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A review of large-scale generic population monitoring schemes in Europe

(2nd edition)

John H Marchant, Claire Forrest & Jeremy J D Greenwood

A report to the Royal Society for the Protection of Birds on behalf of the European Bird Census Council

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1 INTRODUCTION

It has been difficult to discover where advice and assistance are needed in implementing and running bird monitoring schemes in Europe. As a first stage to attempt to remedy this, RSPB/BirdLife International commissioned a review of large-scale generic population monitoring schemes (those that monitor population levels of a large number of species over a wide geographical areas) in European countries. The BTO was commissioned to conduct this review, on behalf of EBCC, and reported its results in September 1996, in time for the EBCC/BirdLife 'Villa Cipressi' workshop which considered the future of bird monitoring in Europe and particularly EBCC's role in this.

This second edition of the report incorporates subsequent minor revisions.

2 METHODS AND TIMETABLE OF ACTIVITIES

This review covered three types of survey: complete population surveys, sample surveys of populations and distribution atlases. To ensure that only large-scale surveys were included, they had to meet the criteria of covering two or more species and a minimum geographical area of 10000 km^2 (although surveys covering whole countries of less than 10000 km^2 were included). In the event, one or two borderline cases were included that may have covered a slightly smaller area.

Information was gathered through questionnaires that were designed separately for each of the three types of survey and were in each case accompanied by explanatory notes. The questionnaires and explanatory notes form Appendices 1-3 of this report. The questionnaires were finalised, following discussions with the EBCC Executive Committee (ExCo) and with David Gibbons (RSPB), on April 6 1995. The list of countries to be surveyed was provided by RSPB; Appendix 4 gives the full list, with notes about countries that were not contacted or were included elsewhere. Questionnaires were sent out to EBCC delegates, BirdLife representatives and contacts provided by the European Ornithological Atlas Organiser with a request that they should be distributed to relevant persons in each country for completion. Completed questionnaires were returned either directly or via the national EBCC delegate.

The timetable of activities was as follows:

1995

May 19 — Questionnaires were sent to EBCC delegates (or other contacts as above) in 38 countries.

September 5 — Reminder letters were sent out to those countries that had not yet responded. Thank you letters were sent to countries that had responded.

September 20 — Interim Report was produced containing a summary of all the completed questionnaires received up to September 15.

September 25-28: — EBCC *Bird Numbers 1995* conference in Pärnu, Estonia. The Interim Report was discussed with David Gibbons at a meeting of ExCo. A display illustrated to conference delegates the responses received to date and requested that delegates provide further information by completing questionnaires available from the Conference secretariat.

November 1 — A second reminder letter was sent to the countries that had still not responded.

November 14 — Individual summaries of the questionnaires received were sent to each country that had responded to date. If the country contact identified any schemes that had not been covered, questionnaires were sent from the UK to the relevant person(s) named by the contact.

1996

January 18 — Third and final reminder letter was sent to four of the six remaining countries that had not responded: Bulgaria, Greece, Hungary and

	Iceland. Russia and Moldavia were not approached. The Russian delegate had indicated in the autumn of 1995 that the questionnaires would be completed during the winter. Moldavia was not reminded because slow communication to this country meant a new approach was unlikely to elicit a faster response.
February	Selected information from the three types of completed questionnaires was input into standard fields in three Paradox databases.
February 20	Final questionnaires received and incorporated into databases and final report.
February 23	Final report completed in draft.
June	Comments from RSPB and ExCo members incorporated into draft report.
July & August	Some analyses of information collected by the Review were carried out and the results incorporated in the draft report.
September 4	Report circulated to delegates prior to EBCC workshop on *Monitoring Birds in Europe* at Villa Cipressi, Varenna, Italy.
1998	
March	Second (revised) edition produced prior to EBCC *Bird Numbers 1998* conference in Cottbus, Germany.

3 RESULTS

Appendix 4 lists the countries of Europe (from a list supplied by RSPB) and indicates the response received from each. Complete and sample surveys have been split into current and discontinued schemes. We have included all atlases and surveys that meet the minimum requirements for number of species and area covered (see section 2). The basic information supplied for these schemes is summarised country by country in Appendices 5, 6 and 7.

From 38 European countries that were contacted, 35 provided a response, either positive or negative. This represents a 92% response rate, which exceeds the 65-75% minimum response rate set by ExCo in September 1995. A total of 207 completed questionnaires was received, excluding those that fell outside the requirements of large-scale generic population monitoring schemes; 77 of these were received after the Interim Report was produced in September 1995. Thirty questionnaires were completed for schemes which fell outside the review's requirements: these schemes are listed in Appendix 8.

Of the 35 countries that responded, two provided information for only part of their area: questionnaires were completed for Flanders in Belgium but not Wallonia, and the responses from Russia covered Tatarstan only. Bulgaria, Greece and Moldavia failed to respond.

In November 1995 all countries that had responded by that stage were asked whether they had provided all the information on monitoring schemes that was relevant to the review. Table 1 lists the countries that were contacted and their responses.

Table 1. Response of countries to request for confirmation that all relevant information had been supplied. '-' indicates no response.

Country	All relevant information provided?	Country	All relevant information provided?
Austria	-	Netherlands	-
Belgium	-	Norway	-
Byelorusse	-	Poland	-
Czech Republic	-	Portugal	-
Denmark	Yes	Romania	Yes
Finland	Yes	Slovakia	Yes
France	-	Slovenia	Yes
Germany	No	Spain	-
Lithuania	-	Sweden	Yes
Luxembourg	-	Ukraine	-

For Germany, where it was indicated that some information had not yet been supplied, contacts for the missing schemes were provided with questionnaires for completion. Some of the information collected is illustrated in map form on the following pages.

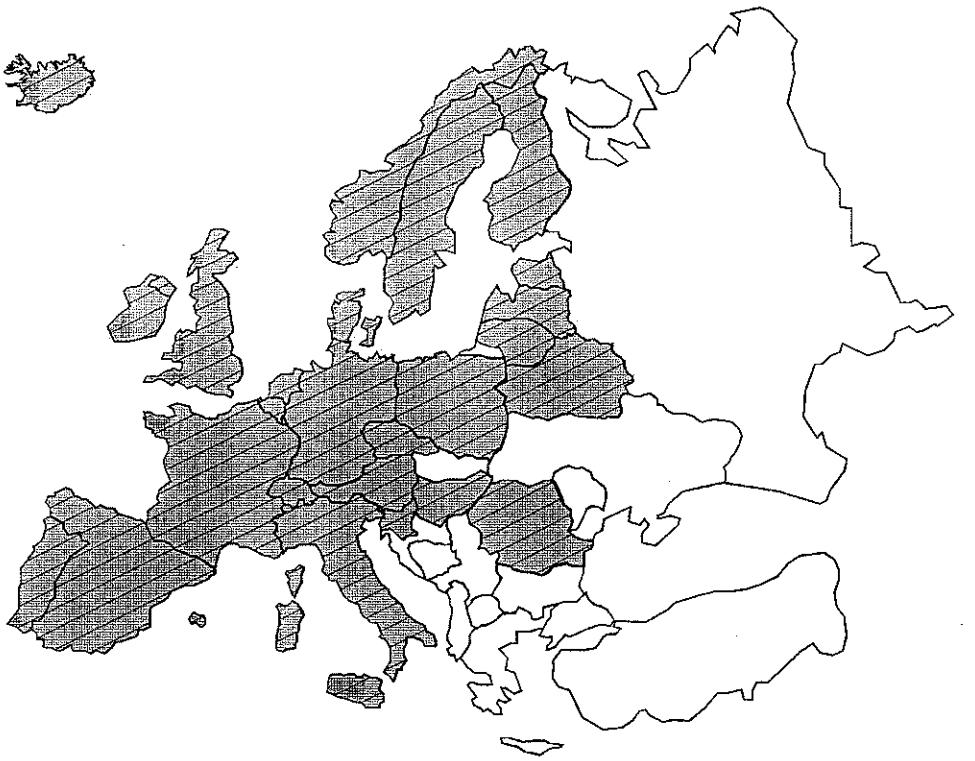

Figure 1. Countries with national breeding atlases.

