	0	0	0	0	0	0	0	0
Total area (ha)	**287**	**271**	**443**	**448**	**200**	**339**	**687**	**703**	**462**	**528**	**851**	**865**

Table 2. The total area, in hectares, of crops sprayed with insecticide during May and June 1994 for each farm within the study area, compared to the maximum area on each farm that could have been treated with insecticide during this period. The last column represents the area sprayed as a percentage of the potential maximum sprayed area.

Farm	Application dates	Area sprayed (ha)	Maximum potential area sprayed (ha)	% sprayed
1		0	120	0
2	27-5 to 16-6-94	216	325	66
3		0	39	0
4		0	493	0
5	5/6-6-94	328	366	90
6	10-6-94	20	335	6
Total		**564**	**1678**	**34**

Table 3. Trade names, active ingredients and nature of all insecticides used within the study area between sowing and 1994 harvest.

Trade name	Active ingredient	Nature
Ambush C	Cypermethrin	Broad spectrum
Cyperkill 10	Cypermethrin	Broad spectrum
Toppel	Cypermethrin	Broad spectrum
Cypersect XL	Cypermethrin	Broad spectrum
Dursban	Chlorpyrifos	Broad spectrum
Decis	Deltamethrin	Broad spectrum
Hostathion	Triazophos	Broad spectrum

Table 4. Mean numbers of applications of herbicide, fungicide and insecticide between sowing and 1994 harvest, according to crop type. Numbers shown are for a farm using a modern management system and for a farm retaining a traditional rotational mixed farming regime.

Farm	Crop	Number of fields per crop	Mean number of applications per field		
			Herbicide	Fungicide	Insecticide
Traditional	Winter wheat	5	1	1	0
	Spring barley	6	1	0	0
	Set-aside	1	0	0	0
Modern	Winter wheat	17	1.5	3	1.5
	Set-aside	5	1	0	0

Table 5. Density of singing male Corn buntings (numbers of birds per km^2) for each farm within the Sussex study area in 1970 and 1994, calculated from the average densities within each contour region.

Farm	Corn Bunting density in 1970 (km^{-2})	Corn Bunting density in 1994 (km^{-2})
1	Not surveyed	8.91
2	3.86	3.54
3	1.61	2.94
4	1.70	4.99
5	3.71	5.56
6	1.17	0.80

Table 6. Distances travelled on foraging trips by unpaired male Corn Buntings, in relation to the crop at the start of the trip and the crop which was visited. Observations were made on two farms of the Sussex study area between 22nd June and 19th August 1994.

Farm	Number of visits	Mean distance travelled per male (m)	Crop type at starting point	Crop type at foraging site
Modern	3	350	Set-aside (nr)	Set-aside (nr)
Modern	2	135	Winter wheat	Winter wheat
Modern	2	625	Winter wheat	Set-aside (nr)
Modern	2	278	Winter wheat	Winter wheat
Modern	2	335	Winter wheat	Set-aside (nr)
Modern	2	125	Winter wheat	Winter wheat
Modern	1	45	Set-aside (r)	Set-aside (r)
Modern	4	450	Winter wheat	Set-aside (nr)
Traditional	3	240	Winter wheat	Winter wheat
Traditional	3	90	Spring barley u/s	Spring barley u/s
Traditional	2	85	Spring barley u/s	Spring barley u/s
Traditional	4	110	Spring barley	Spring barley
Traditional	2	200	Winter wheat	Winter wheat

Table 7. Number of male Corn Buntings using each of four song post types on two farms of the Sussex study area, between 31st May and 22nd June 1994.

Song Post Type	Modern farm	Traditional farm
Bush/tree	3	6
Fence/fence post	10	18
Crop/weed	11	1
Power line	1	0
Total	**25**	**25**

Table 8. Farm and habitat type in which the nest was situated for all nests found in the nest study area between 29th June and 19th August 1994. For those nests for which the content and the outcome of the attempt was known, these details are included. The date of finding is given for each nest, and the date on which the outcome was known where applicable. Nests where faecal samples were obtained have been highlighted in bold.

