

Figure S1. Location of the study area in mainland Spain, with bird survey plots in the Cantabrian Mountains highlighted with black dots. Darker shading indicates higher elevations.

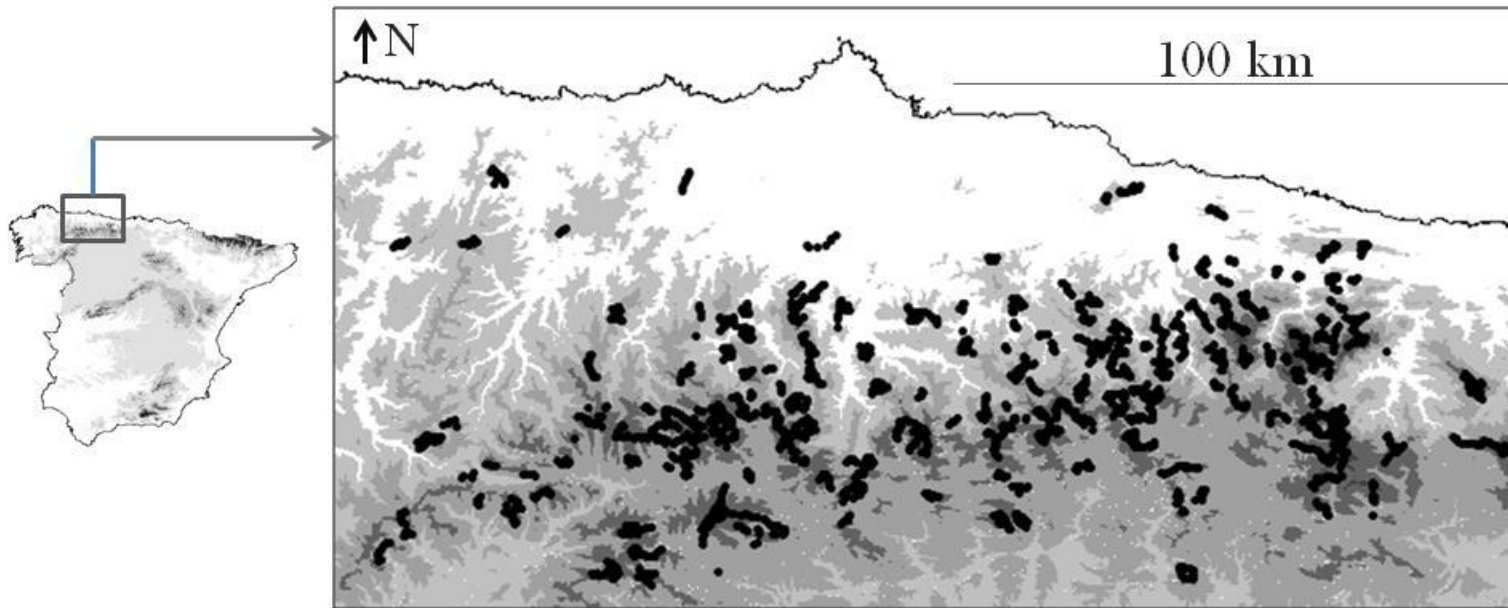


Figure S2. Phylogenetic relationships among bird species of the entire community (top), among groups of congeners (bottom left), and among species that do not coexist with a congener (bottom right), as derived from the phylogeny published by Ericson et al. (2006). Biol. Lett., 2, 543-547

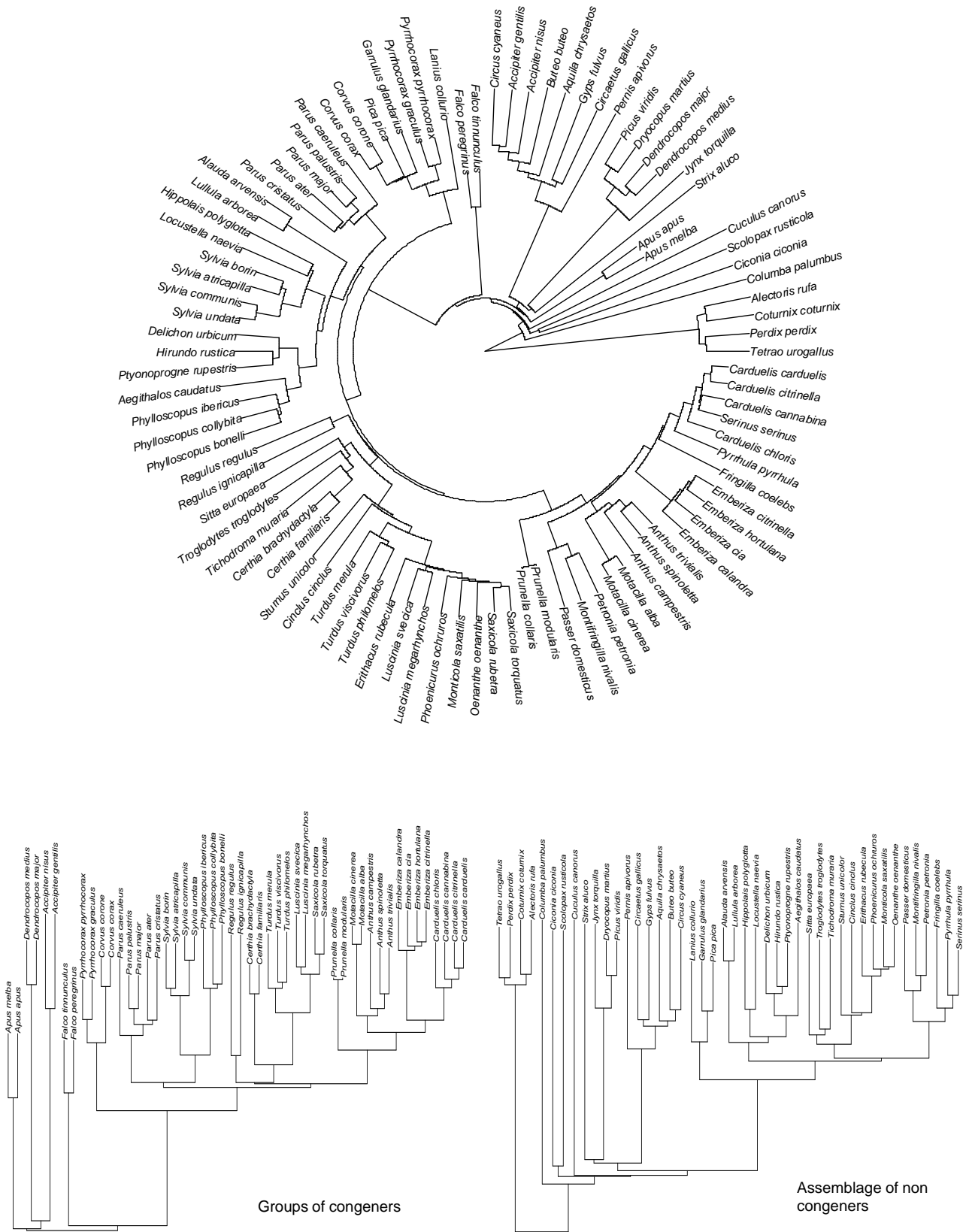


Table S1. Details on study area, bird survey methodology and ecological predictors

