

**Supplementary material to the following paper
(available exclusive online)**

Appendix

Table A.1: The number of replicated combinations of villages according to stratification by landscape terrain ruggedness and protection status. Terrain ruggedness was classified into three groups based on terciles covering the entire study area. Sites located within the protected Natura 2000 network are indicated by Sites of Community Importance (SCI, according to the EU Habitats Directive) and Special Protection Areas (SPA, according to EU Birds Directive).

		SCI	SPA	Non-protected
Terrain ruggedness	Low	1	4	4
	Medium	4	3	3
	High	4	3	4

Table A.2: The number of replicated combinations of sites according to stratification by local heterogeneity and woody vegetation cover in arable (A) and grassland (G) sites. Heterogeneity and woody vegetation cover were classified into three groups based on terciles covering the entire study area.

		Heterogeneity					
		Low		Medium		High	
		A	G	A	G	A	G
Woody vegetation cover	Low	11	8	6	8	10	6
	Medium	6	7	7	7	6	9
	High			6	8	8	7

Table A.3: List of recorded bird species, their associated SPEC category, their habitat specialization, and their occurrence in each of three land-use types. Species protected under EU Birds Directive Annex 1 are indicated in bold. SPEC 1 represents European species of global conservation concern classified as Critically endangered, Endangered, Vulnerable, Near Threatened or Data Deficient under the IUCN Red List Criteria at a global level; SPEC 2 represents species whose global populations are concentrated in Europe and which have an Unfavorable Conservation Status in Europe; SPEC 3 represents species whose global populations are not concentrated in Europe but which have an Unfavorable Conservation Status in Europe; and SPEC 4 represents species whose global populations are concentrated in Europe (more than 50% of their global population or range in Europe) but which have a Favorable Conservation Status in Europe. NON means that the bird has no SPEC category. Survey sites were located in 60 arable fields, 60 grasslands, and 30 forest sites.

Latin	English	SPEC	Habitat	Presence in arable fields	Presence in grasslands	Presence in forests
<i>Aegithalos caudatus</i>	Long-tailed Tit	NON	Forest	3	2	1
<i>Certhia familiaris</i>	Eurasian Treecreeper	NON	Forest	0	0	12
<i>Coccothraustes coccothraustes</i>	Hawfinch	NON	Forest	6	9	5
<i>Columba oenas</i>	Stock Pigeon	4	Forest	0	0	1
<i>Columba palumbus</i>	Wood Pigeon	4	Forest	0	1	4
<i>Cuculus canorus</i>	Common Cuckoo	NON	Forest	5	1	8
<i>Dendrocopos major</i>	Great Spotted Woodpecker	NON	Forest	1	1	11
<i>Dendrocopos medius</i>	Middle Spotted Woodpecker	4	Forest	0	0	1
<i>Dendrocopos minor</i>	Lesser Spotted Woodpecker	NON	Forest	0	0	1
<i>Dryocopus martius</i>	Black Woodpecker	NON	Forest	0	0	1
<i>Erithacus rubecula</i>	European Robin	4	Forest	6	8	27
<i>Ficedula albicollis</i>	Collared Flycatcher	4	Forest	0	0	14
<i>Fringilla coelebs</i>	Chaffinch	4	Forest	3	6	28
<i>Garrulus glandarius</i>	Eurasian Jay	NON	Forest	5	1	4
<i>Oriolus oriolus</i>	Golden Oriole	NON	Forest	12	8	6
<i>Parus caeruleus</i>	Blue Tit	4	Forest	5	3	11
<i>Parus major</i>	Great Tit	NON	Forest	18	19	28
<i>Parus palustris</i>	Marsh Tit	NON	Forest	13	12	22
<i>Phylloscopus collybita</i>	Chiffchaff	NON	Forest	1	18	17
<i>Phylloscopus sibilatrix</i>	Wood Warbler	4	Forest	0	1	18
<i>Picus canus</i>	Grey-headed Woodpecker	3	Forest	0	1	2
<i>Picus viridis</i>	Green Woodpecker	2	Forest	0	1	0
<i>Sitta europea</i>	Nuthatch	NON	Forest	0	1	17
<i>Strix uralensis</i>	Ural Owl	NON	Forest	0	0	2
<i>Sturnus vulgaris</i>	Common Starling	NON	Forest	11	5	18
<i>Sylvia atricapilla</i>	Blackcap	4	Forest	16	17	11
<i>Troglodytes troglodytes</i>	Eurasian Wren	NON	Forest	0	1	2
<i>Turdus merula</i>	Common Blackbird	4	Forest	8	8	17
<i>Turdus philomelos</i>	Song Thrush	4	Forest	3	1	18
<i>Anthus trivialis</i>	Tree Pipit	NON	Farmland	16	32	0
<i>Carduelis cannabina</i>	Linnet	4	Farmland	1	0	0
<i>Carduelis carduelis</i>	Goldfinch	NON	Farmland	0	3	0
<i>Carduelis chloris</i>	Greenfinch	4	Farmland	0	1	0
<i>Emberiza citrinella</i>	Yellowhammer	4	Farmland	21	35	1
<i>Hippolais pallida</i>	Eastern Olivaceous Warbler	3	Farmland	0	1	0
<i>Lanius collurio</i>	Red-backed Shrike	3	Farmland	13	22	0
<i>Lanius excubitor</i>	Great Grey Shrike	3	Farmland	1	0	0