Farm	Date found	Date completed	Contents when found	Habitat	Outcome if known
Traditional	29 June	29 June	Fledged chicks	Unimproved pasture	Success
Traditional	29 June	07 July	3 eggs	Unimproved pasture	Trampled by livestock
Traditional	**30 June**	**04 July**	**4 chicks**	**Unimproved pasture**	**Success**
Traditional	30 June	11 July	5 eggs	Improved pasture	Predation of eggs
Traditional	30 June	12 July	4 eggs	Improved pasture	Desertion of eggs
Traditional	**30 June**	**17 July**	**4 eggs**	**Unimproved pasture**	**Success**
Modern	30 June	05 July	4 chicks	Improved pasture	Starvation of chicks
Modern	30 June		Chicks	Set-aside (r)	
Modern	5 July			Improved pasture	
Traditional	20 July			Improved pasture	
Traditional	28 July	05 August	4 eggs	Unimproved pasture	Desertion of eggs
Traditional	28 July	29 July	4 chicks	Unimproved pasture	Predation of chicks
Traditional	02 August		Chicks	Improved pasture	
Traditional	02 August		Chicks	Unimproved pasture	
Traditional	10 August		Chicks	Unimproved pasture	
Traditional	10 August			Spring barley u/s	

Table 9. Distances travelled on foraging trips by adult Corn Buntings known to be attempting to nest, in relation to the crop at the start of the trip and the crop which was visited. Observations were made on two farms of the Sussex study area between 22nd June and 19th August 1994.

Farm	Number of visits	Mean distance travelled (m)	Crop type at starting point	Crop type at foraging site
Modern	4	295	Grass (nr)	Winter wheat
Modern	2	220	Grass (nr)	Winter barley
Modern	2	150	Set-aside (r)	Set-aside (r)
Traditional	2	870	Downland turf	Spring barley u/s
Traditional	3	227	Downland turf	Winter wheat
Traditional	4	260	Downland turf	Spring barley
Traditional	3	332	Downland turf	Spring barley
Traditional	2	105	Grass (nr)	Spring barley
Traditional	2	112	Grass (r)	Spring barley u/s
Traditional	3	150	Grass (nr)	Spring barley u/s
Traditional	2	178	Grass (nr)	Spring barley u/s
Traditional	1	85	Spring barley u/s	Spring barley u/s
Traditional	2	195	Grass (nr)	Lucerne

Table 10. Composition of Corn Bunting faeces collected from a modern and a traditionally managed farm within the Sussex study area between 30th June and 29th July 1994. The figures given under each invertebrate group are the number of individuals of that group within the faecal sample. The percentage flora is the approximate percentage by volume of the faecal sample that was composed of plant matter.

Table 10 (a). Faecal samples from chicks (all from the traditionally managed farm).

Date	Arachnida*	Carabidae† & Elateridae	Other Coleoptera	Lepidoptera & Symphyta	Other invertebrates‡	% flora
30-6-94 (Nest 1)	2	14	1	3	1	<10
1-7-94 (Nest 1)	1	22	0	1	2	<10
12-7-94 (Nest 2)	3	0	1	4	1	<1
17-7-94 (Nest 2)	0	3	0	1	1	0
TOTAL	6	39	2	9	5	

Table 10 (b). Adult faecal samples from song posts (traditionally managed farm).

Date	Arachnida	Carabidae & Elateridae	Other Coleoptera	Lepidoptera & Symphyta	Other invertebrates‡	% flora
22-7-94	0	2	0	0	0	>90
22-7-94	1	1	3	0	12	>90
26-7-94	0	0	0	0	0	100
26-7-94	0	0	0	0	0	100
TOTAL	1	3	3	0	12	

Table 10 (c). Adult faecal samples from song posts (modern farm).

Date	Arachnida	Carabidae & Elateridae	Other Coleoptera	Lepidoptera & Symphyta	Other invertebrates‡	% flora
25-7-94	0	2	0	0	0	0
25-7-94	1	3	0	0	6	<1
25-7-94	0	1	0	6	1	>95
25-7-94	0	3	1	2	2	<1
25-7-94	0	0	0	0	0	100
28-7-94	1 skin	0	0	0	1 skin	>95
28-7-94	0	0	0	0	0	100
28-7-94	0	0	0	1	0	>95
28-7-94	0	0	0	0	0	100
TOTAL	2	9	1	9	10	

* Araneae & Opiliones
† Mostly *Pterostichus* sp. (probably *P. madidus*)
‡ Including Diptera, Formicoidea, Aphididae, Ichneumonidae and Gastropoda

Table 11. Mean numbers per sample of each of the four main invertebrate groups identified in the Corn Bunting faecal analysis, for each farm in 1970 and 1994. N is the number of D-vac samples.