The Cantabrian Mountains are a west – east oriented mountain range that steeply rises from the NW Atlantic coast of Spain and reaches its maximum elevation at 2,648 m a.s.l. In the breeding seasons of 2009-2014, birds were surveyed from 120 m to 2,620 m in elevation over a land area of 16,000 km². Grasslands, deciduous forests, rock outcrops, heathlands and other shrub formations are the most common habitats in the region and were surveyed in proportion to their cover (Segura et al. 2014; Meléndez & Laiolo 2014). During surveys, we tracked bird breeding phenology along the elevation gradient, beginning the fieldwork at the end of March in lowlands and ending in July in the highlands. We used the established “area count” survey method to obtain bird densities (Laiolo et al. 2004). Briefly, we recorded all visual or aural detections in plots of 100 m radius around the observer in a 10-minute period, but staying for five minutes in the plot center (as in a point-count survey) and walking for the remaining five minutes to flush out possible hidden individuals. Species flying over plots were not included with the exception of aerial feeders (swallows, martins and swifts) when they foraged at less than two meters from the ground, i.e. when they were actively searching for food in the plot, or when nests were placed in cliffs located in the survey plots. Raptors and vultures were recorded only when standing on the ground or perching.

Each field day we walked a 5-24 km route in which we stopped every 400 m to survey birds in plots of 100 m radius, as described above. In each plot, we also recorded the percent cover of grassland, rocks, wooded habitat (only deciduous woodland occurs in the study area), and shrubs (see Meléndez & Laiolo 2014; Segura et al. 2014, for further details on the main habitat types). Each survey session started at sunrise and ended at midday, usually on the top of the mountains, where the last survey plot was established before bird activity decreased. The location of plots was not fully random depending on the ability to trek or climb in the steep and rocky terrains of the mountaintops (see Laiolo et al. 2004, for similar methods employed in other alpine settings).

A total of 2,347 survey plots were established, in which we recorded the occurrence of 16,134 individuals of 94 species distributed among 11 orders. Although some of the 94 study species were rare in the region, we retained all species for the analyses because their records fall within the elevational range and in the habitat described for the species (Martí & del Moral 2004). As a matter of evidence, we found a highly significant relationship between elevations estimated in our study and in the western Palearctic [$r = 0.5$, $P < 0.001$; western Palearctic elevation estimated as the average elevation of the 50×50 km squares in which the species was recorded (Hagemeijer & Blair 1997)].

To approximate the local climate conditions of sampled plots we estimated a suite of climatic variables in buffers of 100 m radii around the center of sampling sites. Within each buffer we calculated the mean annual temperature and accumulated precipitation, and the average temperature range and accumulated precipitation (difference between maximum and minimum annual precipitation and temperatures, as an index of seasonality) from the digital layers of the Climate Atlas of the Iberian Peninsula (Laiolo et al. 2013), which were built with a resolution of 200 m by modeling 15 years of meteorological data from the local stations of the Spanish National Meteorological Institute (Ninyerola et al. 2005).

References

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Table S2. Datasets used in this study.

(i) Life history, body mass and migration distance means and standard deviations

Species	Body mass (g)		Number of clutches		Egg mass (g)		Clutch size		Time to hatching (days)		Time to fledging (days)		Adult survival		Migration distance (km)		Literature
	mean	SD	mean	SD	mean	SD	mean	SD	mean	SD	mean	SD	mean	SD	mean	SD	
<i>Buteo buteo</i>	848.33	115.60	1.00	0.00	53.00	2.83	2.83	0.23	34.67	2.08	52.50		0.88	0.51	836.60	1496.70	1, 2, 3, 4
<i>Circus cyaneus</i>	436.50	64.26	1.00	0.00	31.00	1.15	4.23	0.57	30.00		37.00		0.84	0.02	1118.00	848.73	1, 5
<i>Accipiter gentilis</i>	949.63	285.68	1.00	0.00	53.50	2.12	3.58	0.09	38.20	1.71	43.50		0.72	0.14	374.00	587.26	1, 2, 6, 7
<i>Accipiter nisus</i>	204.00	33.58	1.00	0.00	23.00	0.00	4.90	3.08	40.25	1.71	27.00		0.55	1.61	616.40	663.96	1, 2, 8, 9
<i>Aquila chrysaetos</i>	4383.00	554.84	1.00	0.00	137.50	10.61	1.90	0.81	44.00		67.50		0.91	0.35	361.29	448.45	1, 2, 10, 11
<i>Gyps fulvus</i>	7507.50	860.09	1.00	0.00	247.94	5.74	1.00	0.00	52.00	0.00	123.75	15.91			388.50	299.11	1, 2, 12
<i>Circaetus gallicus</i>	1699.50	224.16	1.00	0.00	136.00	1.15	1.00	0.00	46.50	0.71	70.70	2.55			5082.00	956.38	1, 13
<i>Pernis apivorus</i>	762.50	165.87	1.00	0.00	49.00	4.00	2.00	3.08	37.00		42.00				5120.00	1041.84	1, 2
<i>Jynx torquilla</i>	37.35	3.45	1.19	0.40	2.60	1.15	8.74	1.39	13.00		20.00		0.38		5305.33	3844.49	1, 14
<i>Picus viridis</i>	186.67	9.75	1.00	0.00	8.50	1.15	6.07	0.85	17.20	1.92	21.70	1.52			28.00	32.74	1, 2, 15
<i>Dryocopus martius</i>	309.00	21.67	1.00	0.00	12.25	0.21	4.78	0.89	13.50	0.71	25.25	1.06	0.70		30.00	14.14	1, 16
<i>Dendrocopos major</i>	89.13	0.75	1.00	0.00	4.70	0.28	5.50	1.15	15.40	1.98	21.40	1.88	0.57	0.00	101.00	142.84	1, 15, 17
<i>Dendrocopos medius</i>	59.00	4.04	1.00	0.00	4.00	1.15	5.64	0.91	12.50	0.71	24.25	1.71	0.66	0.00	9.40	6.51	1, 17, 18
<i>Strix aluco</i>	491.00	54.01	1.00	0.00	36.14	0.56	3.28	0.80	29.50	0.71	32.25	3.18	0.70	5.40	32.00	23.81	1, 2, 4, 19, 20, 21
<i>Apus apus</i>	42.70	2.49	1.00	0.00	3.55	0.07	2.70	0.88	20.65	1.48	42.50	0.00	0.85	2.59	8436.00	2867.89	1, 14, 22, 23, 24
<i>Apus melba</i>	97.00	2.00	1.00	0.00	6.06	0.20	2.83	0.09	20.00		50.00		0.77	0.86	4670.00	1148.01	1, 25, 26, 27
<i>Petronia petronia</i>	32.40	2.14	1.75	0.43	2.74	0.09	4.77	1.07	12.60	0.14	19.20	0.99	0.51	1.21	3.33	5.77	1, 28, 29
<i>Montifringilla nivalis</i>	39.36	3.88	1.64	0.50	3.38	0.53	4.05	0.21	13.30	0.28	20.50				140.00	125.28	1
<i>Passer domesticus</i>	28.81	2.83	2.30	0.75	2.72	0.14	4.80	2.66	12.06	2.04	14.85	1.81	0.56	1.95	103.25	197.24	1, 8, 30, 31, 32
<i>Emberiza citrinella</i>	29.06	2.08	2.00	0.00	2.93	0.10	3.64	0.50	12.67	0.58	12.20	0.28	0.53	1.31	156.40	258.36	1, 8, 33
<i>Emberiza hortulana</i>	24.02	2.35	1.00	0.00	2.48	1.15	4.62	0.24	12.00		9.50	2.12	0.63	0.71	5165.25	734.33	1, 34
<i>Emberiza cia</i>	23.19	1.11	2.00	0.75	2.65	0.11	3.86	0.46	13.20	0.28	11.40	0.14	0.33	0.00	119.20	184.19	1