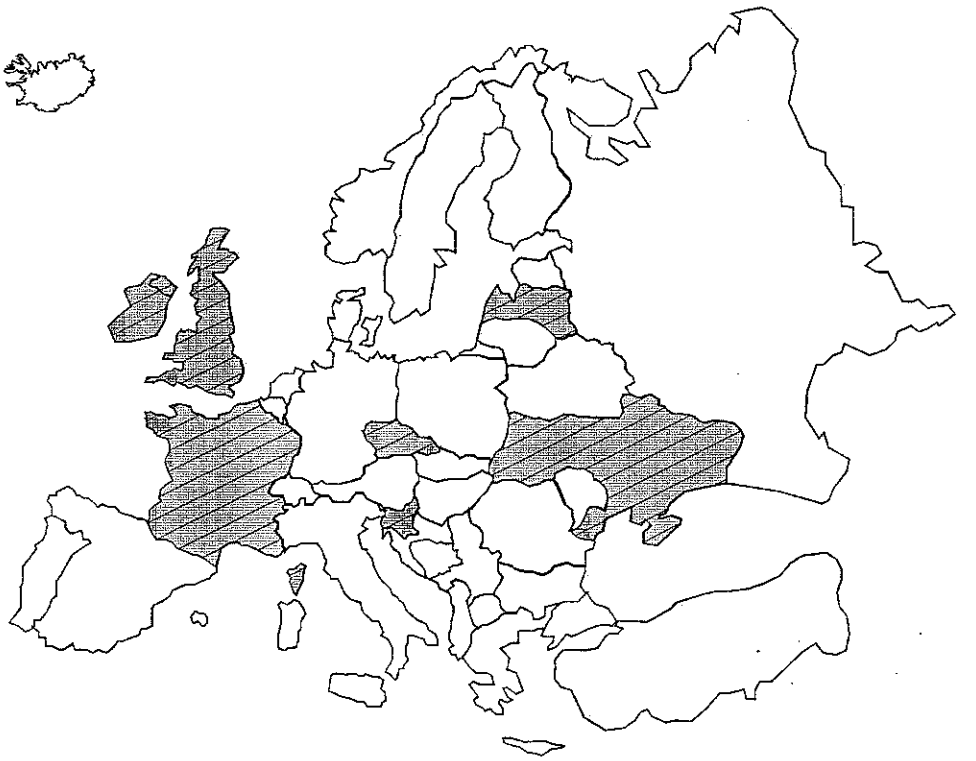

Figure 2. Countries with national wintering atlases.

Figure 3. Countries with year-round atlases.

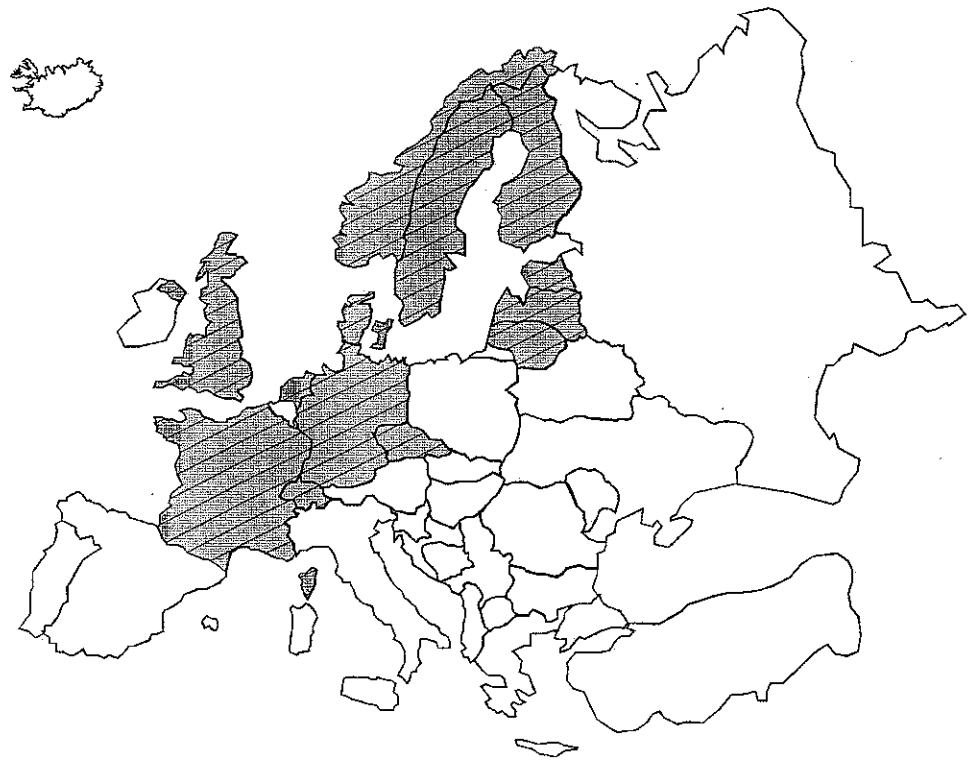

Figure 4. Countries with sample breeding surveys covering all or most species every year.

4 ANALYSES AND DISCUSSION

Selected information from all Sample Survey, Complete Survey and Atlas questionnaires included in the review was put into standard fields in three computer database files, one for each type of scheme. The software used was Paradox for Windows, version 5.0.

The fields selected for each database largely follow the questions in the relevant questionnaire, but not all the information provided by the questionnaires has been computerised. The selection of information to be computerised was based, first, on the usefulness of the information within a database and, second, on the ease of computerising it. Appendix 9 contains notes explaining the fields used in each database.

The following sections describe the analyses we have made using the review's databases. Most of the analyses cover complete and sample surveys only, where we felt there was most to discover.

4.1 Field methods and methods of plot selection

The field methods used for annual sample counts fell into several categories that were mostly exclusive (Table 2). By far the most frequent was complete counts (including territory mapping) of the sample areas (37% of the surveys reported). Surveys using line transects and point counts were of about equal incidence (17-18%).

Table 2. Field methods used by annual sample bird surveys in Europe.

Method of plot selection	Number of schemes using ...						Totals
	line transects	point counts	complete counts*	capture methods	combination of methods	other or unknown	
free choice	6	8	18	3	5	1	41
systematic	2	2	2	2	3		11
random	1						1
stratified random	1				1		2
stratified typical	2	1	4				7
combination of methods	1	1	2		3		7
other/unknown		2	3	1	1	2	9
Totals	13	14	29	6	13	3	78

* includes territory mapping

Table 2 also indicates the methods used for plot selection. Over half the surveys (53%) allowed free choice in the selection of survey sites. Random selection was unusual. The cross-tabulation does not indicate any obvious associations between particular field methods and methods of plot selection.

4.2 Analytical methods

Methods of extracting index trends are indicated in Table 3 for all annual sample bird surveys, according to fieldwork method. Chaining, used on its own by 46% of surveys, was by far the most popular single method of calculating index trends.

There were no obvious associations between field methods and indexing methods.

Field and analytical methods for complete surveys and for atlases were more standardised than for sample surveys and have not therefore been subjected to the same analysis.

Table 3. Analytical methods used by annual sample bird surveys in Europe.

Indexing method	Number of schemes using ...						Totals
	line transects	point counts	complete counts*	capture methods	combination of methods	other or unknown	
chaining	6	8	12	5	4	1	36
Mountford		2	1				3
Underhill			3				3
generalised linear modelling	1				3		4
combination of methods	1	1	8		4		14
other/unknown	5	3	5	1	2	2	18
Totals	13	14	29	6	13	3	78

* includes territory mapping

4.3 Numbers of species covered

For complete and sample surveys, the numbers of species covered were calculated, by country, season and type of survey, from the species checklists that accompanied the questionnaires (Table 4a). Similar details for surveys covering more than one country are given separately in Table 4b.

