

Monitoring Common Breeding Birds in Spain

THE SACRE PROGRAMME



REPORT 1996-2005



SEO/BirdLife

The SACRE programme is a project monitoring common breeding bird populations in order to assess their evolution and long-term trends.

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INTRODUCTION

The SACRE programme started in 1996, and we therefore now have details of bird populations for some areas going back 10 years. In the first year, only squares in a radius of 100 km around León and Madrid were surveyed. Therefore, the squares in these areas have been monitored for the greatest length of time. However, from 1997, the monitoring was conducted all over Spain, with the areas around Alava, Seville and Valencia being given preferential treatment. In 1998, the area around Barcelona was also given preference. In

the year 2000, priority squares for the whole of Spain were designated with the objective of giving a minimum coverage, in a homogeneous way, of all environments in each province. In reality, there is a very good coverage in some areas, but we need this to increase in other places, mainly in agricultural environments. This is due to the importance attached to the index of population trends of birds associated with these habitats, as indicators of the environmental quality.

SAMPLING UNIT

Up until now, the sampling unit has been the 10x10 km UTM square. This not only facilitates the organisation of project, but means that the information will not only be valid just for the SACRE programme, but for other projects, such as the future revision of the Atlas of Breeding Birds of Spain. This system also enables one person to survey one square.

Some areas are in great demand for participation and there are no longer any free squares available (for instance in Madrid). Due to this, we have introduced changes to the sampling unit. From this season (2006) the sampling unit will be the joining of points surveyed by one person and not the 10x10 km UTM square. This allows the same area to be surveyed by more than one

person, as long as the points of the census do not coincide. As it is difficult to set up more than 40 points in one area, the maximum number of people that can survey one area is two. This permits the possibility of doubling the information, as well as having the opportunity to survey the preferred area.

The way of allocating areas will be the same as for now, so data will be equally valid and the organisation maintained. New participants, who wish to conduct the survey in a square that is already occupied, will receive a map of the square. This will give the areas which cannot be chosen, without revealing the exact points of the other person.

PRIORITY AREAS

Since the year 2000, a classification of priority and non-priority squares exists, but all of them have equal importance in terms of being surveyed. The reason for this classification is to ensure a homogeneous coverage of all habitats. If only squares stated as being a priority were surveyed, the information obtained would be

representative of the trends of species in each of the different habitats. Therefore, although it is intended that priority areas are covered first, it is also preferable to choose areas that are nearby or convenient. This will ensure that they will be surveyed for many years.

SACRE IN EUROPE

Data from the SACRE programme is integrated annually into a central database, together with data obtained from monitoring programmes in other European countries. This enables a development index of species to be obtained on a pan-European scale. In September 2005, a workshop took place in Prague concerning the long term monitoring programme in Europe,

which was attended by representatives from each country. The development of the European programme was analysed since its launch in 2002. It pointed out the role of birds as indicators of the quality of the environment and the selection of species to be used as indicators. Also the classification of species in respect to the habitat to which they are associated was analysed.

RESULTS

COVERAGE OF SQUARES

The number of available sampling areas for 2005 has increased considerably on the previous years (fig 1). In the whole Spanish territory, 875 squares were available. From this total, 583 squares have been surveyed and data from 536 have been considered (fig. 2). The reason why some of them have not been included is that some reports were not received, or they arrived late. Also, sometimes errors have been detected in the application of the methodology. Coordinators will be in contact with these people to inform them of the correct method, so they can carry out valid fieldwork next year. Regarding the whole area, 184 squares have not been surveyed due to new

participants signing up after the new season had begun. The other 108 squares remained free.

The increase in the number of areas surveyed over previous years was three times more than the increase between 1998 and 2004, confirming that the coverage and distribution of sampling areas has increased considerably. In fig. 3, the squares that have been surveyed at least once since the beginning of the programme are shown. One has to take into account that during the early years, only a few areas were surveyed.

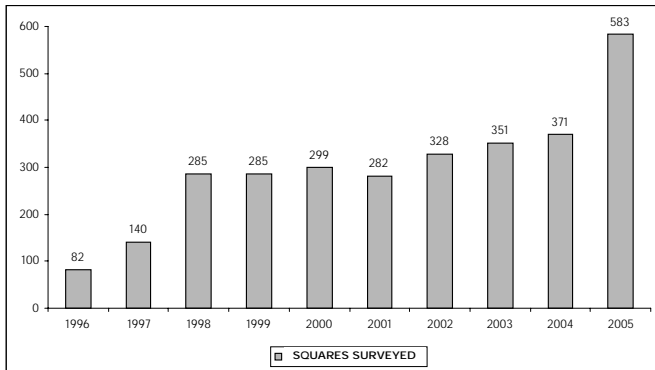


Figure 1. Number of squares surveyed each year



Figure 2. Distribution of squares surveyed during 2005.

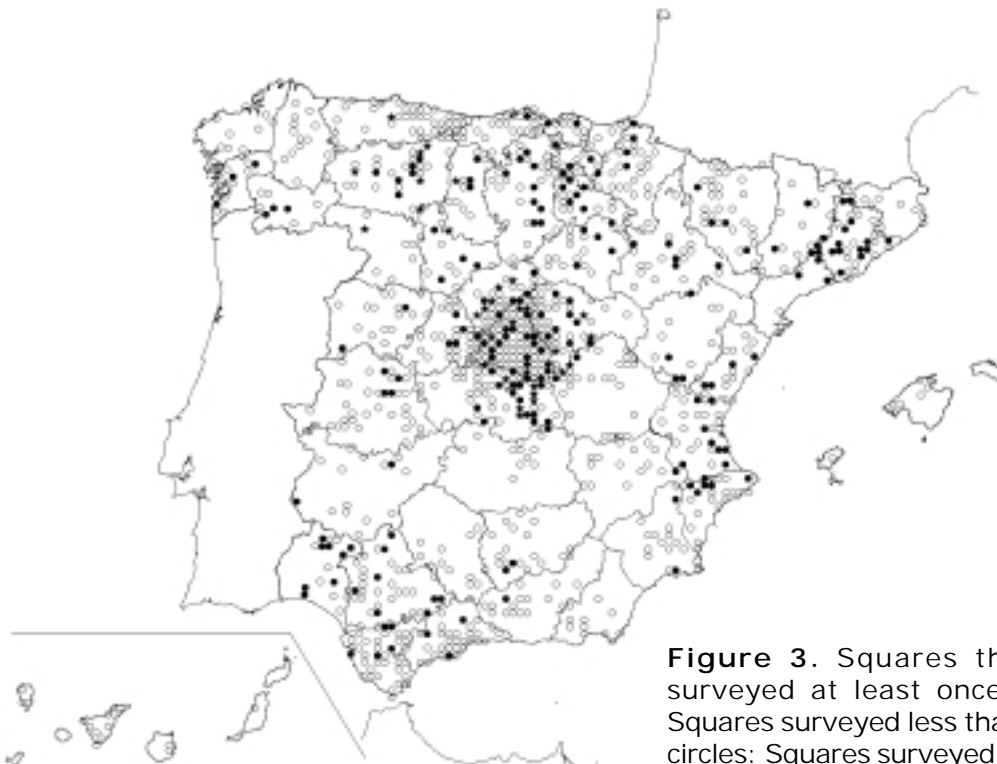


Figure 3. Squares that have been surveyed at least once. White circle: Squares surveyed less than 4 years. Black circles: Squares surveyed 4 or more years. Black stars: Squares surveyed for ten years.

Areas in all provinces of Spain have been surveyed. Places which have been surveyed the most are Castile and León, Andalusia, Castile-La Mancha and Madrid (table 1). Castile-La Mancha is the province with the most sampled areas. However, the number is low when compared to its surface area. The total for 2005 (536) refers to

the number of areas that have been taken into account in compiling this report. As mentioned above, the areas not taken into account (47) are those for which data has not yet been received, or it arrived late, or mistakes have been found in the methodology.

Region	1996	1997	1998	1999	2000	2001	2002	2003	2004	Non-priority squares	Priority squares	2005
Andalucía	0	16	41	38	42	39	41	49	49	23	58	81
Aragón	0	0	5	7	7	8	26	28	26	6	25	31
Asturias	4	3	4	3	1	1	1	2	7	5	6	11
Baleares	0	0	1	1	1	1	1	2	1	0	2	2
Canarias	0	0	3	4	1	0	0	2	6	3	4	7
Cantabria	0	2	3	3	3	3	3	3	5	3	10	13
Castilla y León	28	37	59	59	64	64	81	81	81	24	93	117
Castilla-La Mancha	28	34	50	46	47	42	47	46	51	21	49	70
Cataluña	0	0	34	37	34	33	28	26	22	3	24	27
Extremadura	0	1	4	4	4	4	14	13	11	6	21	27
Galicia	0	0	8	8	14	13	10	7	12	9	8	17
La Rioja	0	2	3	5	5	5	6	7	7	1	10	11
Madrid	22	23	33	34	43	37	35	37	40	22	24	46
Murcia	0	0	0	1	1	2	3	6	5	3	9	12
Navarra	0	4	6	7	4	6	6	8	16	4	14	18
País Valenciano	0	10	20	18	19	15	16	23	22	0	31	31
País Vasco	0	8	11	10	9	9	10	11	10	5	10	15
TOTAL	82	140	285	285	299	282	328	351	371	138	398	536

Table 1. Number of squares surveyed each year in each region.