<i>Emberiza calandra</i>	44.21	10.14	1.24	0.43	3.77	0.21	4.65	4.84	12.75	0.35	10.00	1.41	0.58	0.04	292.00	267.29	1, 35
<i>Fringilla coelebs</i>	23.50	2.61	1.00	0.00	2.36	0.36	4.51	0.32	12.60		13.30	0.85	0.63	0.90	250.75	380.48	1, 8,
<i>Pyrrhula pyrrhula</i>	27.17	4.37	1.80	0.45	2.25	0.14	4.69	0.53	13.75	1.06	15.75	1.06	0.45	1.69	237.57	284.62	1, 8, 36
<i>Carduelis carduelis</i>	16.64	2.60	2.12	1.20	1.49	0.03	4.91	0.44	11.80	0.44	13.35	1.91	0.39	1.16	517.00	426.16	1, 37, 38
<i>Carduelis citrinella</i>	12.73	0.66	2.00	0.75	1.32	0.13	4.30	0.30	13.50		16.50		0.42	5.25	290.50	308.83	1, 39
<i>Carduelis cannabina</i>	18.19	2.03	2.20	0.59	1.65	0.20	4.76	0.22	11.40	1.98	13.03	1.66	0.37	1.16	566.86	784.38	1, 37
<i>Serinus serinus</i>	11.80	0.80	2.00	0.75	1.21	1.15	3.90	0.14	12.70	0.14	15.20	1.30	0.60	0.08	624.00	381.62	1, 40
<i>Carduelis chloris</i>	27.96	1.93	2.00	0.00	2.19	0.11	4.78	0.40	12.90	0.00	15.10	0.99	0.44	1.39	232.83	188.08	1, 2, 37
<i>Motacilla alba</i>	21.66	1.43	2.00	0.00	2.33	0.04	5.10	0.79	12.15	0.35	14.55	1.48	0.49	0.66	616.25	667.95	1, 2, 37, 38
<i>Motacilla cinerea</i>	18.13	0.59	2.00	0.00	2.01	0.13	5.15	0.25	12.50		13.50		0.40		153.00	121.47	1, 41
<i>Anthus campestris</i>	27.31	1.02	1.00	0.00	2.73	1.15	3.85	0.54	12.00		11.00	1.41			2886.00	263.04	1, 2, 42, 43
<i>Anthus trivialis</i>	22.33	3.65	1.50	0.70	2.44	1.15	4.60	0.26	11.80	0.71	12.25	0.35	0.47	0.38	4868.00	996.04	1, 14, 38, 42
<i>Anthus spinoletta</i>	21.90	1.90	1.50	0.70	2.90	0.07	4.69	0.64	14.50	0.00	14.50	0.00	0.73	2.02	476.50	588.15	1, 2, 38, 42, 44
<i>Prunella modularis</i>	19.97	1.29	2.00	0.00	2.32	0.24	5.50	0.72	13.25	1.06	12.00	0.71	0.47	1.07	742.50	827.36	1, 2, 37, 45, 46
<i>Prunella collaris</i>	41.58	1.56	2.00	0.75	3.48	0.13	3.50	3.08	14.50		16.00		0.46		90.00	84.85	1, 2
<i>Monticola saxatilis</i>	51.78	3.40	1.50	0.75	4.95	1.15	5.00	3.08	14.50		15.00				4966.67	2196.21	1, 2, 47
<i>Oenanthe oenanthe</i>	24.93	3.55	1.17	0.29	2.87	0.05	5.60	0.68	13.03	0.04	14.50	0.71	0.51	2.41	6866.67	5746.59	1, 22, 37, 44, 48, 49, 50, 51
<i>Saxicola torquatus</i>	15.19	0.98	2.50	0.71	1.87	0.27	5.01	0.36	13.45	0.07	14.10	0.75	0.32		518.38	520.75	1, 2
<i>Saxicola rubetra</i>	17.50	2.11	1.00	0.00	2.06	1.15	5.76	0.51	12.07	1.01	12.75	0.35	0.35	1.15	5429.08	1387.66	1, 52, 53, 54
<i>Phoenicurus ochruros</i>	16.26	0.55	1.64	0.63	2.33	0.25	4.60	2.60	13.00	1.41	16.70	5.31	0.55		877.00	757.57	1, 55, 56
<i>Luscinia megarhynchos</i>	23.50	3.51	1.50	4.15	2.65	1.15	4.83	0.11	13.00		11.00		0.44	0.64	7068.00	1934.64	1, 14, 57
<i>Luscinia svecica</i>	18.67	0.84	2.50	4.15	2.08	0.11	6.19	0.72	13.50		14.00		0.52	1.65	4850.00	212.13	1, 58
<i>Erithacus rubecula</i>	16.71	2.69	2.40	0.75	2.40	1.15	5.07	0.66	13.70		13.40		0.41	1.74	1244.00	1032.37	1, 2, 37
<i>Turdus philomelos</i>	72.58	7.49	3.00	0.75	6.31	0.60	4.20	0.39	14.05	0.92	12.95	0.35	0.57	0.73	1136.00	732.85	1, 59, 60
<i>Turdus viscivorus</i>	124.58	11.78	2.00	0.75	6.36	0.54	4.00	0.11	13.50	0.00	15.10	0.85	0.51	0.03	362.75	399.50	1, 4, 38
<i>Turdus merula</i>	94.07	4.73	2.87	0.86	8.20	0.20	3.94	0.53	13.03	0.86	15.53	2.37	0.66	0.71	937.00	838.19	1, 37, 61
<i>Cinclus cinclus</i>	60.38	5.43	1.10	0.30	4.63	0.10	4.78	0.34	16.50	0.71	22.50	0.71	0.55	0.72	62.00	16.97	1, 38, 62
<i>Sturnus unicolor</i>	90.26	3.70	2.00	0.75	7.45	0.14	4.30	0.28	11.05	0.78	14.10	0.14			70.78	59.27	1, 63
<i>Sitta europaea</i>	22.43	2.50	1.00	0.00	2.03	0.23	7.35	0.65	14.40	0.57	23.50	1.30	0.40	0.87	38.29	33.92	1, 2, 64