Table 4a. **Numbers of species covered by complete and sample bird surveys in Europe. I. Surveys within a single country.**

Geographical scope	season	annual sample surveys	annual complete surveys	all annual surveys	total including <annual surveys
Albania	breeding				
	non-breeding	?	92	(92)	(92)
	total*	?	92	(92)	(92)
Belgium	breeding		78	78	78
	non-breeding	?	54	(54)	(54)
	total*	?	115	(115)	(115)
Czech Republic	breeding	176	(3)	(179)	(179)
	non-breeding		42	42	42
	total*	176	(72)	(222)	(222)
Denmark	breeding				
	non-breeding	19	?	(19)	(25)
	total*	107	?	(107)	(224)
Estonia	breeding	63		63	63
	non-breeding	77	9	85	85
	total*	99	13	111	111
Finland	breeding	174		174	180
	non-breeding	36		36	36
	total*	179		179	181
France	breeding	23	9	32	38
	non-breeding		27	27	27
	total*	23	36	59	65
Germany	breeding	94		94	94
	non-breeding		55	55	55
	total*	145	55	195	195
Gibraltar	breeding		5	5	5
	non-breeding	72		72	72
	total*	72	5	75	75
Hungary	breeding	59	4	59	59
	non-breeding				
	total*	131	15	139	139

Table 4a (continued)

Geographical scope	season	annual sample surveys	annual complete surveys	all annual surveys	total including < annual surveys
Iceland	breeding				9
	non-breeding	34		34	34
	total*	34		34	40
Italy	breeding	33	6	39	39
	non-breeding	40		40	40
	total*	224	78	230	230
Latvia	breeding	53		53	65
	non-breeding	50	13	59	59
	total*	77	13	86	98
Lithuania	breeding	121	2	121	121
	non-breeding	77		77	77
	total*	151	223	240	240
Netherlands	breeding	108	108	209	209
	non-breeding	78	89	139	139
	total*	149	185	278	278
Norway	breeding	198		198	198
	non-breeding	21		21	21
	total*	218		218	218
Poland	breeding				
	non-breeding	?		?	?
	total*	?		?	?
Portugal	breeding		12	12	12
	non-breeding	23	72	86	86
	total*	23	82	92	92
Slovakia	breeding	?		?	?
	non-breeding				
	total*	?		?	?
Slovenia	breeding				
	non-breeding		42	42	42
	total*		42	42	42

Table 4a (continued)

Geographical scope	season	annual sample surveys	annual complete surveys	all annual surveys	total including < annual surveys
Spain	breeding	(3)		(3)	(3)
	non-breeding		57	57	(57)
	total*	(3)	57	(60)	(60)
Sweden	breeding	116		116	116
	non-breeding	?		?	?
	total*	(116)		(116)	(116)
Switzerland	breeding	122		122	122
	non-breeding				
	total*	122		122	122
Tatarstan	breeding				
	non-breeding				
	total*	177	27	179	179
Turkey	breeding				
	non-breeding				?
	total*				?
United Kingdom	breeding	(105)	114	(217)	(220)
	non-breeding	146		146	148
	total*	(176)	171	(264)	(266)
Ukraine	breeding				
	non-breeding				
	total*	214		214	244

< annual — surveys not made every year (frequency less than annual)
* — including surveys covering both breeding and non-breeding seasons
? — details of species coverage not given
() — figure incomplete because totals for some surveys not reported

More than 200 species were listed for the Czech Republic, Denmark, Italy, Lithuania, the Netherlands, Norway and the United Kingdom. Iceland reported just 40. The national breeding totals should be compared with the total numbers of breeding species in each country, which are available from the European Birds Database. A further calculation that would be of value is the percentage of each species' range in which it is subject to annual monitoring.

Table 4b. **Numbers of species covered by complete and sample bird surveys in Europe. II. International surveys. See Appendices 5 & 6 for more details of these surveys.**

Geographical scope	season	annual sample surveys	annual complete surveys	all annual surveys	total including <annual surveys
Austria, Czech Republic, Estonia, Germany, Latvia, Lithuania, Poland, Slovakia, Slovenia, Ukraine, UK	breeding	52		52	52
	non-breeding				
	total*	52		52	52
Baltic countries	breeding				
	non-breeding	28		28	28
	total*	28		28	28
Denmark, Germany, Netherlands	breeding				
	non-breeding				
	total*		48	48	48
Finland, North Sweden, Norway	breeding				96
	non-breeding				
	total*				96
UK, Ireland	breeding	20		20	24
	non-breeding				
	total*	49		49	53
West Palaearctic	breeding				
	non-breeding		23	23	23
	total*		23	23	23

<annual surveys not made every year (frequency less than annual)

* including surveys covering both breeding and non-breeding seasons

The results presented are constrained by the extent to which minor species were reported and should be regarded as minimum numbers of species on which data were gathered. In many cases the numbers of species for which samples were large enough for annual monitoring will be substantially less than those reported.

4.4 Habitats covered

The questionnaires requested details of habitat coverage in nine categories, and three others were added by respondents. The incidence of surveys covering each of these habitat types is shown in Table 5.

Table 5. Habitats covered by different kinds of bird surveys in Europe. The data given are the numbers and percentages of schemes covering each class of habitat. Schemes are divided according to three separate binary classifications; note that 23 surveys covered both breeding and non-breeding seasons and are included in both of these columns.

Habitat class	sample	complete	breeding	non-breeding	annual	<annual
all habitats	42 50%	24 45%	50 59%	31 41%	60 49%	7 47%
marine, coastal & estuarine	10 12%	10 19%	8 9%	15 20%	18 15%	3 20%
freshwater, reedbeds	11 13%	5 9%	8 9%	11 15%	15 12%	1 7%
bogs & marshes	4 5%	3 6%	5 6%	4 5%	7 6%	
wetlands	4 5%	13 25%	4 5%	17 23%	16 13%	1 7%
agricultural land	5 6%	5 9%	6 7%	7 9%	10 8%	1 7%
scrub & grassland	6 7%	1 2%	7 8%	2 3%	6 5%	2 13%
forests	9 11%	1 2%	8 9%	3 4%	9 7%	1 7%
gardens	2 2%		1 1%	2 3%	2 2%	
urban		3 6%	2 2%	1 1%	2 2%	1 7%
inland rock, scree & sand	1 1%		1 1%	1 1%	1 1%	
upland	3 4%		3 4%		2 2%	1 7%
Habitat information collected during survey	68 81%	25 47%	68 80%	41 55%	82 67%	11 73%
Total number of surveys	84	53	85	75	122	15

Notes:

"<annual" refers to surveys not made every year (frequency less than annual)

Figures for habitat subdivisions do not include surveys covering all habitats.

Surveys not covering all habitats frequently covered more than one habitat subdivision.

In each subdivision of survey type investigated, about half the surveys covered all habitats. Surveys restricted to particular habitats tended to be concentrated on coastal or inland wetlands.

Comparing sample and complete surveys, the sampling approach prevailed in surveys of scrub & grassland, forests and upland habitats. Complete surveys were a little more focused, particularly on wetlands and marine, coastal & estuarine habitats, with fewer surveys covering all habitats.

Breeding surveys typically covered all habitats (59%, as opposed to 41% for winter or passage surveys). There were more breeding than non-breeding surveys in scrub & grassland and in forests. Surveys during winter or the passage seasons predominated in all kinds of wetland habitat.

Comparing annual surveys with less frequent ones, numbers of annual surveys clearly exceed less-than-annual surveys in all habitat divisions. There was no evidence of any difference in the patterns of habitat coverage between the two types of survey.

Habitat data were collected during fieldwork in far more sample surveys than complete ones, and in more breeding than non-breeding surveys. Overall, habitat data were collected by 68% of the 137 contributing surveys.

4.5 Important sources of bias and error

Contributors to the review were asked to categorise the effects of potential sources of bias and error to survey results as low, moderate or important. Some contributors did not indicate their perceptions of all of the potential biases and sources of error that were listed. In the analyses, failure to reply was taken to indicate that the bias or error did not apply to the survey in question or that its importance was low.

The results for complete surveys are summarised in Table 6. The incompleteness of surveys intended to be full was regarded as of at least moderate importance for 66% of schemes and stood out as the primary bias affecting complete surveys. Poor species coverage was the least important of the four potential problems listed.