COVERAGE OF HABITATS

Monitoring has taken place in all of the different habitats. As in previous years, woodland, pastures, inhabited areas and interior wetlands have been over-sampled, considering the percentage of these habitats in Spain (fig.4). On the other hand, the zones of scrub and farmland are not sufficiently represented. Taking into account the fact that the population trend of birds

associated with farmland has been adopted as one of the structural indicators in Europe, it is very important that these areas are monitored. The coverage of this type of habitat will have to be increased in regions such as Castile-La Mancha, which has large areas of farmland and where the participation in relation to its surface area is very low.

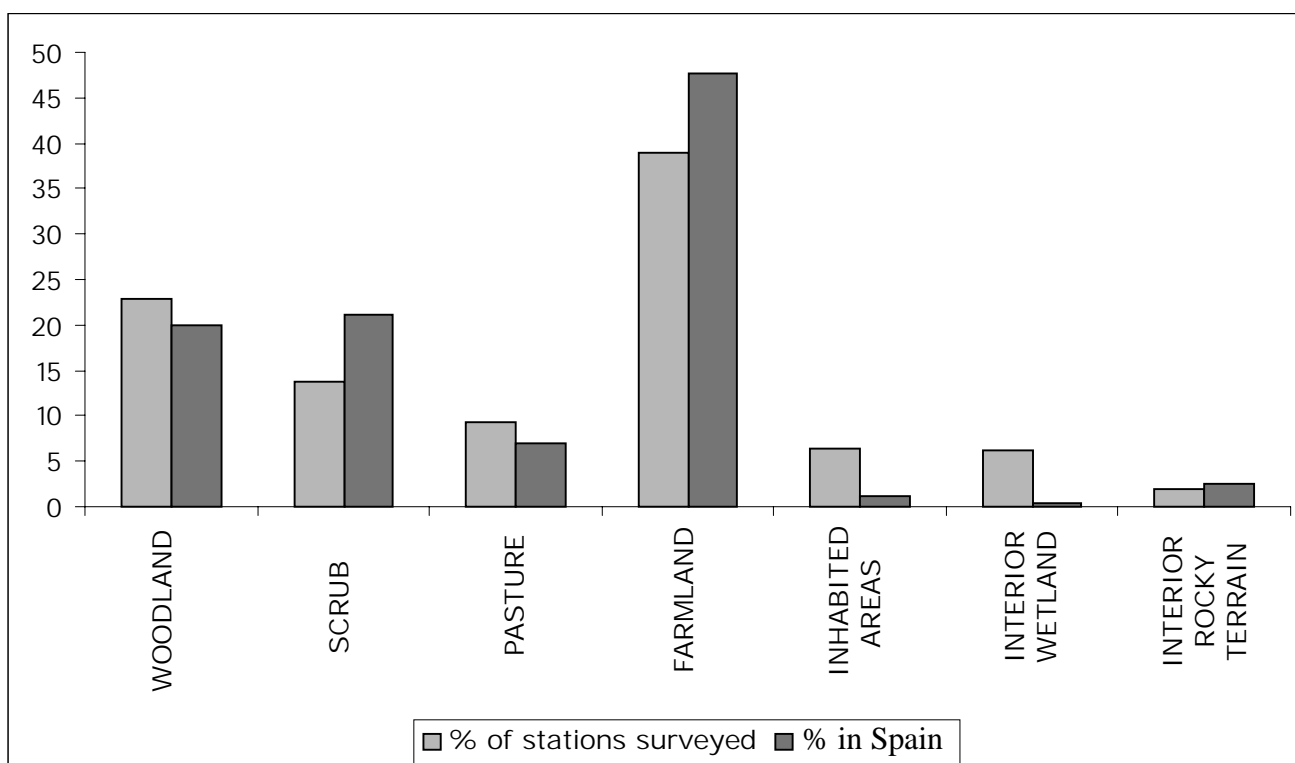


Figure 4. Percentage of each habitat in Spain and percentage of stations surveyed in each one of them during 2005.

Importance in the coverage of farmland

With data gathered over the last 25 years in Europe, the PECBM (Pan-European Common Bird Monitoring scheme) has obtained indices for groups of species on a European scale. According to this index, populations of birds associated with farmland and woodland have declined (Fig. 5). However, other common bird species have seen increased populations. Taking into consideration that many countries have seen great changes in land use over the last 50 years, the results seem to indicate that, while widespread bird species showed a positive response, the most specialised species have seen a decline. Changes in agriculture, especially the specialisation and intensification of production, seem to be responsible for the decline in the populations of birds related to these habitats.

We must not forget these indices can vary according to the scale and area considered, because

changes in the environment do not have equal impact everywhere.

In Spain, the trend in populations of woodland and widespread bird species is positive, whilst that of farmland birds is negative.

One of BirdLife's objectives is to reverse this decline by trying to put into practice other methods of farming from those currently used. Indicators have an important role in focussing this process and evaluating the effectiveness of agro-environmental policy.

The indices obtained with the data already compiled, and data to be recorded in years to come, will be useful in evaluating the environmental policy in each sector of Europe on biodiversity and each Birdlife representative (among them SEO/Birdlife) will be able to establish guidelines to influence agricultural and environmental policy.

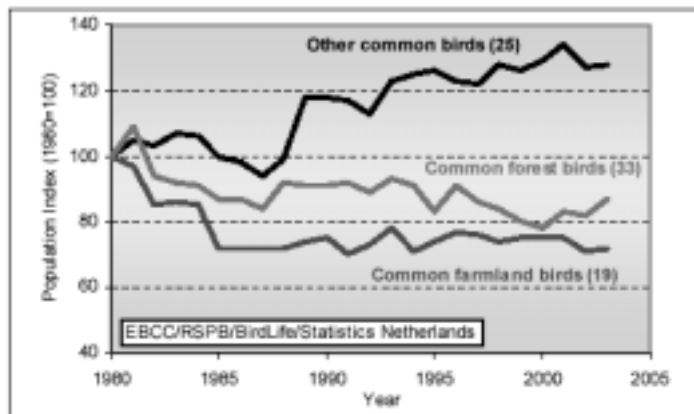


Figure 5. Population trends of farmland, woodland and other common bird species on a European scale. Source: A biodiversity indicator for Europe: wild bird indicator update 2005.

SPECIES RECORDED AND THEIR POPULATION TRENDS

A total of 236 species have been recorded. For this report, raptors and aquatic birds have not been taken into account, neither have those that have a national census, such as the White Stork (*Ciconia ciconia*) the Little Bustard (*Tetrax tetrax*) etc., though for some of them we have obtained their population trend through the SACRE programme.

Table 2 shows data for the species which have been analysed, since they have been sufficiently recorded between 1996 and 2005. However, one has to be careful in interpreting the results of those recorded only a few times.

For analysis of the population trends using the statistical programme TRIM (Trends and Indices for Monitoring data), only those squares that have been surveyed for both visits for at least four years, by the same person, are included.

A percentage has been obtained for the change by year and for the change between 1996 and 2005. The negative values indicate a decline in the population.

Graphs of population trends for each species are shown according to the habitat associated with the data from 2005. The classification of species by habitat has been made in terms of the percentage of birds recorded in each habitat (table 2). The data for 2005 on habitat and species recorded has been used for this purpose. Some species cannot be associated with only one particular habitat, because they are present in high percentages in different habitats.

The species that have been recorded in the greatest numbers are the House Sparrow (*Passer domesticus*) Common Swift (*Apus apus*) Spotless Starling (*Sturnus unicolor*) and Barn Swallow (*Hirundo rustica*) which number more than 20,000 individuals (table 2). Species recorded in the most squares (more than 475) are the House Sparrow, Barn Swallow, Blackbird (*Turdus merula*), Goldfinch (*Carduelis carduelis*) and European Serin (*Serinus serinus*) (table 2).