<i>Tichodroma muraria</i>	17.75	0.53	1.00	0.00	2.33	1.15	4.00	3.08	19.13	0.18	29.00				120.00	75.83	1
<i>Certhia familiaris</i>	9.01	0.28	1.67	0.58	1.14	0.02	5.49	0.62	14.25	0.65	16.12	1.43	0.33		172.00	222.63	1
<i>Certhia brachydactyla</i>	8.60	0.82	2.00	0.00	1.12	0.06	5.74	0.60	14.20	0.73	16.88	0.90			25.00	21.79	1
<i>Troglodytes troglodytes</i>	9.27	0.98	2.00	0.75	1.33	0.01	6.05	0.69	14.90	1.27	16.15	0.92	0.32	1.72	142.00	100.96	1, 2, 37, 38
<i>Regulus ignicapilla</i>	5.30	0.24	2.00	0.75	0.69	1.15	9.88	0.68	15.50		23.00	1.30			434.67	356.05	1, 2, 41
<i>Regulus regulus</i>	5.71	0.27	1.50	0.70	0.78	0.01	8.50	0.00	16.35	0.49	19.17	0.29	0.30		680.00	671.57	1, 38
<i>Lullula arborea</i>	26.60	2.68	2.00	0.75	3.40	1.15	3.96	0.97	13.50		11.50		0.60	2.55	311.50	266.58	1, 65
<i>Alauda arvensis</i>	40.35	9.94	2.70	0.68	2.99	0.23	3.86	0.11	11.52	0.54	8.25	0.35	0.63	0.07	619.40	528.14	1, 2, 66, 67, 68, 69
<i>Aegithalos caudatus</i>	8.16	0.42	1.00	0.00	0.90	1.15	9.95	0.58	16.00	4.79	16.50		0.52	1.47	55.00	53.56	1, 2, 70, 71, 72
<i>Phylloscopus ibericus</i>	7.40	0.70	2.00	0.75	1.21	1.15	4.50	3.08	14.00		15.00				2844.50	430.63	1, 73, 74
<i>Phylloscopus bonelli</i>	8.22	0.73	1.00	0.00	1.41	0.30	5.30	0.65	13.00	0.71	11.00				4130.00	381.84	1, 47
<i>Phylloscopus collybita</i>	8.03	0.49	2.00	0.75	1.21	1.15	5.54	0.34	12.95	0.50	13.58	0.60	0.50		2607.25	2510.21	1
<i>Ptyonoprogne rupestris</i>	22.54	1.66	2.00	0.75	2.20	1.15	3.20	1.16	15.00		26.00				1120.50	170.41	1
<i>Hirundo rustica</i>	19.00	0.41	2.50	0.75	1.90	0.22	4.33	0.33	15.30	0.14	20.60	1.56	0.37	0.87	7586.00	3446.46	1, 14, 75, 76, 77
<i>Delichon urbicum</i>	19.03	0.62	1.31	0.43	1.68	0.22	4.31	1.28	14.60	4.37	30.60	7.47	0.37	5.64	7230.33	2246.66	1, 14, 78, 79, 80
<i>Locustella naevia</i>	12.48	3.33	2.00	0.00	1.73	1.15	5.45	0.81	13.00	0.95	12.33	1.14			4297.50	585.97	1
<i>Hippolais polyglotta</i>	11.82	1.39	1.00	0.00	1.60	1.15	4.15	0.26	13.00		12.00		0.51	2.03	3811.50	847.82	1, 81
<i>Sylvia undata</i>	9.44	0.75	2.00	0.75	1.48	0.10	4.00	11.64	13.00		12.00		0.50	0.33	573.33	975.77	1, 82
<i>Sylvia communis</i>	14.98	1.60	1.50	0.71	1.78	1.15	4.68	0.23	11.50	0.71	11.00	0.00	0.55	2.60	5552.85	893.61	1, 83
<i>Sylvia atricapilla</i>	17.98	2.50	1.10	0.30	2.23	2.36	4.59	0.21	12.10	0.92	12.00	0.95	0.43	1.46	2875.75	2779.99	1, 37, 84, 85
<i>Sylvia borin</i>	19.06	1.14	1.00	0.00	2.37	1.43	4.32	0.29	12.80	1.16	11.10	0.14	0.42	5.28	5336.67	1272.26	1, 84, 86
<i>Parus cristatus</i>	11.29	0.31	1.00	0.00	1.40	1.15	5.92	0.78	16.00	2.83	19.00	2.45	0.54		40.00	36.06	1, 2, 87, 88
<i>Parus ater</i>	9.55	1.43	1.50	0.70	1.10	1.15	7.05	3.16	14.33	0.52	21.60	0.80	0.32	0.04	79.40	105.22	1, 2, 38, 87, 89
<i>Parus major</i>	18.42	0.86	1.50	0.75	1.69	0.03	8.53	2.01	13.60	0.02	21.90	0.03	0.45	3.72	66.50	79.90	1, 2, 37, 89, 90, 91
<i>Parus palustris</i>	11.90	0.78	1.00	0.00	1.22	0.12	7.98	0.87	14.60	1.00	19.10	0.93			58.67	40.62	1, 2, 92
<i>Parus caeruleus</i>	10.85	0.89	1.00	0.00	1.14	0.04	10.04	1.73	13.60	0.80	21.60	0.60	0.38	3.33	55.33	87.32	1, 2, 89, 93
<i>Garrulus glandarius</i>	167.55	10.04	1.00	0.00	8.74	0.45	5.41	0.89	16.67	0.58	21.50	0.71	0.59		70.40	22.82	1
<i>Corvus corax</i>	1188.60	111.18	1.00	0.00	28.40	2.23	4.29	0.60	19.25	1.44	45.00		0.52	0.00	192.00	164.33	1, 94, 95, 96
<i>Corvus corone</i>	506.00	64.66	1.00	0.00	14.99	1.82	4.00	2.50	18.50	1.15	32.85	0.92	0.53	0.02	38.56	38.79	1, 4, 97