For sample surveys, results were similar for surveys using point counts, line transects, complete counts and other methods, and are therefore presented together (Table 7). The uneven geographical distribution of plots and the small number of survey plots were most frequently cited as major problems. Observer selection of plots was regarded as rather less important.

Table 6. **Perceived importance of biases and errors affecting 53 complete bird surveys in Europe: number and percentage of surveys reporting effects as moderate or important and of those where a formal analysis of the problem had been made.**

Source of bias or error	"Moderate"	"Important"	Formal analysis made
incomplete 'full' surveys	27 51%	8 15%	9 17%
labour-intensive methods	14 26%	7 13%	2 4%
poor comparability of surveys between years	16 30%	5 9%	9 17%
poor species coverage	11 21%	6 11%	4 8%

Table 7. **Perceived importance of biases and errors affecting 84 sample bird surveys in Europe: number and percentage of surveys reporting effects as moderate or important and of those where a formal analysis of the problem had been made.**

Source of bias or error	"Moderate"	"Important"	Formal analysis made
uneven geographical distribution of plots	20 24%	28 33%	6 7%
small number of plots	25 30%	22 26%	12 14%
bias from observers' selection of plots	19 23%	8 10%	6 7%
poor comparability of surveys between years	11 13%	7 8%	4 5%
habitat changes on census plots	7 8%	8 10%	3 4%
poor species coverage	11 13%	6 7%	4 5%
plot turnover	14 17%	2 2%	4 5%
incomplete 'full' surveys of sample plots	7 8%	4 5%	4 5%

Tables 6 and 7 indicate that moderate or important sources of bias or error were frequently recognised in both complete and sample surveys. More sources of bias were recognised as important for sample surveys. Direct comparisons between the two groups of survey are possible in two cases and suggest that biases were perceived as less important for sample surveys. Poor comparability of surveys was described as of at least moderate importance for 39% of complete surveys but only 21% of sample surveys. In contrast to complete surveys (66%), incomplete 'full' surveys was generally dismissed as of low significance to sample surveys (13%). However, careful interpretation of these figures is required because of the differences in methods employed.

4.6 Formal analysis of biases and errors

Contributors were also asked whether any formal analysis had been made of each source of bias or error. Again, answers were not always given. Failure to report whether any formal analysis had been made was taken to indicate that there had been no such analysis.

The numbers and proportions of surveys reporting that problems had been formally analysed are given in Tables 6 and 7. Formal analyses were relatively rare, with no more than 17% of surveys having analysed any one type of problem. For complete surveys, the incompleteness of 'full' surveys and the poor comparability of surveys between years were most likely to have been subjected to analysis. For sample surveys, the problem most frequently investigated was the effect of a small number of plots.

It appears that biases and errors were more likely to have been analysed for complete than for sample surveys (although this conclusion depends on the assumption that the absence of a reply indicated that no formal analysis had been made).

The existence of a formal analyses may be linked to whether a problem was perceived as important or not. To test this, the three levels of perceived effect were ranked according to the proportion of surveys where a formal analysis had been made, and the ranks across all problems tested using Friedmann's method. For complete surveys, there was a significant tendency for formal analyses to be associated with biases or errors considered important (χ^2 = 6, d.f. = 2). There was a similar tendency for sample surveys but this was not significant (χ^2 = 3.25).

The association between the importance of a bias or error and the existence of a formal analysis might arise either because analyses are performed on problems perceived to be important, or because biases or errors are recognised as important once a formal analysis has been made. The questionnaires do not allow these two possibilities to be distinguished.

4.7 Proportions of work carried out by paid staff

For both complete and sample surveys (Tables 8a and 8b), most respondents reported that paid staff carried out more than 90% of the central organisation and data analysis, but less than 10% of the fieldwork and any non-central organisation, the latter categories being performed mainly by volunteers.

Volunteers had a greater input to atlas surveys (Table 8c), equalling the paid input to central organisation and data analysis and usually doing almost all the non-central organisation and fieldwork.

Table 8a. **Proportion of work carried out by paid staff: numbers of schemes in each category. I. 53 complete surveys.**

	<10%	10-50%	51-90%	>90%	no data
central organisation	9	4	8	31	1
data analysis	8	4	6	33	2
non-central organisation	21	11	3	5	13
fieldwork	27	12	7	6	1

Table 8b. **Proportion of work carried out by paid staff: numbers of schemes in each category. II. 84 sample surveys.**

	<10%	10-50%	51-90%	>90%	no data
central organisation	14	7	10	49	4
data analysis	13	10	5	51	5
non-central organisation	33	5	1	5	40
fieldwork	48	8	13	10	5

Table 8c. **Proportion of work carried out by paid staff: numbers of schemes in each category. III. 71 atlas surveys.**

	<10%	10-50%	51-90%	>90%	no data
central organisation	26	7	8	21	9
data analysis	22	6	5	31	7
non-central organisation	37	11	3	3	17
fieldwork	45	13	5	0	8

For the purposes of geographical comparison, each sample, complete and atlas scheme was given a score in each type of work. This was, arbitrarily, the mid-point (that is, 5%, 30%, 70% and 95%) of each of the four categories allowed in the questionnaires. Because of the strong association between the results for central organisation and data analysis, and between non-central analysis and fieldwork, these categories are combined to form a central category and a non-central one. Scores were then averaged across schemes for each country and type of work, and returned to the original categories. Results are presented in Table 9.

Table 9. **Proportions of work carried out by paid staff in each European country. Rows indicate typical proportions of non-central organisation and fieldwork carried out by paid staff, and columns the proportions of central organisation and data analysis. For each category of work, the estimate given is the overall proportion that is performed by paid staff, in one of four broad categories, averaged across schemes. Sample, complete and atlas schemes are included.**

Central / Non-central	<10%	10-50%	51-90%	>90%
<10%	Gibraltar Luxembourg Romania Ukraine	Austria Sweden	Czech Republic Slovenia UK	
10-50%		France Germany Hungary Italy Lithuania	Belgium Byelorusse Denmark Estonia Finland Netherlands Norway Portugal Spain	Latvia Poland Slovakia Switzerland Turkey
51-90%			Tatarstan	Iceland
>90%				Albania

The most interesting observations and conclusions that can be drawn from Table 9 are as follows. First, there are no countries that rely on paid staff more for non-central/fieldwork tasks than for central organisation and data analysis. Second, there are no countries for which, on average, paid staff have the highest level of input to central tasks and the lowest level to non-central ones. Third, some countries have a more-or-less even distribution of paid staff over central and non-central tasks, whether at a low level (such as Romania) or a high one (Albania). Fourth, other countries have a marked division of labour, with paid staff performing a high proportion of central organisation and data analysis and volunteers a high proportion of non-central organisation and fieldwork (such as Czech Republic, UK, Latvia and Turkey).

Countries with few paid staff can score high, low or intermediate for central organisation and data analysis, because surveys may be organised wholly either by volunteers or by paid staff. However, where more than half the fieldwork is performed by paid staff, this can be taken as a clear indication that the voluntary workforce is very small.

4.8 Costs of monitoring

Most respondents supplied estimates of the total annual cost of their schemes. Totals by survey type and country are shown in Table 10a (international surveys are listed in Table 10b).

Table 10a. Approximate annual costs of monitoring in each country and in Europe as a whole, and percentage of declared European total. Costs are expressed in thousands of Deutschmarks and rounded to the nearest whole number. International surveys are listed individually in Table 10b.