SPECIE	%CHANGE PER YEAR	%CHANGE 1996-2005	QUANTITY		DISTRIBUTION				HABITAT							
			n°	x	SQ	%	W	S	G	F	H	WT	C	R	O	
<i>Acrocephalus arundinaceus</i>	5,65	58,51	132	4,40	61	11,38	3,3	1,7	6,7	50,0	1,7	35,8	0,8			
<i>Acrocephalus scirpaceus</i>	3,23	13,46	189	5,25	66	12,31	4,6	3,8	5,4	38,5	5,4	41,5	0,8			
<i>Aegithalus caudatus</i>	0,08	2,26	572	5,78	188	35,07	62,0	10,0	5,5	9,4	1,5	10,6		0,9		
<i>Alauda arvensis</i>	-2,35	-16,76	2.817	24,08	214	39,93	4,7	13,1	12,5	61,9	3,5	2,8		1,1	0,4	
<i>Alcedo atthis</i>	2,14	-29,89	11	1,22	14	2,61	11,8		11,8	11,8		64,7				
<i>Alectoris rufa</i>	0,6	31,15	2.264	11,85	384	71,64	11,9	15,4	6,2	59,5	1,7	3,1	0,1	1,8	0,3	
<i>Apus apus</i>	1,78	39,28	22.625	103,31	450	83,96	12,2	10,4	7,3	46,1	13,6	7,4	0,9	1,5	0,5	
<i>Calandrella brachydactyla</i>	-2,82	-23,89	608	9,81	111	20,71	3,7	10,4	8,9	72,5	0,9	1,8	0,6	1,2		
<i>Carduelis cannabina</i>	2,4	40,97	4.084	20,52	379	70,71	12,0	19,3	8,6	47,4	4,9	4,5	0,2	2,5	0,4	
<i>Carduelis carduelis</i>	8	169,09	6.325	26,91	478	89,18	18,9	12,0	9,4	42,0	8,1	7,4	0,2	1,9	0,2	
<i>Carduelis chloris</i>	10,13	181,58	3.758	17,48	427	79,66	18,2	11,0	5,9	44,6	10,7	7,8	0,4	1,2	0,2	
<i>Certhia brachydactyla</i>	2,75	17,3	611	4,02	207	38,62	61,4	7,9	4,9	13,2	3,2	8,8		0,5		
<i>Cettia cetti</i>	4,64	72,3	850	8,85	258	48,13	14,2	4,9	9,9	31,3	6,1	31,1	0,2	2,3		
<i>Cinclus cinclus</i>	12,97	366,4	35	3,89	19	3,54	16,2	16,2	18,9	5,4	2,7	35,1		5,4		
<i>Cisticola juncidis</i>	-0,69	-35,9	415	5,93	142	26,49	5,2	5,4	11,8	61,2	5,4	9,9	0,5	0,5		
<i>Clamator glandarius</i>	7,96	70,2	122	3,59	71	13,25	14,9	14,2	10,4	53,7	2,2	2,2		2,2		
<i>Coccothraustes coccothraustes</i>	3,03	98,8	60	4,00	26	4,85	65,4	11,5	3,8	3,8		15,4				
<i>Columba livia</i>	11,96	542,77	7.324	58,13	236	44,03	8,5	9,3	6,4	46,2	18,1	8,3	1,1	1,2	0,9	
<i>Columba oenas</i>	-1,47	-29,2	214	6,48	52	9,70	11,7	10,7	5,8	50,5	7,8	10,7		2,9		
<i>Columba palumbus</i>	5,8	85,3	5.605	25,02	444	82,84	28,8	13,1	7,5	37,0	4,9	7,0	0,3	1,1	0,1	
<i>Coracias garrulus</i>	-2,91	-25,4	36	3,00	27	5,04	8,9	8,9	4,4	73,3		4,4				
<i>Corvus corax</i>	-3,2	-7,05	533	4,23	248	46,27	26,9	15,9	16,9	29,1	2,6	4,8		3,3	0,5	
<i>Corvus corone</i>	2,59	35,08	3.001	19,61	290	54,10	24,0	10,7	16,0	36,9	4,3	5,9	0,5	1,4	0,3	
<i>Corvus frugilegus</i>	2,57	307,4	51	25,50	6	1,12	10,0	20,0	10,0	40,0		10,0		10,0		
<i>Corvus monedula</i>	-1,41	35,4	2.093	24,92	159	29,66	11,6	12,6	9,8	43,2	7,7	8,7	0,3	5,4	0,8	
<i>Coturnix coturnix</i>	-2,9	-3,2	798	6,44	224	41,79	8,1	7,5	8,6	69,8	4,1	1,8		0,1		
<i>Cuculus canorus</i>	5,65	89,26	2.878	13,64	409	76,31	32,9	17,9	12,3	25,6	3,9	5,9		1,4	0,1	
<i>Cyanopica cyanus</i>	2,92	4,71	1.746	30,10	111	20,71	49,7	12,5	7,8	20,7	1,4	7,8				
<i>Delichon urbicum</i>	5,09	21,24	4.549	28,97	324	60,45	10,9	12,1	6,7	34,1	20,6	11,9	0,8	2,7	0,1	
<i>Dendrocopos major</i>	10,29	231,9	381	3,89	194	36,19	56,2	8,3	6,1	16,2	2,4	10,3	0,2	0,2		
<i>Emberiza calandra</i>	1,24	26,68	5.781	26,04	422	78,73	12,5	11,6	10,3	56,5	3,2	4,8	0,1	0,9	0,2	
<i>Emberiza cia</i>	4,99	113,9	491	6,38	156	29,10	28,5	35,0	12,4	13,4	1,0	5,4		3,6	0,7	
<i>Emberiza cirius</i>	2,74	66	591	4,44	182	33,96	26,2	13,0	6,9	34,4	7,4	9,1	0,9	2,2		
<i>Emberiza citrinella</i>	1,89	48,6	207	7,67	52	9,70	16,0	25,3	32,7	20,0	2,0	3,3		0,7		
<i>Emberiza hortulana</i>	9,35	121,7	143	5,11	45	8,40	12,9	46,5	7,9	28,7		2,0		2,0		
<i>Erithacus rubecula</i>	8,49	142,95	2.056	15,23	261	48,69	47,9	12,1	13,5	10,6	5,9	7,8	0,4	1,3	0,5	
<i>Ficedula hypoleuca</i>	19,76	252,7	32	1,88	38	7,09	43,1	7,8	7,8	21,6	3,9	15,7				
<i>Fringilla coelebs</i>	6,48	74,97	6.338	30,33	412	76,87	44,9	15,0	9,9	18,6	3,0	6,4	0,1	1,7	0,4	
<i>Galerida cristata</i>	-1,51	-12,77	6.432	34,96	371	69,22	8,0	9,0	7,8	66,1	3,4	3,9	0,3	1,2	0,2	
<i>Galerida theklae</i>	6,63	95,7	858	6,00	142	26,49	12,4	33,3	7,9	39,9	1,4	1,9		3,1		
<i>Garrulus glandarius</i>	3,19	70,21	798	6,44	244	45,52	49,1	15,5	12,5	13,0	2,2	5,4	0,1	2,1	0,1	
<i>Hippolais polyglotta</i>	0,97	-10,8	618	5,11	201	37,50	19,3	16,6	10,1	36,1	3,4	12,4	0,2	1,8	0,2	
<i>Hirundo daurica</i>	-3,64	-51,6	1.421	21,86	128	23,88	18,2	16,0	5,2	39,7	4,9	13,7		2,3		
<i>Hirundo rustica</i>	-1,09	8,18	10.143	41,74	494	92,16	12,0	9,7	9,6	46,8	11,5	8,7	0,5	1,1	0,2	
<i>Jynx torquilla</i>	9,03	374	166	2,91	91	16,98	22,4	13,2	10,3	27,6	8,0	14,4	0,6	3,4		
<i>Lanius collurio</i>	4,4	72,2	143	3,86	64	11,94	12,8	16,0	35,2	24,0	6,4	5,6				
<i>Lanius meridionalis</i>	0,47	12,1	309	3,40	169	31,53	16,9	20,5	15,2	38,8	2,8	3,3	0,6	1,9		
<i>Lanius senator</i>	-3,93	-41,1	811	6,76	292	54,48	27,1	15,5	11,9	37,5	1,7	4,8	0,1	1,2	0,2	
<i>Loxia curvirostra</i>	7,44	127,8	301	11,58	48	8,96	63,1	19,7		11,5		4,9		0,8		
<i>Lullula arborea</i>	2,06	27,7	1.367	11,49	206	38,43	35,7	24,4	10,2	22,2	1,1	4,2		1,8	0,3	
<i>Luscinia megarhynchos</i>	3,93	53,53	4.045	19,83	385	71,83	22,8	14,3	8,2	35,4	5,1	12,3		1,6	0,2	
<i>Melanocorypha calandra</i>	-2,08	-8,52	2.889	37,04	153	28,54	2,8	6,4	6,9	81,6	0,9	1,2		0,2	0,1	
<i>Merops apiaster</i>	0,91	24,73	4.013	22,17	364	67,91	19,0	14,9	7,2	44,5	3,8	8,5	0,1	1,8	0,2	
<i>Monticola saxatilis</i>	5,06	290,9	22	2,75	21	3,92		48,5	18,2	3,0	3,0	3,0		24,2		
<i>Monticola solitarius</i>	-2,93	-43,6	75	2,88	45	8,40	12,7	25,4	3,2	9,5	6,3	3,2		39,7		
<i>Motacilla alba</i>	-0,99	-19,1	572	5,78	260	48,51	13,5	7,8	13,9	29,0	17,0	15,0	1,0	2,8		
<i>Motacilla cinerea</i>	-3,09	-19,6	123	2,51	81	15,11	22,3	6,6	8,3	18,2	5,8	33,1	0,8	3,3	1,7	
<i>Motacilla flava</i>	4,71	82,5	487	9,37	90	16,79	2,3	2,3	10,2	72,1	4,5	8,3	0,4			
<i>Muscicapa striata</i>	1,46	-19,4	76	2,30	73	13,62	33,3	10,8	4,2	28,3	10,8	9,2		3,3		
<i>Oenanthe hispanica</i>	-1,39	-2	356	4,88	139	25,93	7,4	28,1	5,6	47,4	2,1	2,5	0,4	6,3	0,4	
<i>Oenanthe leucura</i>	0,18	40,9	53	2,65	41	7,65	9,0	33,3	2,6	14,1	5,1	5,1	1,3	28,2	1,3	
<i>Oenanthe oenanthe</i>	-0,76	18,3	637	7,41	159	29,66	6,1	12,5	15,8	53,8	5,7	2,0	0,4	3,2	0,6	
<i>Oriolus oriolus</i>	8,01	114,8	1.262	8,04	303	56,53	29,5	12,3	8,0	31,1	4,5	12,1	0,2	2,2	0,1	