<i>Pica pica</i>	222.70	18.08	1.00	0.00	10.08	0.49	6.04	0.48	21.07	2.87	27.10	0.14	0.69	0.22	30.00	15.75	1, 8, 98, 99
<i>Pyrrhocorax graculus</i>	229.86	19.31	1.00	0.00	14.10	1.15	4.20	0.64	19.00	1.41	33.25	3.18	0.88	0.41	50.75	26.81	1, 99
<i>Pyrrhocorax pyrrhocorax</i>	295.75	33.77	1.00	0.00	15.50	0.82	4.17	0.67	19.50	0.71	39.00	3.61	0.72	1.84	43.70	32.55	1,100, 101
<i>Lanius collurio</i>	28.19	2.84	1.00	0.00	3.20	0.22	5.03	0.63	14.00	0.00	14.25	0.35	0.78	0.06	8058.00	816.73	1, 14, 102, 103, 104
<i>Falco peregrinus</i>	917.50	211.09	1.00	0.00	49.10	0.38	3.22	0.25	36.23	2.29	38.50		0.73	0.44	943.27	1210.37	1, 2, 105, 106, 107
<i>Falco tinnunculus</i>	197.00	30.71	1.00	0.00	18.09	1.05	4.28	1.54	27.87	0.58	31.30	0.32	0.71	1.17	1165.00	946.28	1, 2, 4, 8, 108, 109, 110
<i>Cuculus canorus</i>	113.75	12.58	1.00	0.00	3.22	0.32	9.20	0.28							8288.25	3097.20	1, 14, 111, 112
<i>Scolopax rusticola</i>	296.00	65.34	1.00	0.00	24.50	1.15	3.84	1.50	22.29	1.16	17.20		0.57	0.59	1036.42	767.56	1, 2, 14, 113, 114
<i>Ciconia ciconia</i>	3479.67	283.66	1.00	0.00	94.89	22.78	3.81	0.71	31.50	0.71	61.00		0.84	2.73	7497.50	3539.07	1, 4, 14, 22, 115
<i>Columba palumbus</i>	488.00	42.14	2.00	0.75	19.75	0.36	1.82	0.09	17.00		27.79	4.40	0.65	0.74	232.36	341.49	1, 2, 27, 116
<i>Alectoris rufa</i>	493.67	29.74	1.50	0.70	19.00	2.00	11.95	0.58	23.75	0.35	10.00		0.67	0.13	18.75	30.92	1, 117, 118, 119
<i>Coturnix coturnix</i>	101.64	9.67	1.00	0.00	9.54	0.69	10.86	1.63	16.58	0.61	19.00		0.29	46.31	7151.67	7903.20	1, 30, 120, 121, 122
<i>Perdix perdix</i>	575.00	64.55	1.00	0.00	20.00	0.00	16.02	1.37	24.84		15.00		0.69	0.78	24.90	30.13	1, 123
<i>Tetrao urogallus</i>	2980.88	1355.12	1.00	0.00	50.50	3.54	7.30	1.40	25.00		18.00		0.72	0.01	8.93	13.94	1, 41, 124, 125

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(ii) **Intraspecific covariation among life history traits**

Species	Egg weight vs. Clutch size	Number of clutches vs. Clutch size	Number of clutches vs. Egg weight	Incubation time vs. Number of clutches	Survival vs. Clutch size	Survival vs. Number of clutches	Literature
<i>Parus caeruleus</i>		0			0		a, b
<i>Delichon urbicum</i>					0		c
<i>Fringilla coelebs</i>	0	0	0				d
<i>Hirundo rustica</i>					0	0	e
<i>Motacilla cinerea</i>		0					f
<i>Parus major</i>	0	0	0	0	0		d, g, h
<i>Passer domesticus</i>	0	0	0		0		d, i
<i>Parus ater</i>		0					d
<i>Pica pica</i>		0					d
<i>Turdus merula</i>	0						d
<i>Turdus philomelos</i>	0						d
<i>Accipiter nisus</i>	0						d
<i>Falco tinnunculus</i>	0.68	0	0		-0.27		j, k
<i>Gyps fulvus</i>					0		d
<i>Petronia petronia</i>					0		d

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(iii) Habitat and climatic niche means and standard deviations in the Cantabrian Mountains

Species	Average temperature (1/10°C)		Temperature range (1/10°C)		Accumulated precipitation (mm)		Precipitation range (mm)		Shrub cover (%)		Forest cover (%)		Grassland cover (%)		Rock Cover (%)	
	mean	SD	mean	SD	mean	SD	mean	SD	mean	SD	mean	SD	mean	SD	mean	SD
<i>Buteo buteo</i>	87.13	18.73	136.12	12.06	12781	2535.49	921.69	275.86	36.42	44.75	66.56	48.38	49.85	32.19	30.00	60.36
<i>Circus cyaneus</i>	65.25	10.05	139.50	2.12	11012	1259.83	883.00	28.28	16.50	16.30	0.00	0.00	77.00	19.82	8.67	2.83
<i>Accipiter gentilis</i>	87.33	9.07	140.33	5.51	12336	4458.85	781.67	224.74	10.00	0.00	93.33	11.55	10.00	0.00	0.00	0.00
<i>Accipiter nisus</i>	81.00	0.00	134.00	0.00	13267	0.00	951.00	0.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00
<i>Aquila chrysaetos</i>	61.98	16.83	146.72	11.10	11718	2782.83	1034.33	343.44	25.00	18.03	40.00	0.00	10.00	0.00	58.33	33.29
<i>Gyps fulvus</i>	56.92	21.97	145.62	12.82	11608	2763.28	965.86	316.28	42.46	36.94	30.00	0.00	30.79	25.35	52.18	37.25
<i>Circaetus gallicus</i>	86.67	8.50	133.00	5.57	12392	562.04	875.00	41.57	44.00	31.27	24.00	0.00	32.50	20.68	17.50	11.90
<i>Pernis apivorus</i>	68.00	0.00	150.00	0.00	13279	0.00	1024.00	0.00	45.00	0.00	0.00	0.00	45.00	0.00	10.00	0.00
<i>Jynx torquilla</i>	101.25	15.20	121.00	4.36	12212	886.85	865.33	101.11	55.00	0.00	48.33	27.61	48.75	16.52	5.00	0.00
<i>Picus viridis</i>	96.74	20.36	131.09	13.45	12429	1895.00	920.77	262.10	32.00	34.77	74.52	31.70	39.33	28.27	20.00	40.00
<i>Dryocopus martius</i>	80.70	11.90	141.00	3.33	13310	1818.18	1013.90	210.01	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00
<i>Dendrocopos major</i>	96.04	18.30	134.70	9.28	12885	1908.22	886.44	293.33	26.82	44.96	83.85	25.83	28.75	27.66	17.00	37.02
<i>Dendrocopos medius</i>	72.00	5.66	148.00	5.66	14539	1758.57	992.50	143.54	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00
<i>Strix aluco</i>	105.00	21.02	133.00	11.40	13745	1671.87	1072.17	284.23	0.00	0.00	96.67	8.16	20.00	0.00	0.00	0.00
<i>Apus apus</i>	55.54	21.30	143.80	10.91	11062	2213.09	902.75	287.33	31.29	31.74	10.00	25.98	42.72	30.73	47.36	30.72
<i>Apus melba</i>	50.00	0.00	144.00	0.00	12168	0.00	971.00	0.00	2.00	0.00	0.00	0.00	13.00	0.00	85.00	0.00
<i>Petronia petronia</i>	63.75	14.77	142.00	0.98	11916	622.91	924.00	26.21	28.75	24.96	0.00	0.00	65.00	26.14	8.33	7.07
<i>Montifringilla nivalis</i>	44.69	10.86	148.57	6.99	11789	2617.91	931.98	149.38	14.89	35.22	0.00	0.00	34.19	24.95	62.53	27.51
<i>Passer domesticus</i>	76.15	23.21	140.38	13.66	10842	1271.25	939.67	77.22	18.00	10.37	11.67	10.80	69.00	19.81	10.00	7.07
<i>Emberiza citrinella</i>	77.05	15.01	141.31	11.51	12615	1905.36	999.50	258.07	38.08	24.79	17.69	22.67	53.75	25.75	12.48	22.94
<i>Emberiza hortulana</i>	65.28	8.77	141.82	5.12	11723	1187.87	930.05	64.27	39.59	23.14	15.71	30.84	52.75	23.77	11.54	9.79