Geographical scope	sample surveys		complete surveys		total cost	% European total
	breeding	non-breeding	breeding	non-breeding		
Albania		4		4	9	0.2
Belgium		?	6	35	(41)	0.8
Czech Republic	23		4	5	32	0.6
Denmark	15	25	38	(48)	(125)	2.5
Estonia	?	?	3	8	(11)	0.2
Finland	(135)	105			(240)	4.8
France	490		?	1392	(1882)	37.6
Germany	175	25		?	(200)	4.0
Gibraltar	?	?	4		(4)	0.1
Hungary	11	5	15	5	36	0.7
Iceland	45	55	5		105	2.1
Italy	17	16	(10)	?	(43)	0.8
Latvia	17	10	10	9	46	0.9
Lithuania	3	20	(5)	?	(29)	0.6
Netherlands	(150)	(150)	?	?	(300)	6.0
Norway	258	50			308	6.2
Poland		40			40	0.8
Portugal		8	4	21	32	0.6
Slovakia	6				6	0.1

Table 10a (continued)

Geographical scope	sample surveys		complete surveys		total cost	% European total
	breeding	non-breeding	breeding	non-breeding		
Slovenia				?	?	
Spain	?	?		?	?	
Sweden	200	?			(200)	4.0
Switzerland	45				45	0.9
Tatarstan	13	13	5	5	35	0.7
Turkey		8			8	0.2
United Kingdom	(509)	(5)	(135)	125	(774)	15.5
Ukraine	?	?	?	?	?	
International (see Table 10b)	330	75	28	(20)	(453)	9.1
Totals (thousand DM)	2442	613	270	1677	5002	

Countries without sample or complete surveys, according to returns received:
Bulgaria, Byelorusse, Cyprus, Greece, Luxembourg, Malta, Moldavia, Romania, Russia (except Tatarstan), former Yugoslavia (except Slovenia)

? one or more schemes in this category not costed
() minimum totals, since not all schemes were costed

Costs for schemes covering both breeding and non-breeding seasons are divided equally.

Costs for schemes covering both breeding and non-breeding seasons are divided equally. By far the highest proportion of the European total (38%) was declared by France, followed by the UK (15%) and Norway and the Netherlands (6%). Two French returns, completed by the same respondent, gave an identical estimate of costs (696,000 DM) - treating this as a sum for both schemes would reduce the French proportion of total declared European costs to 28% and increase that of UK to 18%.

At least 5 million DM are spent annually on bird monitoring in Europe. More is spent on sample than on complete surveys, and a little more on breeding surveys than those covering the winter or passage seasons.

Although respondents were asked to include overhead costs in their estimates of the costs of each scheme, we believe that these have been commonly underestimated. Perhaps it is likely that only organisations that fund a significant proportion of their work through contracts are fully aware of the true costs of undertaking this kind of work.

Table 10b. Approximate annual costs of international monitoring surveys, expressed in thousands of Deutschmarks, and percentage of declared European total.

Geographical scope	sample surveys		complete surveys		total cost	% European total
	breeding	non-breeding	breeding	non-breeding		
Austria, Czech Rep., Estonia, Germany, Latvia, Lithuania, Poland, Slovakia, Slovenia, Ukraine, UK	150				150	3.0
Baltic countries		25			25	0.5
Denmark, Germany, Netherlands			20	20	40	0.8
Finland, N Sweden, Norway	100				100	2.0
UK, Ireland	80	50	8		138	2.8
West Palaearctic				?	?	
Totals	330	75	28	(20)	(453)	9.1

Countries with no surveys other than international ones, according to returns received: Austria, Ireland

? one or more schemes in this category not costed
() minimum totals, since not all schemes were costed

Despite the limitations of the information presented, it would, in conjunction with the numbers of species covered (Table 4) and measurements of area for each country, allow tentative first estimates of the costs of different ways of extending the species coverage or geographical range of bird monitoring.

5 ACKNOWLEDGEMENTS

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APPENDIX 1: Questionnaire and explanatory notes for Sample Surveys

Review of European Bird Monitoring Schemes

Large-scale Population Monitoring Schemes Based on SAMPLE SURVEYS

QUESTIONNAIRE

Before completing the questionnaire please refer to the accompanying detailed notes: these clarify the information required in each section.

PLEASE TYPE YOUR ANSWERS OR WRITE CLEARLY IN BLOCK CAPITALS USING BLACK INK.

USE ONE FORM PER SCHEME.

1. ADMINISTRATIVE DETAILS

1.1 Country (countries) where scheme is located . . . . . .

1.2 Name of scheme . . . . . .

1.3 Organisation(s) responsible for running the scheme . . . . . .

1.4 Contact name(s) and full address(es) . . . . . .

1.5 Person completing the questionnaire: Name . . . . . .
Telephone: . . . . . Fax: . . . . . .

2. DATES

2.1 Year that the full scheme started to collect data . . . . .

2.2 What was the final year of data-collection of the scheme? (If the scheme is still running please write "ongoing") . . . . .

2.3 If the scheme is ongoing what is the intended final year? . . . . .

2.4 How often does the whole scheme take place?

several times a year ☐ How many? . . .
once a year ☐
every . . . years ☐

3. GEOGRAPHICAL SCOPE

International ☐ Which countries? . . . . . .
. . . . . .

National ☐
Regional ☐
If regional please list the region(s) covered and state what proportion of the whole country they make up . . . . . .
. . . . . .
. . . . . .

4. SEASON

Please tick each relevant box.
Breeding season ☐
Winter season ☐
Spring passage ☐
Autumn passage ☐

5. HABITATS

5.1 Which habitats occur in the sample?
All habitats ☐
Coastal and salt-tolerant communities ☐
Freshwater ☐
Scrub and grassland ☐
Forests ☐
Bogs and marshes ☐
Inland rocks, screes and sands ☐
Agricultural land ☐
Artificial landscapes ☐
Other . . . . . .
. . . . . .

5.2 Are habitat features recorded as part of the survey? Yes ☐
No ☐

6. SPECIES

6.1 Please circle on the attached species list those species that are reliably monitored by the scheme.

6.2 What is the approximate percentage of species included in the scheme, out of the total number of species normally present in the area covered by the scheme (in the relevant season or seasons)? . . . . .

6.3 Does the scheme include common species, rare species or both?
Only common species ☐
Only rare species ☐
Both ☐

7. VOLUNTEER AND PROFESSIONAL INPUT

What is the relative proportion of work carried out by paid staff?

		less than 10%	10-50%	51-90%	more than 90%
Organisation of the scheme	central				
	non-central				
Field work					
Data analysis					

8. DETAILS OF THE METHODOLOGY OF THE SCHEME

Point counts

Number of plots covered by the scheme . . . . .
Number of point counting stations per plot . . . . .
Number of visits to each counting station during the census period . . . . .
Is any distance information recorded (for example 25m counting zone)? Yes ☐
No ☐
Duration of each count in minutes . . . . .
Time of day of counts . . . . . .
How are locations of counting stations selected?
Free choice ☐
Systematic ☐
Random ☐
Stratified random ☐
Stratified typical ☐
Other . . . . . .

Line transects

Number of plots covered by the scheme . . . . .
Total length of transects per plot . . . . .
Number of visits to each transect during the census period . . . . .
Is any distance information recorded (for example 25m counting zone)? Yes ☐
No ☐
Time of day of transects . . . . . .
How are locations of transects selected?
Free choice ☐
Systematic ☐
Random ☐
Stratified random ☐
Stratified typical ☐
Other . . . . . .

Complete counts

What method is used? Territory mapping ☐
Bird counts ☐
Nest counts ☐
other . . . . . .

Number of plots covered by the scheme . . . . .
Number of visits to each plot during the census period . . . . .
Time of day of visits . . . . . .
Area of plots . . . . .

Capture methods

What method is used? Constant Effort Sites ☐
Mettnau-Reit-Illmitz ☐
mark-recapture ☐
other . . . . . .

Number of ringing stations . . . . .
Number of days per census period . . . . .

Migrant counts

Number of plots (counting stations) . . . . .
Number of days per census period . . . . .

National/regional bag counts

Number of hunters sending in returns . . . . .

9. METHOD OF SELECTION OF PLOT LOCATION

9.1 Free choice ☐
Systematic ☐
Random ☐
Stratified random ☐
Stratified typical ☐
Other . . . . . .

9.2 If plots are selected within strata, what are the strata used? . . . . . .
. . . . . .
. . . . . .

10. ANALYTICAL DETAILS

Which method is used to assess long-term changes in the population?

a) chaining (linking successive between-year changes) ☐
b) Mountford's method (developed to monitor breeding birds) or similar ☐
c) Underhill's method (developed to monitor wintering waders) or similar ☐
d) Route Regression ☐
e) methods based on the General Linear Model (GLM) (for example log linear Poisson regression) ☐

continued.....

f) other regression methods (please give details) . . . . . .