Table 2. Results of species recorded between 1996-2005. % change per year: value (as a percentage) of the change of population of each species from one year to another. % change from 1996-2005: value (as a percentage) of the change of population of each species between the years 1996 and 2005. Quantity (n°: total number of birds recorded of each species in the surveyed squares in 2005, x: the mean of birds per occupied square in 2005). Distribution (SQ: number of squares in which each species has been recorded in 2005, %: the percentage of squares in which each species has been recorded in 2005). Habitat: shows the percentage of individuals recorded in each habitat (W: woodland, S: scrub, G: grasslands and salt marsh, F: farmland, H: inhabited areas, WT: wetlands, C: coasts, R: rocky terrain, O: others). Values higher than 20% are shaded.

SPECIE	%CHANGE PER YEAR	%CHANGE 1996-2005	QUANTITY		DISTRIBUTION		HABITAT								
			n°	x	SQ	%	W	S	G	F	H	WT	C	R	O
<i>Parus ater</i>	2,72	38,3	841	5,88	185	34,51	68,3	12,6	5,4	7,4	2,5	2,3	0,1	1,2	0,1
<i>Parus caeruleus</i>	3,8	46,43	1.795	10,75	326	60,82	51,3	12,9	8,6	13,6	4,0	7,6	0,1	1,3	0,7
<i>Parus cristatus</i>	1,63	-12,8	289	3,96	125	23,32	70,9	12,3	2,5	5,3	2,9	4,5		1,6	
<i>Parus major</i>	4,5	47,1	3.481	15,89	446	83,21	39,8	13,7	8,5	24,3	4,8	6,7	0,1	2,1	0,1
<i>Parus palustris</i>	-11,05	-84,9	20	2,50	19	3,54	85,2	3,7			7,4	3,7			
<i>Passer domesticus</i>	1,59	36,45	29.329	116,85	504	94,03	13,0	9,1	9,1	45,6	14,1	6,8	0,8	1,3	0,2
<i>Passer hispaniolensis</i>	-1,69	-25,7	350	23,33	35	6,53	37,2	8,1	8,1	26,7	7,0	3,5	1,2	2,3	5,8
<i>Passer montanus</i>	2,78	54,9	1.508	16,94	146	27,24	7,2	6,6	5,9	61,7	8,2	9,6	0,5	0,3	
<i>Petronia petronia</i>	2,34	48,18	1.697	16,80	159	29,66	23,7	12,7	6,8	35,4	10,6	6,8	0,2	3,5	0,2
<i>Phoenicurus ochruros</i>	5,18	45,6	423	4,32	179	33,40	14,1	16,8	11,4	17,3	23,7	8,0	1,1	7,4	0,3
<i>Phoenicurus phoenicurus</i>	15,06	451,8	54	3,18	26	4,85	35,9	7,7	10,3	15,4	20,5	2,6		7,7	
<i>Phylloscopus bonelli</i>	6,82	83,2	1.185	47,40	141	26,31	48,0	17,3	8,0	16,5	2,1	7,2		0,7	0,2
<i>Phylloscopus collybita</i>	-5,64	-25,7	236	3,87	113	21,08	43,5	13,3	10,8	17,6	4,0	9,0	0,7	0,7	0,4
<i>Phylloscopus ibericus</i>	2,13	40,6	256	7,11	58	10,82	44,9	13,0	12,1	13,5	3,4	12,6		0,5	
<i>Pica pica</i>	2,13	40,63	3.199	17,11	384	71,64	12,4	11,9	12,0	46,8	8,6	6,4	0,4	1,2	0,2
<i>Picus viridis</i>	0,24	14,1	774	8,60	298	55,60	31,0	16,3	10,2	27,8	3,3	8,5	0,2	2,2	0,4
<i>Prunella modularis</i>	4,02	73,8	435	8,88	85	15,86	22,8	36,0	20,1	9,9	3,3	5,6	0,7	1,7	
<i>Ptyonoprogne rupestris</i>	4,32	111,1	331	7,36	93	17,35	15,5	25,4	5,6	7,0	4,9	17,6		23,9	
<i>Pyrrhocorax pyrrhocorax</i>	0,7	31,7	776	4,88	97	18,10	17,2	24,2	9,1	28,8	5,1	3,5	1,0	10,1	1,0
<i>Pyrrhula pyrrhula</i>	0,7	31,7	84	3,23	53	9,89	46,0	15,0	21,0	2,0	7,0	8,0		1,0	
<i>Regulus ignicapilla</i>	6,73	138,3	330	4,29	130	24,25	67,8	12,4	3,7	5,3	3,4	5,9	0,3	0,9	0,3
<i>Regulus regulus</i>	-1,61	3,6	11	1,22	17	3,17	59,1	9,1	18,2			13,6			
<i>Remiz pendulinus</i>	21,92	1459,6	22	2,75	15	2,80		4,5	4,5	27,3		63,6			
<i>Riparia riparia</i>	10,72	224,2	454	25,22	26	4,85	2,8	2,8	11,1	36,1		41,7		5,6	
<i>Saxicola rubetra</i>	-4,9	-31,8	27	1,69	29	5,41	12,5	9,4	18,8	50,0		9,4			
<i>Saxicola torquatus</i>	1,72	13,3	1.218	12,82	335	62,50	12,9	24,4	16,8	35,9	4,0	3,5	0,4	2,1	0,1
<i>Serinus serinus</i>	3,39	43,88	7.110	30,78	476	88,81	24,7	14,4	7,7	33,8	8,6	8,0	0,3	2,2	0,3
<i>Sitta europaea</i>	9,52	194,3	214	5,22	85	15,86	83,6	3,0	4,0	3,0	2,0	3,5		1,0	
<i>Streptopelia decaocto</i>	32,6	919,2	1.640	10,86	317	59,14	21,4	7,6	6,9	34,0	20,7	7,4	0,8	0,9	0,2
<i>Streptopelia turtur</i>	9,9	15,1	1.438	8,99	312	58,21	26,9	13,0	5,3	40,8	4,4	7,3	0,6	1,3	0,4
<i>Sturnus unicolor</i>	3,77	54,68	17.683	79,65	450	83,96	16,4	10,4	10,3	43,0	11,0	6,9	0,5	1,4	0,1
<i>Sturnus vulgaris</i>	1,38	43,7	984	12,00	45	8,40	11,5	8,3	10,2	42,7	14,6	7,0	0,6	5,1	
<i>Sylvia atricapilla</i>	5,83	73,67	2.010	12,97	294	54,85	35,9	13,2	13,0	19,0	6,2	10,1	0,4	1,7	0,4
<i>Sylvia borin</i>	-2,42	-21,2	177	4,92	58	10,82	19,5	19,5	16,8	17,4	8,7	16,8		1,3	
<i>Sylvia cantillans</i>	10,209	-3,3	533	4,23	133	24,81	35,8	32,8	4,7	19,4	2,1	3,2		2,1	
<i>Sylvia communis</i>	5	73,1	364	7,91	77	14,37	16,5	30,3	20,8	22,9	1,7	6,5		1,3	
<i>Sylvia hortensis</i>	5,94	129,5	137	3,61	59	11,01	33,3	23,1	6,0	33,3	1,7	1,7			0,9
<i>Sylvia melanocephala</i>	1,6	-15,88	1.734	14,82	226	42,16	23,9	24,4	4,1	36,4	3,8	3,7	0,2	3,0	0,6
<i>Sylvia undata</i>	-3,3	-26,6	308	4,00	142	26,49	26,0	45,1	4,2	16,0		3,5		4,9	0,3
<i>Troglodytes troglodytes</i>	6,5	102,34	1.901	15,09	232	43,28	39,3	14,4	14,9	11,4	6,5	11,2	0,2	2,1	0,2
<i>Turdus merula</i>	3,91	36,64	6.057	26,33	479	89,37	32,5	15,4	10,6	24,7	7,0	7,2	0,3	1,9	0,4
<i>Turdus philomelos</i>	12	280,7	625	5,30	164	30,60	41,1	9,8	21,0	12,8	6,5	7,2	0,2	1,2	0,2
<i>Turdus viscivorus</i>	0,7	2,1	548	5,71	165	30,78	44,0	20,5	11,7	18,7	1,3	1,6		1,8	0,5
<i>Upupa epops</i>	1,06	21,41	2.104	10,21	410	76,49	22,9	13,5	9,5	43,8	3,7	5,6		1,0	0,1