<i>Emberiza cia</i>	75.38	16.57	141.36	9.88	12950	1823.96	1025.88	207.39	44.74	27.66	32.83	48.19	44.59	26.75	16.97	18.11
<i>Emberiza calandra</i>	71.20	11.04	139.00	5.96	11027	1550.51	904.00	32.70	18.33	19.41	5.00	0.00	79.75	19.53	4.25	2.87
<i>Fringilla coelebs</i>	87.01	16.48	138.18	9.96	13443	2171.00	971.32	269.95	33.41	34.91	71.12	36.98	39.58	37.44	17.98	40.00
<i>Pyrrhula pyrrhula</i>	98.09	18.19	133.49	10.51	13181	2704.10	836.60	312.23	31.09	28.95	59.37	31.81	35.29	30.08	21.00	49.31
<i>Carduelis carduelis</i>	96.31	18.80	130.19	13.42	12254	1897.89	852.52	319.96	38.95	30.51	12.88	8.81	57.84	29.08	9.17	7.53
<i>Carduelis citrinella</i>	64.60	5.32	148.20	4.97	13277	1642.55	1008.80	116.52	82.75	17.52	70.00	0.00	21.00	14.02	7.50	7.07
<i>Carduelis cannabina</i>	73.10	19.31	139.92	11.28	12540	1810.72	929.64	240.66	43.34	31.19	11.90	23.31	47.00	28.30	23.15	22.03
<i>Serinus serinus</i>	73.25	13.99	143.80	6.97	13240	1878.10	1024.80	208.18	45.17	27.31	24.09	34.32	45.72	26.35	9.46	12.08
<i>Carduelis chloris</i>	72.75	11.62	133.50	7.14	11829	1071.16	681.25	204.44	22.00	16.43	22.50	7.07	47.50	34.48	51.67	49.67
<i>Motacilla alba</i>	73.48	13.63	143.57	8.62	13661	1953.54	1086.08	197.16	26.09	22.33	18.07	40.98	68.00	20.27	15.58	16.23
<i>Motacilla cinerea</i>	70.84	10.60	142.28	8.11	13773	1707.46	1033.68	207.66	31.75	22.97	29.21	36.09	46.47	27.03	19.39	15.30
<i>Anthus campestris</i>	56.27	12.28	150.44	8.23	11923	1470.51	985.56	170.33	41.50	27.96	0.00	0.00	50.56	26.81	23.85	12.83
<i>Anthus trivialis</i>	82.56	20.34	136.35	12.27	12442	1913.87	936.38	223.28	40.05	28.69	25.89	35.20	50.99	27.55	14.92	22.50
<i>Anthus spinoletta</i>	59.19	15.63	144.70	8.99	12133	2136.05	907.63	213.84	37.03	29.66	12.57	42.71	41.69	26.22	36.12	26.02
<i>Prunella modularis</i>	72.36	16.84	140.61	10.37	12702	1986.66	955.04	239.22	51.77	29.14	27.91	51.10	38.60	27.02	21.46	25.47
<i>Prunella collaris</i>	50.24	13.82	148.15	7.93	11974	2433.73	921.08	188.90	24.40	27.70	8.67	63.46	32.13	24.24	57.82	27.21
<i>Monticola saxatilis</i>	56.39	13.35	145.54	7.56	11950	2342.16	922.34	208.04	29.03	25.36	5.00	0.00	35.21	21.90	42.65	23.41
<i>Oenanthe oenanthe</i>	60.76	16.24	144.41	9.98	12025	2103.22	912.88	210.62	29.05	27.33	13.29	59.94	45.48	25.30	36.07	23.78
<i>Saxicola torquatus</i>	78.00	18.70	137.13	11.91	12527	1922.78	942.14	252.62	50.88	29.41	14.30	32.21	43.45	27.38	16.11	18.47
<i>Saxicola rubetra</i>	74.38	12.15	136.07	9.79	12129	1761.40	999.07	236.62	31.40	26.26	7.88	10.12	65.78	26.62	10.00	19.00
<i>Phoenicurus ochruros</i>	59.85	17.41	145.07	9.48	12063	2330.34	919.72	228.93	31.77	27.36	20.86	77.50	35.58	24.33	43.97	26.49
<i>Luscinia megarhynchos</i>	75.05	5.82	144.78	5.64	11241	979.12	972.00	91.74	32.86	21.57	12.20	16.28	57.71	24.25	5.00	0.00
<i>Luscinia svecica</i>	60.47	5.54	145.24	8.49	12652	1165.47	951.88	86.05	59.78	28.82	0.00	0.00	35.25	27.03	11.43	19.85
<i>Erithacus rubecula</i>	87.77	17.74	137.10	10.24	13391	2231.07	960.41	265.08	42.86	38.01	65.14	39.08	38.55	32.74	13.36	26.38
<i>Turdus philomelos</i>	91.82	16.63	135.62	10.00	13509	2024.82	973.37	264.86	33.69	37.79	77.81	30.03	32.46	37.37	16.67	41.70
<i>Turdus viscivorus</i>	79.07	19.12	138.92	10.57	13282	1877.23	983.15	228.83	37.63	29.35	63.24	52.69	46.39	30.32	20.49	16.50
<i>Turdus merula</i>	87.94	18.59	135.32	10.62	12672	2164.70	899.71	275.11	41.25	33.07	53.96	44.35	42.83	28.94	18.06	29.94
<i>Cinclus cinclus</i>	78.54	20.87	143.78	9.38	14821	1730.73	1037.05	179.79	27.86	20.79	51.00	58.18	45.78	28.96	12.67	30.09
<i>Sturnus unicolor</i>	90.33	25.01	134.50	14.85	12276	2176.00	908.00	59.40	11.67	11.55	0.00	0.00	86.33	15.01	5.00	0.00