Farm	Taxon	1970 (Mean ± 1 SE)	1970 N	1994 (Mean ± 1 SE)	1994 N	Significance of decline
Farm 1	Araneae & Opiliones	7.63±2.40	8	4.00±0.89	11	n.s
Farm 1	Carabidae & Elateridae	0.66±0.39	8	0.82±0.33	11	n.s
Farm 1	Other Coleoptera	36.41±7.63	8	9.18±2.24	11	**
Farm 1	Lepidoptera & Symphyta	5.27±1.54	8	4.46±1.22	11	n.s.
Farm 2	Araneae & Opiliones	15.70±3.71	9	3.44±1.09	9	**
Farm 2	Carabidae & Elateridae	1.17±0.33	9	1.00±0.50	9	n.s.
Farm 2	Other Coleoptera	103.29±16.83	9	8.22±1.80	9	***
Farm 2	Lepidoptera & Symphyta	7.63±2.18	9	0.22±0.15	9	**
Farm 4	Araneae & Opiliones	18.62±2.39	28	4.95±0.89	21	***
Farm 4	Carabidae & Elateridae	1.12±0.22	28	0.29±0.12	21	**
Farm 4	Other Coleoptera	122.05±12.84	28	14.29±2.70	21	***
Farm 4	Lepidoptera & Symphyta	18.62±2.39	28	5.23±0.52	21	***
Farm 5	Araneae & Opiliones	12.78±1.41	23	1.57±0.36	14	***
Farm 5	Carabidae & Elateridae	1.87±0.30	23	0.36±0.23	14	***
Farm 5	Other Coleoptera	68.26±12.06	23	1.79±0.33	14	***
Farm 5	Lepidoptera & Symphyta	6.20±1.45	23	0.21±0.11	14	***
Farm 6	Araneae & Opiliones	18.70±1.34	55	5.83±1.04	18	***
Farm 6	Carabidae & Elateridae	1.72±0.29	55	1.17±0.32	18	n.s.
Farm 6	Other Coleoptera	101.09±8.80	55	18.00±2.99	18	***
Farm 6	Lepidoptera & Symphyta	4.15±0.39	55	1.17±0.36	18	***

**: P<0.01, ***: P<0.01, n.s.: not significant

Table 12. Density of singing male Corn Buntings and the crop composition within each density contour region across the Sussex study area in **(a)** March 1970 and **(b)** 31st May to 22nd June 1994. The crop values are percentages of the total area of each contour region occupied by the particular crop. 'Total known area' is the total area of each contour region within the study area, in hectares.

Table 12 (a). Density contour regions in 1970.

Contour	Corn Bunting density (km^{-2})	% area per crop								
		Grass (r)	Grass (nr)	Miscellaneous	Spring barley/ wheat	Winter barley/ oats	Winter wheat	Woodland/ scrub	Scrubby downland	Total known area (ha)
W0	0	11	3	1	59	0	8	4	13	99.00
W1	1.05	15	4	1	53	6	7	6	9	102.05
W2	1.12	18	3	2	52	0	9	2	14	101.12
W3	1.19	25	1	2	37	8	19	<1	7	7
W4	6.78	27	1	0	48	10	11	3	0	106.78
W5	4.56	33	3	0	41	0	23	0	0	104.56
W6	6.76	27	17	0	32	0	22	2	0	106.76
W7	7.74	4	56	0	40	0	0	0	0	107.74
E0	0	2	5	19	16	19	11	8	21	101
E1	1.07	15	2	12	32	8	12	7	12	101.07
E2	1.36	7	4	16	39	9	15	5	6	102.36
E3	1.40	8	13	21	25	11	12	3	7	101.4
E4	1.79	16	9	20	21	12	11	5	5	100.79
E5	7.44	27	4	18	32	5	2	3	8	106.44
E6	2.17	11	0	22	41	4	0	2	20	102.17
E7	11.95	10	0	32	34	2	0	0	22	111.95
E8	8.66	0	0	40	49	0	0	0	11	108.66

Table 12 (b). Density contour regions in 1994.