Latin	English	SPEC	Habitat	Presence in arable fields	Presence in grasslands	Presence in forests
<i>Lanius minor</i>	Lesser Grey Shrike	2	Farmland	1	0	0
<i>Locustella fluviatilis</i>	River Warbler	4	Farmland	9	0	0
<i>Lullula arborea</i>	Woodlark	2	Farmland	0	6	0
<i>Luscinia luscinia</i>	Thrush Nightingale	4	Farmland	12	4	0
<i>Passer montanus</i>	Tree Sparrow	NON	Farmland	4	6	0
<i>Phylloscopus trochilus</i>	Willow Warbler	NON	Farmland	3	2	0
<i>Pica pica</i>	Magpie	NON	Farmland	0	1	2
<i>Sylvia borin</i>	Garden Warbler	4	Farmland	12	6	4
<i>Sylvia communis</i>	Common Whitethroat	4	Farmland	29	22	0
<i>Sylvia curruca</i>	Lesser Whitethroat	NON	Farmland	7	13	0
<i>Sylvia nisoria</i>	Barred Warbler	4	Farmland	0	1	0
<i>Turdus viscivorus</i>	Mistle Thrush	4	Farmland	0	1	6
<i>Upupa epops</i>	Hoopoe	NON	Farmland	0	1	1
<i>Acrocephalus palustris</i>	Marsh warbler	4	Open-country	20	3	0
<i>Alauda arvensis</i>	Skylark	3	Open-country	25	18	0
<i>Anthus campestris</i>	Tawny Pipit	3	Open-country	0	2	0
<i>Coturnix coturnix</i>	Common Quail	3	Open-country	3	1	0
<i>Crex crex</i>	Corncrake	1	Open-country	2	1	0
<i>Emberiza calandra</i>	Corn Bunting	4	Open-country	4	2	0
<i>Motacilla alba</i>	White Wagtail	NON	Open-country	2	1	0
<i>Motacilla flava</i>	Yellow Wagtail	NON	Open-country	1	0	0
<i>Saxicola rubetra</i>	Winchat	4	Open-country	14	11	0
<i>Saxicola torquata</i>	Stonechat	3	Open-country	5	9	0
<i>Passer domesticus</i>	House Sparrow	NON	Sinantropic	0	1	0

Table A.4: Model selection tables for total species richness and richness of country-side specialists, farmland birds, and forest specialists. Abbreviations are as following: WVC = woody vegetation cover; TOP = topography; LU = land-use type; HET = compositional heterogeneity; NULL = null model.