<i>Sitta europaea</i>	89.17	15.24	139.27	8.47	14080	1912.54	1018.73	244.98	18.39	33.42	92.42	15.45	18.53	35.79	8.62	21.56
<i>Tichodroma muraria</i>	41.50	9.14	148.67	5.99	11132	2893.91	946.83	164.33	30.00	63.25	0.00	0.00	38.33	29.93	70.83	25.38
<i>Certhia familiaris</i>	79.69	2.87	140.85	6.40	15101	1257.18	1079.54	163.42	0.00	0.00	95.00	18.03	55.00	0.00	10.00	0.00
<i>Certhia brachydactyla</i>	93.05	16.76	137.10	8.38	13856	2209.07	1013.80	256.87	22.61	35.74	89.22	21.44	32.81	43.18	16.43	68.87
<i>Troglodytes troglodytes</i>	88.42	18.65	136.33	11.03	13247	2209.40	937.38	269.53	43.45	34.31	55.13	42.20	38.06	29.33	17.91	24.28
<i>Regulus ignicapilla</i>	94.08	18.53	136.13	9.46	13954	2238.25	976.50	255.45	24.03	31.94	83.12	25.08	29.59	35.42	15.91	39.64
<i>Regulus regulus</i>	93.07	17.44	136.79	9.04	13637	2158.84	982.70	275.39	22.14	122.13	97.57	7.34	11.67	23.69	13.00	69.26
<i>Lullula arborea</i>	65.73	15.07	149.83	4.02	11247	1834.76	1047.17	238.35	30.83	20.67	7.50	6.24	59.00	21.65	21.50	21.21
<i>Alauda arvensis</i>	64.44	20.19	141.26	12.23	11830	1696.73	917.90	208.26	52.50	29.43	11.00	28.04	43.80	28.22	18.79	19.30
<i>Aegithalos caudatus</i>	98.87	18.96	134.14	9.69	13429	2341.61	939.92	248.26	27.17	40.89	83.91	27.44	37.86	41.80	8.75	12.99
<i>Phylloscopus ibericus</i>	96.45	18.75	134.05	9.88	13178	2323.03	902.42	303.07	38.90	32.26	54.95	34.21	37.39	28.72	17.53	28.94
<i>Phylloscopus bonelli</i>	90.58	16.73	137.08	10.57	13169	2128.38	981.30	193.26	28.89	21.58	40.67	26.69	39.15	26.16	16.43	22.16
<i>Phylloscopus collybita</i>	96.58	20.19	135.52	10.93	13711	2859.76	863.80	360.90	26.88	33.03	57.73	35.87	40.00	35.50	5.00	0.00
<i>Ptyonoprogne rupestris</i>	61.09	18.41	146.88	11.05	12150	2364.96	986.57	248.71	34.54	24.50	15.00	30.00	40.06	24.09	43.53	29.39
<i>Hirundo rustica</i>	76.87	22.49	135.73	6.42	11633	1617.84	652.13	223.79	37.92	45.33	5.00	0.00	43.75	31.17	48.33	32.30
<i>Delichon urbicum</i>	58.31	21.09	147.55	8.17	12517	2554.23	974.80	241.98	35.77	33.46	20.00	67.82	38.63	24.48	42.45	28.46
<i>Locustella naevia</i>	95.00	0.00	130.00	0.00	15041	0.00	1037.00	0.00	80.00	0.00	0.00	0.00	10.00	0.00	10.00	0.00
<i>Hippolais polyglotta</i>	81.00	0.00	142.00	0.98	9913	0.00	924.00	26.21	47.50	24.75	10.00	0.00	40.00	28.28	5.00	0.00
<i>Sylvia undata</i>	82.19	21.18	136.09	13.91	12353	2517.35	942.37	333.64	78.59	25.56	24.50	45.69	31.11	36.57	15.00	37.54
<i>Sylvia communis</i>	67.18	9.09	144.50	7.11	12585	1860.98	1026.39	222.04	51.27	27.72	13.60	25.04	43.56	26.47	16.07	21.63
<i>Sylvia atricapilla</i>	93.20	17.51	135.18	10.39	13296	2172.54	924.88	266.45	34.67	34.16	67.99	34.86	37.27	33.03	13.20	26.24
<i>Sylvia borin</i>	78.03	16.70	141.28	9.40	13022	1952.39	1001.74	274.29	45.62	28.75	39.65	42.61	41.22	28.84	12.60	23.62
<i>Parus cristatus</i>	84.18	13.52	140.29	7.82	14526	2140.56	1051.92	201.26	33.25	92.88	84.07	27.93	36.47	53.09	10.00	47.96
<i>Parus ater</i>	88.71	16.12	137.66	9.70	13652	2165.87	977.06	265.46	32.34	40.35	80.74	29.82	31.54	38.84	19.74	45.67
<i>Parus major</i>	92.48	17.32	135.53	10.00	13157	2169.24	940.22	279.27	31.24	35.32	71.68	34.89	38.18	35.82	17.87	37.76
<i>Parus palustris</i>	89.20	12.64	138.86	6.98	14670	1934.60	1083.19	218.36	26.67	46.17	82.86	27.79	30.74	36.39	30.00	78.16
<i>Parus caeruleus</i>	97.15	18.05	134.86	9.90	13518	2130.44	967.68	283.43	23.24	34.67	82.42	26.62	33.49	37.52	16.43	47.45
<i>Garrulus glandarius</i>	89.70	17.98	135.99	10.91	13129	2295.51	921.59	262.08	35.78	37.04	71.08	34.84	38.15	33.50	11.30	25.19
<i>Corvus corax</i>	60.21	22.54	144.81	9.61	11407	1991.05	810.67	232.44	44.07	33.45	17.75	43.22	33.47	26.84	46.83	34.41