. . . . . .

. . . . . .

g) other methods (please give details) . . . . . .

. . . . . .

. . . . . .

11. BIASES, ERRORS AND OTHER PROBLEMS

Please indicate if any of the following problems affect the scheme and the size of their effect on the scheme:

Problem	Effect on survey			Is this measure of the effect based on a formal analysis?
	Important	Moderate	Low	
small number of plots				
uneven geographical distribution of plots				
bias from observers' selection of plots				
plot turnover				
poor comparability of surveys between years				
habitat changes on census plots				
incomplete 'full' surveys of sample plots				
poor species coverage				

12. APPROXIMATE ANNUAL COST OF THE SCHEME

Please give an approximate figure in Deutschmarks (DM): . . . . . .

13. PUBLICATIONS AND REPORTING

Please give details of any publications or reports that contain information about methods, analyses or results from the scheme. . . . . .

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Please return the completed questionnaire to Claire Forrest, BTO, The Nunnery, Thetford, Norfolk IP24 2PU, UK.

Review of European Bird Monitoring Schemes

Large-scale Population Monitoring Schemes Based on SAMPLE SURVEYS

Explanatory Notes for Questionnaire

1. The questionnaire is designed to provide information on schemes that monitor population levels of species over a whole country or several countries, or over a regional administrative area within a country, by sampling. 'Monitoring' is defined as any scheme that provides either an estimate or an index of population levels at periodic intervals, so that it is possible to determine changes in population level.

2. A different questionnaire (and accompanying notes) are provided for schemes involving complete censuses of a country (or region), rather than samples.

3. Schemes that should be included are all those that provide information on changes in numbers. That is:
   - surveys that take place more than once a year
   - surveys that take place once a year
   - surveys that take place (or are intended to take place) at intervals greater than one year.

4. Examples of schemes that should not be included are:
   - one-off surveys that are not intended to be repeated
   - ringing schemes (unless designed to provide information on population trends)
   - schemes designed to monitor productivity or survival but not population level.

5. Only schemes which monitor at least two species should be included.

6. Only schemes which cover an area of at least 10000 km^2 should be included (although national schemes of less than 10000 km^2 should also be included).

7. Schemes which are current, or which provided data up until 1970 or later, should be included. Schemes which ceased to provide data by 1970 should not be included.

Monitoring schemes based on sample surveys involve work being carried out at a number of independent locations. In the questionnaire, each location is referred to as a plot.

Schemes using the following methods are allowed for on the questionnaire:
- point counts (with one or more points counted per plot)
- line transects (with one or more transect lines within each plot)
- complete counts of sample plots, for example territory mapping, nest counts, bird counts)
- capture methods, for example Constant Effort Sites, Mettnau-Reit-Illmitz, mark-recapture (there may be one or more trapping sites at a ringing station)
- counts of migrating birds
- 'bags' (counts) of birds taken by hunters.

If you use another method, please complete the questionnaire as fully as you can.

1. ADMINISTRATIVE DETAILS

1.2 Please give the full name of the scheme in the original language, and any acronym used to represent it. Please provide an English translation of the name. A British example would be: Common Birds Census (CBC).

1.3 Please give the full name of the organisation(s) responsible for running the scheme, and any acronym(s) used, for example: British Trust for Ornithology (BTO).

1.4 Please provide a contact name and a full address for each organisation listed in 1.3.

1.5 Please give information on the person completing the questionnaire.

2. DATES

2.4 Please indicate the frequency of the scheme. If the scheme has not yet been repeated please indicate the intended frequency of the scheme.

3. GEOGRAPHICAL SCOPE

Please indicate whether the scheme is intended to be international (please list countries involved), national (even if coverage of the whole of the country is not achieved), or regional (part of a country). If it is regional, please give the name(s) of the region(s). These should be current administrative regions as far as possible.

4. SEASON

Please indicate to which season the scheme relates. If the scheme covers more than one season, tick each of the relevant boxes.

5. HABITATS

5.1 Please tick all relevant boxes or provide information under 'other'.

6. SPECIES

6.1 A European species list is attached to the back of the questionnaire. Only include those species whose population changes are reliably monitored by the scheme. 'Reliably monitored' species are defined as those for whom it would be possible to detect a + or - 25% change in population between years, if it occurred.

6.2 'Species included in the scheme' refers to those circled in Section 6.1.

7. VOLUNTEER AND PROFESSIONAL INPUT

Please tick one box in each row. Organisation of the scheme is divided into central (which refers to the main organisers) and non-central (which refers to local or regional organisers).

8. DETAILS OF THE METHODOLOGY OF THE SCHEME

Please provide information about the methodology of the scheme under the relevant heading. The information provided should refer to the most recent year in the scheme's history. Where the methodology is variable, for example number of points per plot, number of visits per year, area of plots, please provide an average and write (av.) after the number.

9. METHOD OF SELECTION OF PLOT LOCATION

9.1 Please indicate the method of selection of plot location, which could be:

- free choice: observers are free to choose the study plots
- systematic: the plots are arranged in a systematic pattern across the country(region) - for example, every ninth square from a grid of 10 x 10 km squares covering the country.
- random: the plots are selected in a strictly random way, using tables of random numbers or a similar method.
- stratified random: plots are selected randomly within 'strata'. The strata may be administrative regions, biotopes, expected population densities of birds, observer density and so on.
- stratified typical: plots are selected for their 'representativeness' within strata.
- other: please give details.

10. ANALYTICAL DETAILS

Please indicate the method used to assess long-term changes in the populations monitored by the scheme.

11. BIASES, ERRORS AND OTHER PROBLEMS

Tick all boxes which are relevant to the scheme, indicating the level of effect of each problem. Use the blank boxes at the bottom for any other problems affecting the scheme. For each problem affecting the scheme, please indicate in the fourth column whether the measure of its effect is based on a formal analysis or not.

12. APPROXIMATE ANNUAL COST OF THE SCHEME

The figure should refer to the most recent year of the scheme.
Please exclude any costs that volunteers pay themselves.
Please include the costs of organisation, administration, analysis and any professional fieldwork. Please include salaries and all overhead costs associated with providing staff with offices, vehicles, equipment and other facilities. Also include the costs of printing any documents associated with the scheme, postage, advertising and so on. If another organisation supports the scheme by providing free offices, printing, computers, staff time and so on, please include an estimate of these costs.

13. PUBLICATIONS AND REPORTING

If any methods, analyses or results from the scheme have been published, please provide full details of these publications. The information provided should include date of publication, name(s) of author(s), name of book or journal and the publisher. Please also include details of any intended publications. If there is any regular reporting on the scheme, details of these reports should be included here.

Please return the completed questionnaire to Claire Forrest, BTO, The Nunnery, Thetford, Norfolk, IP24 2PU, UK.

APPENDIX 2: Questionnaire and explanatory notes for Complete Surveys

Review of European Bird Monitoring Schemes

Large-scale Population Monitoring Schemes Based on COMPLETE SURVEYS

QUESTIONNAIRE

Before completing the questionnaire please refer to the accompanying detailed notes: these clarify the information required in each section.

PLEASE TYPE YOUR ANSWERS OR WRITE CLEARLY IN BLOCK CAPITALS USING BLACK INK.

USE ONE FORM PER SCHEME.

1. ADMINISTRATIVE DETAILS

1.1 Country (countries) where scheme is located . . . . . .
. . . . . .

1.2 Name of scheme . . . . . .
. . . . . .

1.3 Organisation(s) responsible for running the scheme . . . . . .
. . . . . .
. . . . . .

1.4 Contact name(s) and full address(es) . . . . . .
. . . . . .
. . . . . .
. . . . . .
. . . . . .
. . . . . .

1.5 Person completing the questionnaire: Name . . . . . .
Telephone:. . . . . Fax: . . . . . .

2. DATES

2.1 Year that the full scheme started to collect data . . . . .

2.2 What was the final year of data-collection of the scheme? (If the scheme is still running please write "ongoing") . . . . .