Response variable	Scale	Model structure	df	logLik	AICc	delta	weight
Species richness	Local	WVC + TOP + (LU x WVC)	6	-277.654	568.051	0.000	0.207
		LU + WVC + TOP+ (LU x WVC)	7	-276.603	568.205	0.154	0.192
		LU + WVC + TOP + (LU x WVC) + (LU x HET)	8	-276.236	569.769	1.718	0.088
		TOP + WVC + HET + (LU x WVC)	7	-277.436	569.872	1.821	0.083
		LU + WVC + HET + TOP + (LU x WVC)	8	-276.303	569.904	1.853	0.082
		WVC	4	-280.840	570.029	1.977	0.077
	Context	LU + WVC + (LU x WVC)	6	-309.089	630.922	0.000	0.144
		WVC	4	-311.526	631.401	0.479	0.114
		LU + WVC + TOP + (LU x WVC)	7	-308.252	631.504	0.582	0.108
		LU + WVC + HET + (LU x WVC)	7	-308.574	632.147	1.225	0.078
		WVC + HET + WVC	5	-310.841	632.208	1.286	0.076
		WVC + TOP	5	-310.952	632.430	1.508	0.068
	Village	WVC	4	-314.027	636.403	0.000	0.155
		NULL	3	-315.172	636.552	0.149	0.144
		LU + WVC + (LU x WVC)	6	-312.046	636.835	0.432	0.125
Open-country richness	Local	LU + WVC	5	-152.967	316.459	0.000	0.205
		LU + WVC + (LU x WVC)	6	-152.099	316.942	0.483	0.161
		LU	4	-154.764	317.876	1.417	0.101
	Context	LU + WVC + HET + (LU x WVC) + (LU x HET)	8	-146.729	310.755	0.000	0.121
		TOP + WVC	5	-150.203	310.931	0.176	0.111
		LU + WVC + HET + TOP + (LU x WVC) + (LU x HET)	9	-145.799	311.234	0.478	0.096
		LU + WVC	5	-150.356	311.238	0.482	0.095
		WVC	4	-151.680	311.709	0.953	0.075
		LU + WVC + (LU x WVC)	6	-149.635	312.014	1.259	0.065
	Village	LU + WVC + TOP	6	-149.697	312.138	1.382	0.061
		LU + WVC + HET + (LU x HET)	7	-148.803	312.607	1.851	0.048
		LU + WVC	5	-152.921	316.368	0.000	0.216
		LU + WVC + (LU x WVC)	6	-152.266	317.275	0.907	0.137
		LU	4	-154.764	317.876	1.508	0.102
		Farmland bird richness	Local	LU + WVC + (LU x WVC)	6	-208.869	430.481
LU + WVC + HET + (LU x WVC)	7			-208.661	432.321	1.841	0.196
Context	LU + WVC + (LU x WVC)		6	-228.164	469.072	0.000	0.096
	HET		4	-230.487	469.321	0.250	0.085
	LU + WVC + HET + (LU x WVC)		7	-227.188	469.376	0.304	0.083
	TOP		4	-230.586	469.521	0.449	0.077
	LU + HET		5	-229.499	469.524	0.452	0.077
	LU		4	-230.861	470.070	0.999	0.058
	NULL		3	-231.969	470.146	1.074	0.056

Response variable	Scale	Model structure	df	logLik	AICc	delta	weight
		TOP + HET	5	-229.840	470.205	1.134	0.055
		LU + WVC + TOP + (LU x WVC)	7	-227.762	470.523	1.452	0.047
	Village	LU + TOP	5	-230.258	471.041	1.970	0.036
		LU + WVC + (LU x WVC)	6	-227.215	467.173	0.000	0.234
		LU + WVC + HET + (LU x WVC)	7	-226.604	468.208	1.035	0.140
Forest specialist richness		Local	LU + WVC + HET	6	-192.143	397.029	0.000
		WVC + HET	5	-193.370	397.266	0.237	0.199
		LU + WVC + HET + (LU x HET)	7	-191.580	398.160	1.131	0.127
		LU + WVC + HET + TOP	7	-191.850	398.699	1.671	0.097
	Context	WVC	4	-224.973	458.295	0.000	0.188
		WVC + TOP	5	-224.228	458.982	0.688	0.134
		LU + WVC + TOP	6	-223.369	459.482	1.188	0.104
		LU + WVC + HET + TOP + (LU x HET)	8	-221.295	459.888	1.593	0.085
		LU + WVC	5	-224.738	460.003	1.708	0.080
	Village	WVC + HET	5	-224.829	460.185	1.890	0.073
		WVC	4	-228.337	465.021	0.000	0.286
		WVC + TOP	5	-227.880	466.287	1.266	0.152
		WVC + HET	5	-227.903	466.332	1.311	0.148