<i>Corvus corone</i>	94.96	18.54	131.23	11.78	11707	2172.86	746.53	274.76	29.41	30.82	55.89	41.37	44.74	32.11	15.14	46.13
<i>Pica pica</i>	87.69	19.86	133.75	14.24	12050	1804.86	966.53	269.01	25.79	26.37	11.82	11.95	67.38	22.40	10.83	16.02
<i>Pyrrhocorax graculus</i>	57.02	18.34	143.76	10.02	11903	2345.52	872.97	198.71	25.62	29.08	11.13	26.70	41.37	25.73	50.15	28.31
<i>Pyrrhocorax pyrrhocorax</i>	63.32	18.10	142.37	9.55	12540	2446.03	909.02	213.60	33.72	27.79	20.00	65.74	43.89	24.71	39.16	28.68
<i>Lanius collurio</i>	77.00	19.22	140.97	10.74	12820	1888.83	1031.69	167.88	31.61	20.60	15.67	29.59	56.00	27.68	17.50	36.49
<i>Falco peregrinus</i>	78.50	36.06	130.50	10.61	11065	628.62	733.00	199.40	62.50	45.96	0.00	0.00	0.00	0.00	37.50	45.96
<i>Falco tinnunculus</i>	61.40	21.72	146.46	12.29	11870	1261.42	958.60	291.16	45.00	34.56	5.00	0.00	39.36	30.06	44.63	44.64
<i>Cuculus canorus</i>	90.18	15.27	135.04	12.92	13022	2028.45	933.97	285.49	40.50	38.18	79.23	35.23	32.00	37.01	5.00	0.00
<i>Scolopax rusticola</i>	78.00	5.20	145.33	0.58	14678	924.81	1289.67	30.09	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00
<i>Ciconia ciconia</i>	80.50	0.71	142.00	0.98	9645	379.72	924.00	26.21	23.33	16.07	17.50	15.00	65.00	27.84	0.00	0.00
<i>Columba palumbus</i>	92.47	18.84	135.27	11.12	13319	2324.95	887.45	279.42	28.47	41.76	80.86	31.13	40.34	41.82	28.00	74.02
<i>Alectoris rufa</i>	69.16	16.77	143.66	12.02	13082	2168.64	961.92	200.78	54.63	32.15	18.20	33.44	44.47	32.81	19.50	13.36
<i>Coturnix coturnix</i>	68.75	7.50	142.11	6.45	12190	1924.41	992.55	346.56	33.52	30.86	6.67	6.83	59.19	30.09	26.92	47.26
<i>Perdix perdix</i>	70.04	18.98	144.68	7.91	11785	2360.81	972.83	228.09	35.00	30.96	22.50	8.66	50.83	19.42	26.25	25.41
<i>Tetrao urogallus</i>	75.00	4.24	146.00	1.41	15387	2408.41	1324.00	4.24	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00

Table S3. A) Performance of the models with the lowest AIC_c and list of the predictors of the optima for life histories included in these models. Model performance was expressed in terms of ΔAIC_c , AIC_c weights ($AIC_c w$) and R^2 . Bold text indicates models separated by less than 2 AIC_c points, which were taken to be the best models.

Life history trait	Model	ΔAIC_c	$AIC_c w$	R^2
Egg number	Body mass + Migration distance + Shrub cover + Temperature	0.00	0.428	0.357
	Body mass + Migration distance + Temperature	0.75	0.294	0.325
	Body mass + Migration distance + Grassland cover + Temperature	2.33	0.133	0.336
	Body mass + Migration distance + Grassland cover + Shrub cover + Temperature	2.64	0.114	0.365
	Body mass + Migration distance	6.32	0.018	0.342
	Body mass + Migration distance + Forest cover + Temperature	8.40	0.006	0.342
	Body mass + Migration distance + Forest cover + Temperature	9.30	0.004	0.336
	Body mass	11.62	0.001	0.208
Life expectancy	Body mass + Temperature	0.00	0.507	0.513
	Body mass + Migration distance + Temperature	1.71	0.216	0.470
	Body mass + Migration distance + Temperature + Grassland cover	3.69	0.080	0.467
	Body mass + Migration distance + Temperature + Shrub cover	4.11	0.065	0.462
	Body mass + Migration distance + Temperature + Precipitation range	4.31	0.059	0.477
	Body mass + Migration distance + Temperature + Rock cover	4.53	0.053	0.474
	Body mass + Migration distance + Temperature + Forest cover	6.43	0.020	0.481
	Body mass	19.6	0.000	0.470
Incubation time	Body mass + Rock cover + Shrub cover	0.00	0.223	0.168
	Body mass	0.12	0.210	0.136
	Body mass + Rock cover	0.70	0.157	0.156
	Body mass + Forest cover	2.11	0.078	0.139
	Body mass + Grassland cover	2.24	0.072	0.137
	Body mass + Migration distance	2.28	0.071	0.138

	Body mass + Temperature	2.29	0.071	0.137
	Body mass + Forest cover + Shrub cover	2.33	0.070	0.168
Nestling time	Body mass + Rock cover	0.00	0.788	0.201
	Body mass	5.17	0.059	0.154
	Body mass + Grassland cover	5.51	0.050	0.165
	Body mass + Temperature	6.53	0.030	0.163
	Body mass + Forest cover	6.64	0.028	0.162
	Body mass + Migration distance	7.24	0.021	0.152
	Body mass + Shrub cover	7.25	0.021	0.165
	Body mass + Precipitation range	12.9	0.012	0.137

B). List of the models with the lowest AIC_c (within 2 AIC_c points from the best model), and highest R^2 , that explained variation in life histories in the assemblage of species including groups of congeners and in that of species that do not coexist with a congener. All relationships indicate a similar pattern of variation in the two assemblages, with the exception of the relationship between nestling time and migration distance, which was negative in the assemblage of congeners, and positive in the assemblage of non-congeners.

Life history trait	Assemblage	Model	R^2
Egg number	Groups of congeners	Body mass + Temperature	0.339
		Body mass + Migration distance	0.378
		Body mass + Migration distance + Temperature	0.426
	Non-congeners	Body mass + Migration distance + Temperature + Shrub cover	0.425
		Body mass + Temperature	0.398
		Body mass + Migration distance + Temperature	0.377
Life expectancy	Groups of congeners	Body mass + Temperature	0.636
	Non-congeners	Body mass + Temperature	0.677
		Body mass + Rock cover	0.714
Incubation time	Groups of congeners	Body mass	0.101
		Body mass + Rock cover	0.109
	Non-congeners	Body mass + Rock cover	0.439
		Body mass + Rock cover + Shrub cover	0.458
Nestling time	Groups of congeners	Body mass	0.141
		Body mass + Migration distance	0.217
		Body mass + Rock cover	0.166
	Non-congeners	Body mass + Rock cover	0.343
		Body mass + Migration distance	0.358