Table 2. (cont.) Results of species recorded between 1996-2005. % change per year: value (as a percentage) of the change of population of each species from one year to another. % change from 1996-2005: value (as a percentage) of the change of population of each species between the years 1996 and 2005. Quantity (n°: total number of birds recorded of each species in the surveyed squares in 2005, x: the mean of birds per occupied square in 2005). Distribution (SQ: number of squares in which each species has been recorded in 2005, %: the percentage of squares in which each species has been recorded in 2005). Habitat: shows the percentage of individuals recorded in each habitat (W: woodland, S: scrub, G: grasslands and salt marsh, F: farmland, H: inhabited areas, WT: wetlands, C: coasts, R: rocky terrain, O: others). Values higher than 20% are shaded.

SPECIES ASSOCIATED WITH WOODLAND

Species included in this group are those that have been recorded in more than 40% of squares situated in woodland. The majority have a positive trend, except the Marsh Tit (*Parus palustris*) and the Common Chiffchaff (*Phylloscopus collybita*).

The species that have been recorded in the

greatest numbers are the Common Chaffinch (*Fringilla coelebs*) and the Robin (*Erithacus rubecula*). Species recorded in the most squares are the Common Chaffinch and the Blue Tit (*Parus caeruleus*).

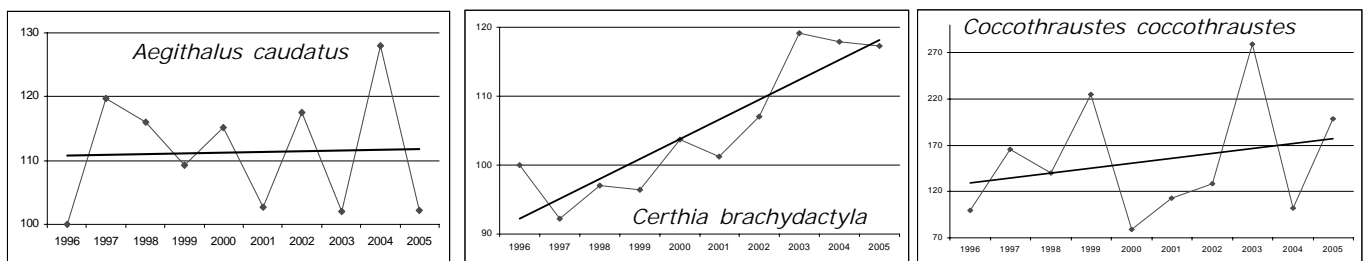


Figure 6. Population trends in woodland birds.

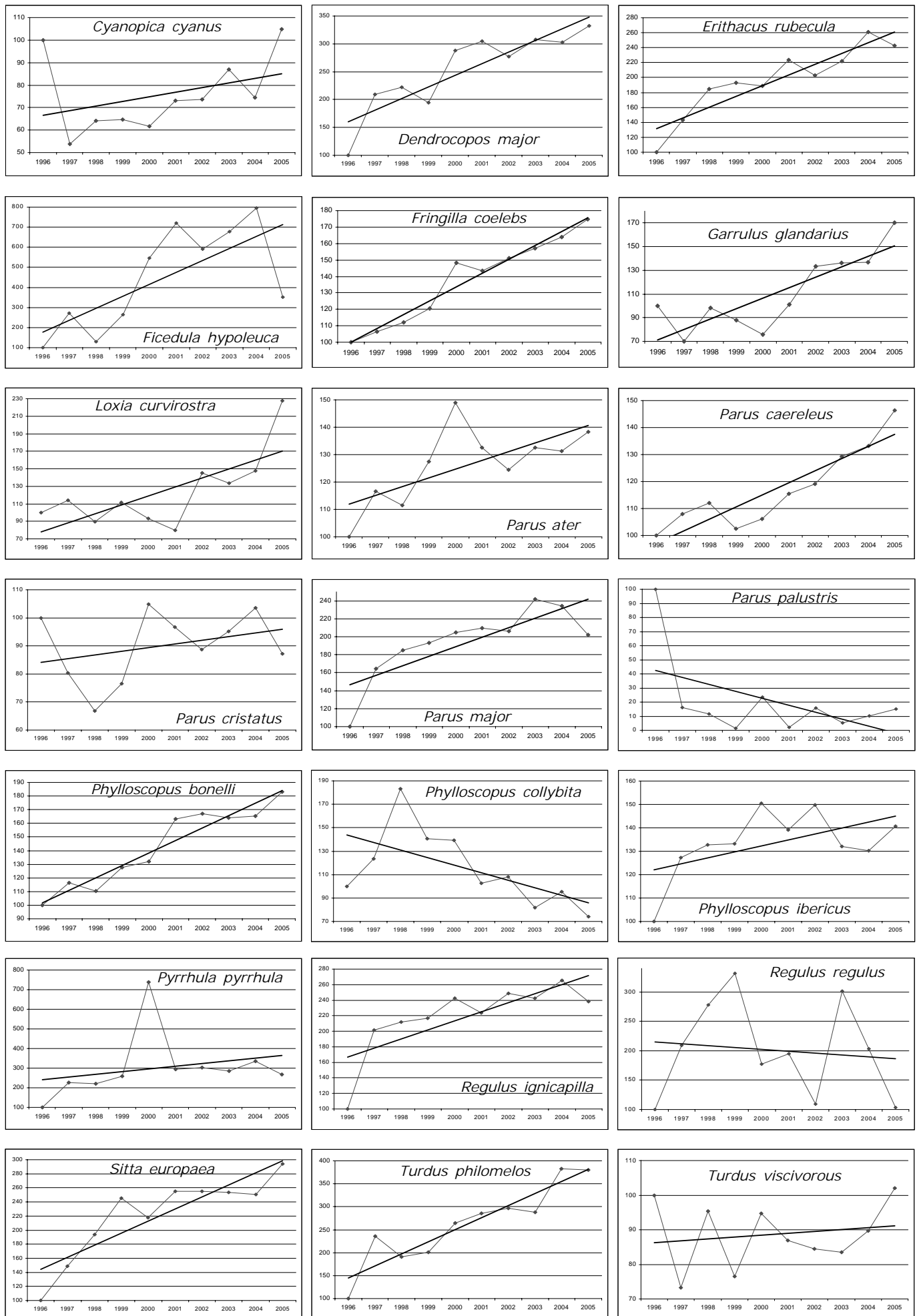


Figure 6. (cont.) Population trends in woodland birds.

SPECIES ASSOCIATED WITH SCRUB

The majority of bird species that have been recorded with high percentages in scrub, have also been found in other habitats, but only those that have been recorded with a percentage greater than 30% have been considered. The trend in these

species is positive, except in the case of the Dartford Warbler (*Sylvia undata*). The most abundant bird, which also has the greatest number of records, is the Rock Bunting (*Emberiza cia*).