2.3 If the scheme is ongoing, what is the intended final year? . . . . .

2.4 How often does the whole scheme take place?
several times a year ☐ how many? . . . .
once a year ☐
every . . . years ☐

3. GEOGRAPHICAL SCOPE

International ☐ Which countries? . . . . . .
. . . . . .

National ☐
Regional ☐
If regional please list the region(s) covered and state what proportion of the whole country they make up . . . . . .
. . . . . .
. . . . . .

4. SEASON

Please tick each relevant box.
Breeding season ☐
Winter season ☐
Spring passage ☐
Autumn passage ☐

5. HABITATS

5.1 Which habitats are covered in the survey?
All habitats ☐
Coastal and salt-tolerant communities ☐
Freshwater ☐
Scrub and grassland ☐
Forests ☐
Bogs and marshes ☐
Inland rocks, screes and sands ☐
Agricultural land ☐
Artificial landscapes ☐
Other . . . . . .
. . . . . .

5.2 Are habitat features recorded as part of the survey? Yes ☐
No ☐

6. SPECIES

6.1 Please indicate on the attached species list those species that are reliably monitored by the scheme.

6.2 What is the approximate percentage of species included in the scheme, out of the total number of species normally present in the area covered by the scheme (in the relevant season or seasons)? . . . . .

6.3 Does the scheme include common species, rare species or both?
Only common species ☐
Only rare species ☐
Both ☐

7. VOLUNTEER AND PROFESSIONAL INPUT

What is the relative proportion of work carried out by paid staff?

		less than 10%	10-50%	51-90%	more than 90%
Organisation of the scheme	Central				
	non-central				
Field work					
Data analysis					

8. COVERAGE OF THE SCHEME

What percentage of the populations of the species included in the scheme are, on average, actually counted? . . . . .

9. METHODOLOGICAL DETAILS OF THE SCHEME

Please provide brief information about the methodology of the scheme . . . . . .
. . . . . .
. . . . . .
. . . . . .
. . . . . .
. . . . . .
. . . . . .

10. ANALYTICAL DETAILS

Is an index used to monitor population trends? Yes ☐
No ☐

If Yes, please indicate which index is used:

a) chaining (linking successive between-year changes) ☐
b) Mountford's method (developed to monitor breeding birds) or similar ☐
c) Underhill's method (developed to monitor wintering waders or similar ☐
d) Other (please give details, or a reference if published) . . . . . .
. . . . . .
. . . . . .
. . . . . .
. . . . . .

11. BIASES, ERRORS AND OTHER PROBLEMS

Please indicate if any of the following problems affect the scheme, and the size of their effect on the scheme:

Problem	Effect on survey			Is this measure of the effect based on a formal analysis?
	Important	Moderate	Low	
poor comparability of surveys between years				
incomplete 'full' surveys				
labour-intensive methods				
poor species coverage				

12. APPROXIMATE ANNUAL COST OF THE SCHEME

Please give an approximate figure in Deutschmarks (DM): . . . . . .

13. PUBLICATIONS AND REPORTING

Please give details of any publications or reports that contain information about methods, analyses or results from the scheme . . . . . .

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Please return the completed questionnaire to Claire Forrest, BTO, The Nunnery, Thetford, Norfolk IP24 2PU, UK.

Review of European Bird Monitoring Schemes

Large-scale Population Monitoring Schemes Based on COMPLETE SURVEYS

Explanatory Notes for Questionnaire

1. The questionnaire is designed to provide information on schemes that monitor population levels of species over a whole country or several countries, or over a regional administrative area within a country. 'Monitoring' is defined as any scheme that provides either an estimate or an index of population levels at periodic intervals, so that it is possible to determine changes in population level.

2. A different questionnaire (and accompanying notes) are provided for schemes involving sample censuses of a country (or region), rather than complete censuses.

3. Schemes that should be included are all those that provide information on changes in numbers. That is:
   - surveys that take place more than once a year
   - surveys that take place once a year
   - surveys that take place (or are intended to take place) at intervals greater than one year

4. Examples of schemes that should not be included are:
   - one-off surveys that are not intended to be repeated
   - ringing schemes (unless designed to provide information on population trends)
   - schemes designed to monitor productivity or survival but not population level.

5. Only schemes which monitor at least two species should be included.

6. Only schemes which cover an area of at least 10000 km^2 should be included (although national schemes of less than 10000 km^2 should also be included).

7. Schemes which are current, or which provided data up until 1970 or later, should be included. Schemes which ceased to provide data by 1970 should not be included.

Schemes which aim to make a complete count of the whole population of the study species within the study area are allowed for on the questionnaire. These schemes could be, for example, surveys of nesting raptors or wildfowl and wader counts.

1. ADMINISTRATIVE DETAILS

1.2 Please give the full name of the scheme in the original language, and any acronym used to represent it. Please provide an English translation of the name. A British example would be: Common Birds Census (CBC).

1.3 Please give the full name(s) of the organisation(s) responsible for running the scheme, and any acronyms used, for example: British Trust for Ornithology (BTO).

1.4 Please provide a contact name and full address for each organisation listed in 1.3.

1.5 Please give information on the person completing the questionnaire.

2. DATES

2.4 Please indicate the frequency of the scheme. If the scheme has not yet been repeated, please indicate the intended frequency of the scheme.

3. GEOGRAPHICAL SCOPE

Please indicate whether the scheme is intended to be international (please list countries involved), national (even if coverage of the whole of the country is not achieved), or regional (part of a country). If it is regional, please give the name(s) of the region(s). These should be current administrative regions as far as possible.

4. SEASON

Please indicate to which season the scheme relates. If the scheme covers more than one season, tick each of the relevant boxes.

5. HABITATS

5.1 Please tick all relevant boxes or provide information under 'other'.

6. SPECIES

6.1 A European species list is attached to the back of the questionnaire. Only include those species whose population changes are reliably monitored by the scheme. 'Reliably monitored' species are defined as those species for whom it would be possible to detect a + or - 25% change in population level between years, if it occurred.

6.2 'Species included in the scheme' refers to those circled in 6.1.

7. VOLUNTEER AND PROFESSIONAL INPUT

Please tick one box in each row. Organisation of the scheme is divided into central (which refers to the main organisers) and non-central (which refers to local or regional organisers).

8. COVERAGE OF THE SCHEME

Many surveys that aim to cover entire populations of birds in a country (or region) do not achieve full coverage. Please provide a figure, indicating the level of accuracy, for the percentage of the populations of the species included in the scheme that are, on average, actually counted.

9. METHODOLOGICAL DETAILS OF THE SCHEME

Please describe briefly how the scheme operates. For example, 'complete counts of all waders at all known high tide roosts'. The information provided should refer to the most recent year in the scheme's history.

10. ANALYTICAL DETAILS

This section applies only to schemes which have not achieved 100% coverage. Please indicate the method used to assess long-term changes in the populations monitored by the scheme.

11. BIASES, ERRORS AND OTHER PROBLEMS

Tick all boxes which are relevant to the scheme, indicating the level of effect of each problem. Use the blank boxes at the bottom for any other problems affecting the scheme. For each problem affecting the scheme, please indicate in the fourth column whether the measure of its effect is based on a formal analysis or not.

12. APPROXIMATE ANNUAL COST OF THE SCHEME

The figure should refer to the most recent year of the scheme.
Please exclude any costs that volunteers pay themselves.
Please include the costs of organisation, administration, analysis and any professional fieldwork. Please include salaries and all overhead costs associated with providing staff with offices, vehicles, equipment and other facilities. Also include the costs of printing any documents associated with the scheme, postage, advertising and so on. If another organisation supports the scheme by providing free offices, printing, computers, staff time and so on, please include an estimate of these costs.

13. PUBLICATIONS AND REPORTING

If any methods, analyses or results from the scheme have been published, please provide full details of these publications. The information provided should include date of publication, name(s) of author(s), name of book or journal and the publisher. Please also include details of any intended publications. If there is any regular reporting on the scheme, details of these reports should be included here.

Please return the completed questionnaire to Claire Forrest, BTO, The Nunnery, Thetford, Norfolk IP24 2PU, UK.