Contour	Corn Bunting density (km^{-2})	% area per crop										
		Grass (r)	Grass (nr)	Miscellaneous	Spring barley/ wheat	Winter barley/ oats	Winter wheat	Set-aside	Woodland/ scrub	Scrubby downland	Downland turf	Total known area (ha)
W0	0.50	0	22	10	0	3	54	7	2	<1	0	0
W1	2.29	0	20	18	0	7	32	10	7	7	0	103.29
W2	3.56	0	6	30	0	15	13	6	5	11	0	89.56
W3	6.45	0	4	16	0	37	32	11	3	2	0	111.45
W4	7.03	0	6	21	4	15	5	10	5	15	0	88.03
W5	21.58	0	0	25	25	20	20	0	0	22	0	133.58
E0	0.44	0	49	13	6	30	11	6	6	2	0	123.44
E1	2.30	0	40	0	3	1	1	3	3	5	0	58.3
E2	5.57	1	28	2	5	4	4	17	<1	<1	0	0
E3	7.22	6	32	7	4	0	0	13	0	0	<1	70.22
E4	12.77	14	26	0	11	0	0	16	0	0	3	82.77
E5	12.63	36	8	0	24	0	0	0	0	0	9	89.63

Table 13. Estimates of Corn Bunting density (numbers/km^2) associated with three groups of crop types: those representative of mixed rotational farming (spring cereals, rotational grass, set-aside), intensive arable farming (winter cereals) and other crops. The density estimates are the coefficients obtained by regression of crop area against number of buntings (see Methods); those that do not differ significantly from 0 are in parentheses.

Basis for analysis	Year	Mixed rotational	Intensive arable	Other
Contours	1970	3.71	(6.48)	(-11.16)
	1994	25.17	5.13	-6.98
1x1-km grid	1970	2.21	(1.69)	(1.81)
	1994	9.18	4.63	(0.71)
0.5x0.5-km grid	1970	2.87	1.25	(0.92)
	1994	14.06	4.43	2.28

Table 14. Mean numbers of the four main invertebrate groups identified from the Corn Bunting faecal analysis, according to crop type across the Sussex study area in 1970 and 1994. N is the number of samples taken in each crop type in each year, and means are given ± 1 SE.

Crop type	Year	N	Araneae & Opiliones	Carabidae & Elateridae	Other Coleoptera	Lepidoptera Symphyta
Winter wheat	1970	20	21.4±3.4	2.21±0.59	87.7±14.4	4.42±0.74
	1994	48	4.1±0.6	0.50±0.13	9.1±1.4	0.81±0.25
Winter barley	1970	8	19.5±4.3	2.63±1.05	76.5±24.4	4.29±0.69
	1994	9	4.6±1.0	1.44±0.53	10.5±4.5	0.78±0.22
Winter oats	1970	13	22.4±2.8	1.54±0.40	73.0±10.6	2.54±0.53
	1994	2	4.0±3.0	0.50±0.50	13.5±3.5	0.50±0.50
Spring wheat	1970	8	11.9±2.6	0.92±0.31	93.3±34.7	5.12±1.21
	1994	2	3.0±1.0	1.00±1.00	15.9±3.1	0.50±0.50
Spring barley	1970	74	14.6±1.0	1.25±0.14	104.2±7.5	5.74±0.58
	1994	11	4.6±1.1	0.91±0.37	5.1±1.0	4.27±1.57
$F_{4,118}$ †	1970		3.05 *	1.63 n.s.	1.20 n.s.	2.03 n.s.
$F_{4,67}$ †	1994		0.84 n.s.	1.61 n.s.	2.07 n.s.	4.29 **
$F_{1,118}$ ‡	1970		10.95 **	4.90 *	3.24 n.s.	6.16 *
$F_{1,67}$ ‡	1994		0.46 n.s.	0.82 n.s.	5.11 *	13.43 ***

† Test for differences between crops
‡ Test for differences between spring and autumn crops

*: P<0.05, **: P<0.01, ***: P<0.001, n.s.:not significant