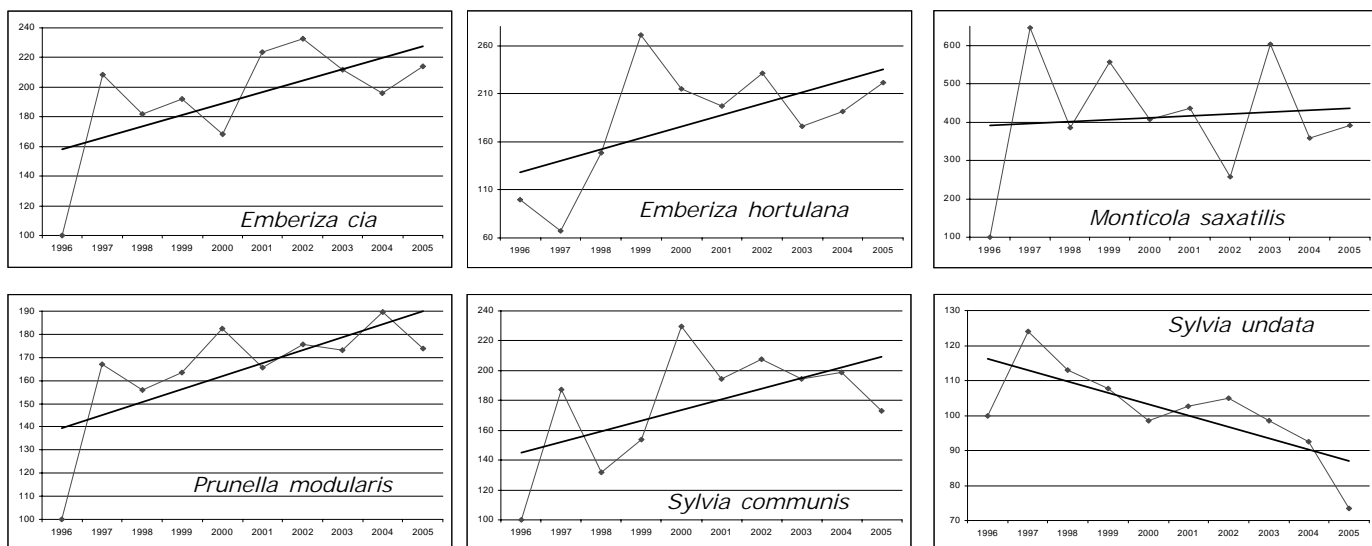


Figure 7. Population trends for birds associated with scrub.

SPECIES ASSOCIATED WITH FARMLAND

Only species with a percentage of individuals greater than 39% in this type of habitat have been considered. The species recorded in the greatest numbers and in the most surveyed squares

have been the Barn Swallow, the Crested Lark (*Galerida cristata*) and the Corn Bunting (*Emberiza calandra*). The majority of the species recorded in this habitat have seen a negative trend.

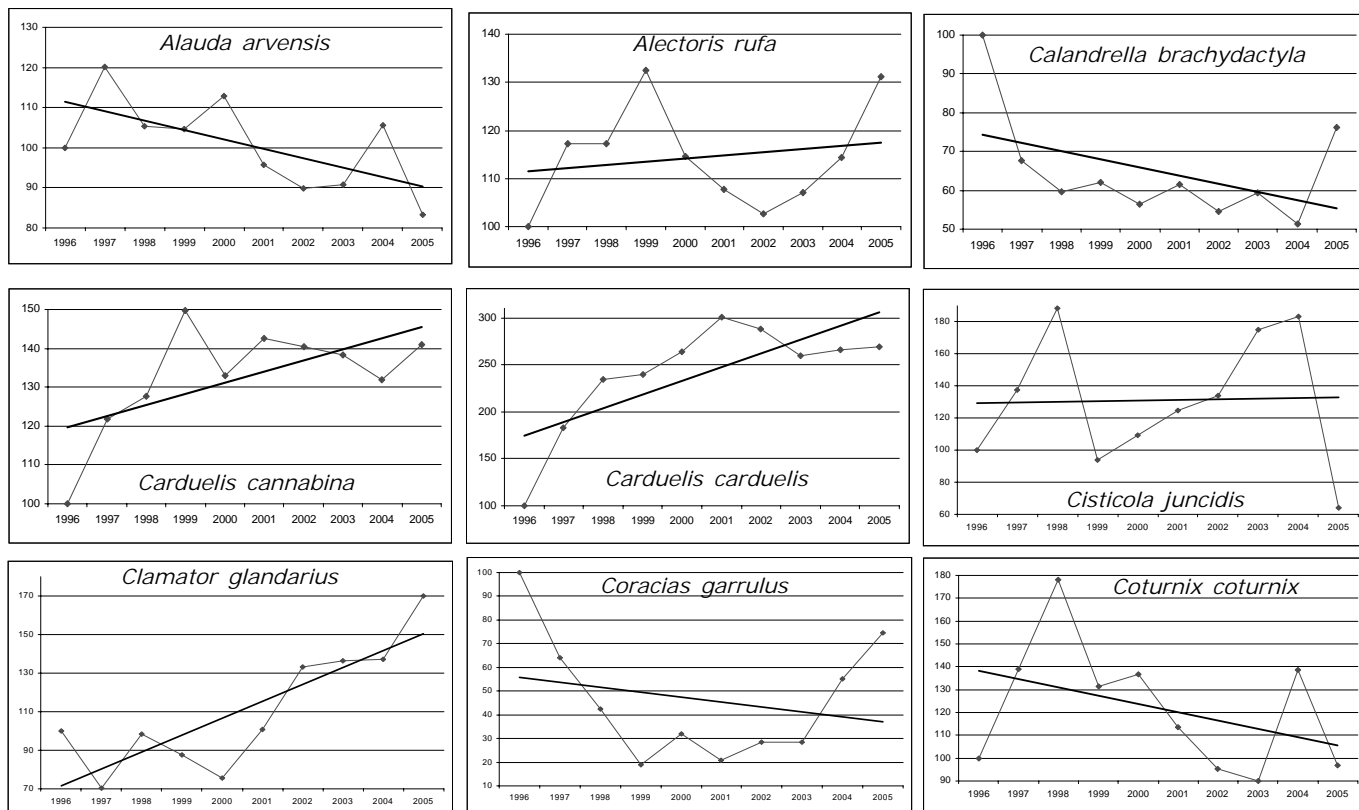


Figure 8. Population trends for birds associated with farmland.

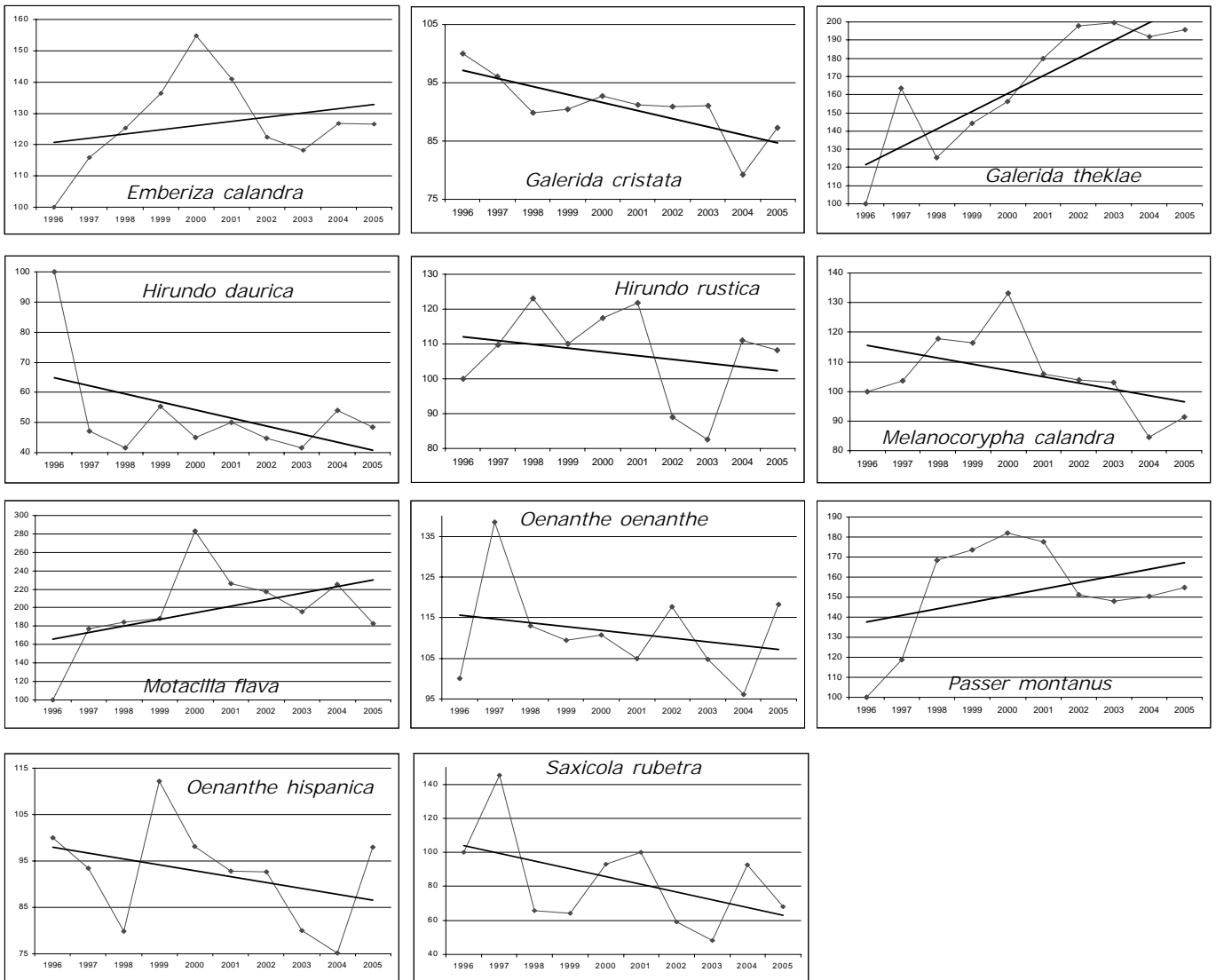


Figure 8. (cont.) Population trends for birds associated with farmland.

———— SPECIES ASSOCIATED WITH INHABITED AREAS ————

The three species here have a high percentage of records in farmland, but they have been included in this group because they are regularly observed in this type of habitat. Also, the Barn Swallow could have been included in this

group, but it has a high percentage of records on farmland and the Black Redstart (*Phoenicurus ochruros*) which has been included in Other Habitats. The most abundant and well-distributed species is the House Sparrow.

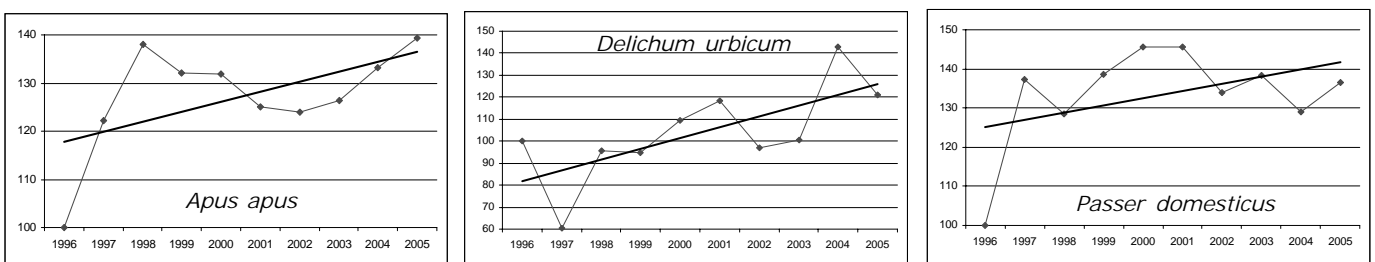


Figure 9. Population trends of birds associated with inhabited areas.

SPECIES ASSOCIATED WITH WETLANDS

Species included have a presence greater than 35% in this type of habitat. The general trend of each one of them is positive, but populations of the Great Reed Warbler (*Acrocephalus*

arundinaceus), Common Kingfisher (*Alcedo atthis*), Penduline Tit (*Remiz pendulinus*) and Sand Martin (*Riparia riparia*) have declined in recent years.

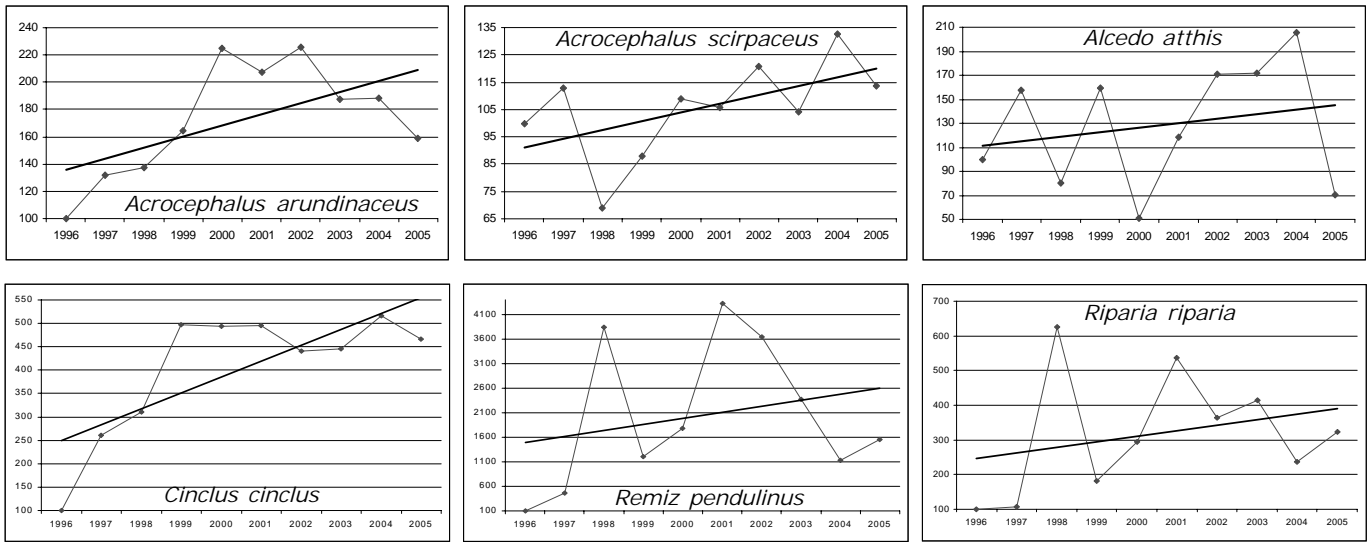


Figure 10. Population trends of birds associated with wetlands.

OTHER HABITATS (GRASSLANDS, SALT MARSH, WETLANDS, COASTS, ROCKY TERRAIN...)-

In this section, the species include those which are not found in the previous categories, due to the fact that they have been recorded in many of them with high percentages. The following species have seen an increase: the Rock Dove

(including feral pigeon) (*Columba livia*) and Eurasian Collared Dove (*Streptopelia decaocto*) with declines for the Blue Rock Thrush (*Monticola solitarius*) and Woodchat shrike (*Lanius senator*).

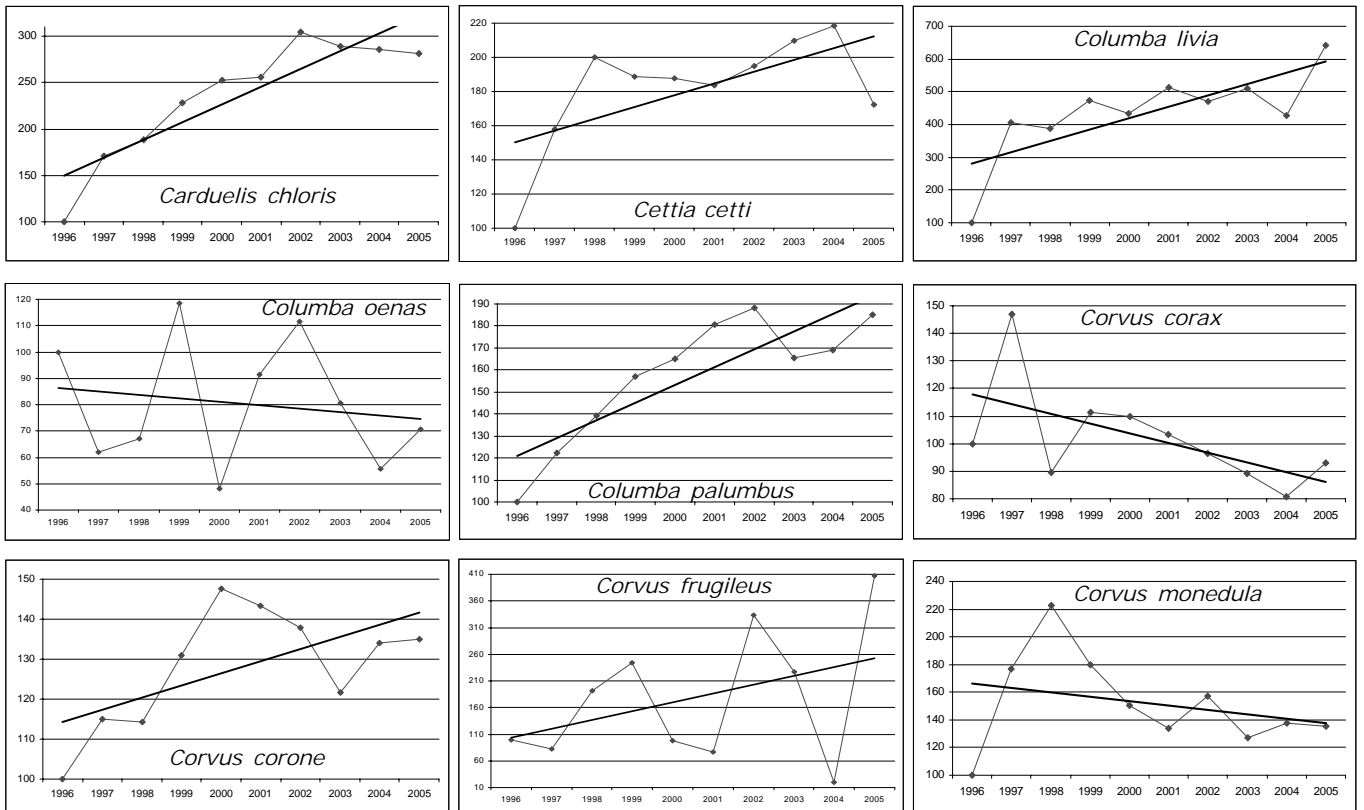


Figure 11. Population trends of birds associated with other habitats.

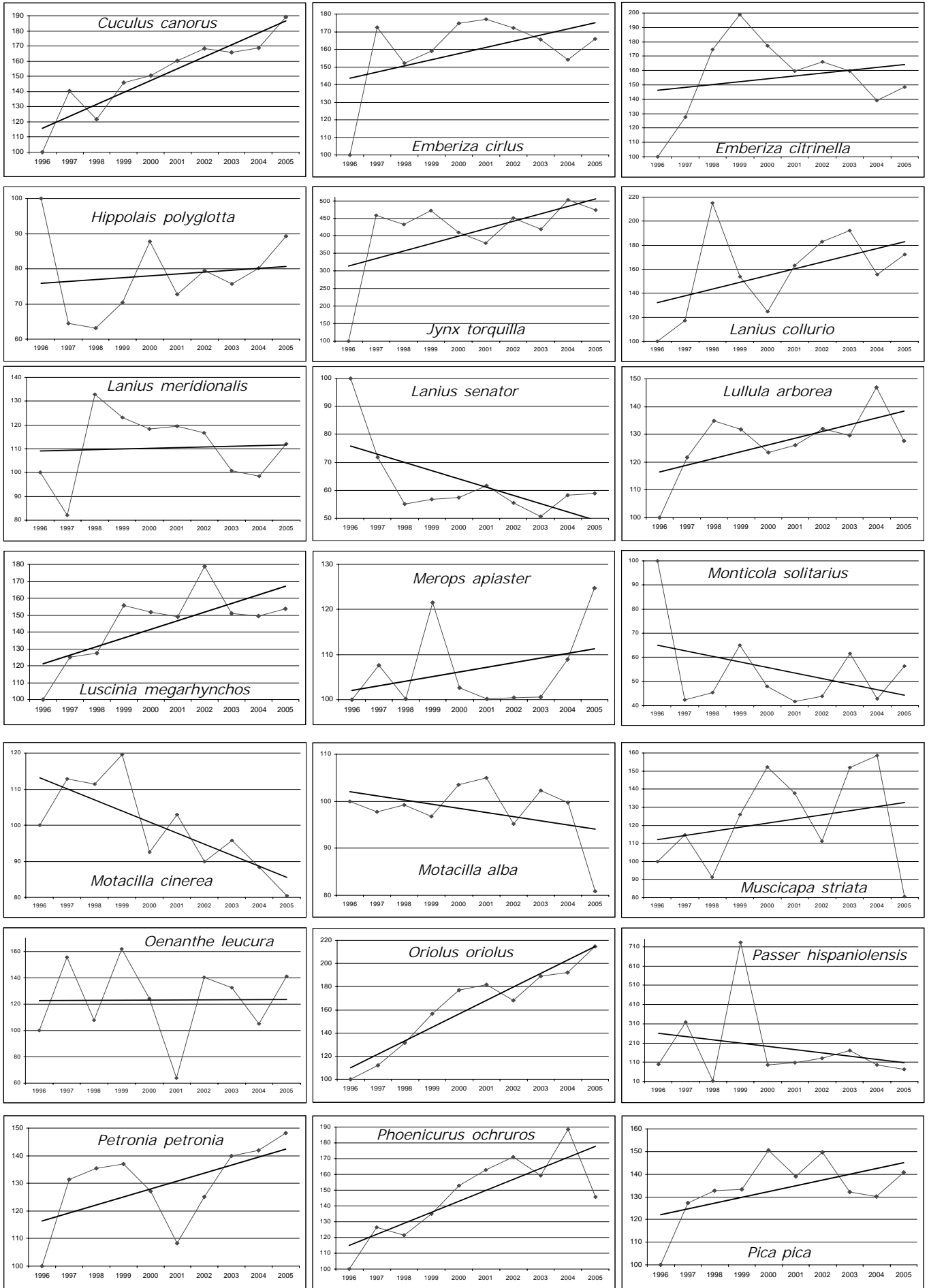


Figure 11 (cont.). Population trends of birds associated with other habitats.

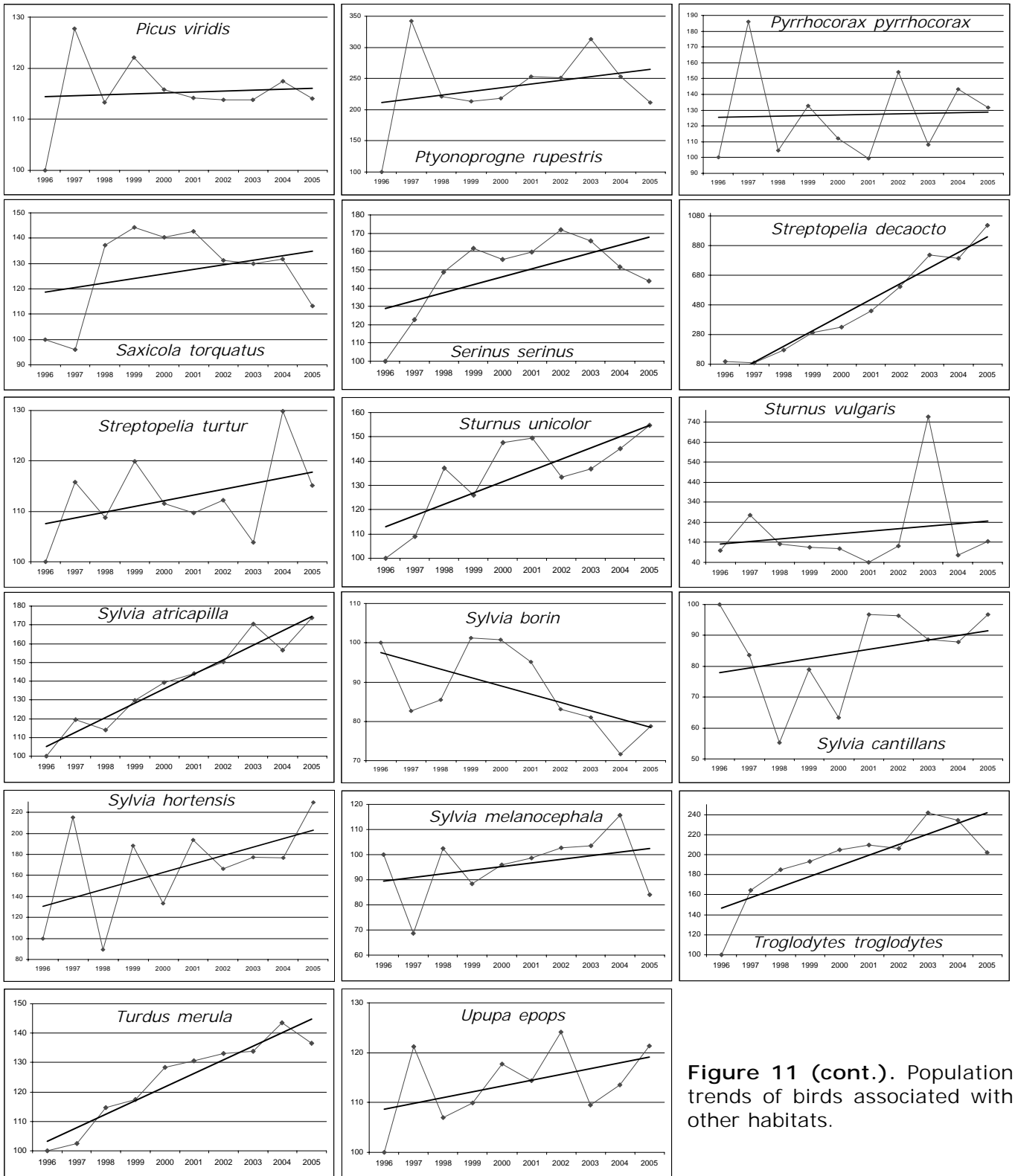


Figure 11 (cont.). Population trends of birds associated with other habitats.

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