APPENDIX 3: Questionnaire and explanatory notes for Atlases

Review of European Bird Monitoring Schemes

ATLASES

QUESTIONNAIRE

Before completing the questionnaire please refer to the accompanying detailed notes: these clarify the information required in each section.

PLEASE TYPE YOUR ANSWERS OR WRITE CLEARLY IN BLOCK CAPITALS USING BLACK INK.

USE ONE FORM PER ATLAS.

1. ADMINISTRATIVE DETAILS

1.1 Country (countries) in which Atlas is located . . . . . .

1.2 Title of Atlas . . . . . .

1.3 Organisation(s) responsible for organising the Atlas survey . . . . . .

1.4 Contact name(s) and full address(es): . . . . . .

1.5 Person completing the questionnaire: Name . . . . . .
Telephone:. . . . . .Fax: . . . . . .

2. DATES

2.1 What is the first year of the full Atlas survey? . . . . .

2.2 What is the final year of the survey? . . . . .

3. GEOGRAPHICAL SCOPE

International ☐ Which countries? . . . . . .
. . . . . .

National ☐
Regional ☐
If regional please list the region(s) covered and state what proportion of the whole country they make up . . . . . .
. . . . . .
. . . . . .

4. SEASON

Please tick each relevant box.
Breeding season ☐
Winter season ☐
Spring passage ☐
Autumn passage ☐

5. HABITATS

5.1 Did the survey cover all habitats?
Yes ☐
No ☐
If No, please indicate which habitats were covered:
Coastal and salt-tolerant communities ☐
Freshwater ☐
Scrub and grassland ☐
Forests ☐
Bogs and marshes ☐
Inland rocks, screes and sands ☐
Agricultural land ☐
Artificial landscapes ☐
Other (please give details) . . . . . .
. . . . . .

5.2 Are habitat features recorded? No ☐
Yes ☐

If Yes, is the recording in: all grid squares ☐
a sample of grid squares ☐
What method of habitat recording is used?
Habitat recorded at random/regular points ☐
Complete mapping of grid squares by fieldwork ☐
Complete mapping of grid squares from existing sources (for example maps) ☐
Other . . . . . .
. . . . . .

6. SPECIES

6.1 Please indicate on the attached species list those species that are covered by the Atlas survey.

6.2 What is the approximate proportion of the species included in the survey, out of the total number of species normally present in the area covered by the Atlas in that particular season? . . . . .

7. VOLUNTEER AND PROFESSIONAL INPUT

What is the relative proportion of work carried out by paid staff?

		less than 10%	10-50%	51-90%	more than 90%
Organisation of the survey	central				
	non-central				
Field work					
Data analysis					

8. DETAILS OF COVERAGE OF THE SURVEY

8.1 On what grid are the grid squares based?

Universal Transverse Mercator (UTM) ☐
National grid (for example British National Grid) ☐
Lines of latitude and longitude ☐
Area covered on a single map ☐
Other . . . . . .

8.2 Please indicate the size of grid square used by the survey:

1 x 1 km ☐
2 x 2 km ☐
5 x 5 km ☐
10 x 10 km ☐
27 x 27 km ☐
50 x 50 km ☐
Other . . . . . .

8.3 Total number of grid squares included in the survey . . . . .

9. METHODOLOGICAL DETAILS OF THE SURVEY

9.1 Is the presence/absence of species recorded by the survey? Yes ☐ No ☐

9.2 For breeding Atlases, is the level of proof of breeding recorded as:

possible, probable and confirmed ☐
non-breeding/breeding ☐
Other . . . . . .

9.3 Are estimates of abundance per square recorded? Yes ☐
No ☐

If Yes, please indicate which method(s) are used:

a) complete counts ☐
b) count corrected for time spent in field ☐
c) uncorrected count ☐
d) frequency of occurrence within smaller grid squares ☐
e) frequency of occurrence on record cards per species per square ☐
f) transects ☐
g) point counts ☐
h) best informal estimate ☐

Please give additional details of the method(s) used . . . . . .

9.4 Were national (regional) population estimates made and published as part of the survey? Yes ☐
No ☐

9.5 If the Atlas is a repeat survey, is the methodology sufficiently similar to the previous atlas for comparisons to be made? Yes ☐
No ☐

Please comment . . . . . .

10. BIASES, ERRORS AND OTHER PROBLEMS

Please indicate if any of the following problems affect the scheme, and the level of their effect on the scheme:

Problem	Effect on survey			Is this measure of the effect based on a formal analysis?
	Important	Medium	Low	
bias from observers' selection of where to look for birds				
bias from variations in observer effort				
poor comparability of surveys between Atlases, if Atlas is a repeat				
poor habitat coverage				
poor species coverage				
labour-intensive methods				

11. APPROXIMATE ANNUAL COST OF THE SURVEY

Please give an approximate figure in Deutschmarks (DM): . . . . . .

12. PUBLICATION DETAILS AND FUTURE SURVEYS

12.1 If the Atlas survey has been published, please provide the following details:
Date of publication . . . . . .
Authors/editors/compilers . . . . . .
. . . . . .
Name of book . . . . . .
Publisher (including address) . . . . . .
. . . . . .
Current price (if still in print) in DM . . . . .

12.2 Please provide full references to any other publications that give details of methods, analyses and results from the Atlas survey that are <u>not</u> included in the published Atlas . . . . . .

12.3 Is there another Atlas planned? Yes ☐
No ☐

If Yes, please give the intended dates of the survey . . . . . .

Please return the completed questionnaire to Claire Forrest, BTO, The Nunnery, Thetford, Norfolk IP24 2PU, UK.

Review of European Bird Monitoring Schemes

ATLASES

Explanatory Notes for Questionnaire

1. The questionnaire is designed to provide information on surveys which record the distribution of species over a whole country, or countries, or over a regional administrative area within a country.

2. Different questionnaires (and accompanying notes) are provided for schemes which involve complete or sample censuses of a country (or region).

3. Only surveys which cover at least two species are included.

4. Only surveys which cover an area of at least 10000 km^2 should be included (although national surveys of less than 10000 km^2 should also be included).

5. Surveys which are current, or which provided data up until 1970 or later, should be included. Surveys which had ceased to provide data by 1970 should not be included.

6. Please complete a questionnaire for a survey even if it is planned but has not yet taken place, and answer as many questions as possible.

Surveys which study the distribution of birds at the national or regional (part of a country) level, using a regular grid-square system across the whole study area, are allowed for on the questionnaire. These surveys can include both those which record the presence/absence of bird species and those which also provide measures of abundance for some or all species.

Please complete questionnaires for all atlas studies, including those which are not intended to be repeated.

1. ADMINISTRATIVE DETAILS

1.2 Please give the full title of the Atlas as well as any acronym used. An example would be European Ornithological Atlas (EOA).

1.3 Please give the full name(s) of the organisation(s) responsible for organising the Atlas, and any acronym(s) used, for example British Trust for Ornithology (BTO).

1.4 Please give the names of both the original organiser of the Atlas and a current contact (if different).

2. DATES

Please give the dates, or the intended dates if the survey has not yet started, of the Atlas survey.

3. GEOGRAPHICAL SCOPE

Please indicate whether the Atlas survey is international (please list countries involved), national (even if coverage of the whole of the country is not achieved), or regional (part of a country). If it is regional, please give the name(s) of the region(s). These should be current administrative regions as far as possible.

4. SEASON

Please indicate to which season the survey relates. If the survey covers more than one season, tick each of the relevant boxes.

5. HABITATS

5.1 Please tick all relevant boxes.
5.2 If habitat features are recorded, please indicate the method(s) used.

6. SPECIES

6.1 A European species list is attached to the back of the questionnaire. Please indicate the species covered by the Atlas survey by circling the relevant EURING Code numbers, and adding any additional species at the end of the list.
6.2 If all species are covered please write '100%'.

7. VOLUNTEER AND PROFESSIONAL INPUT

Please tick one box in each row. Organisation of the survey is divided into central (which refers to the main organisers) and non-central (which refers to local or regional organisers).

8. DETAILS OF COVERAGE OF THE SURVEY

8.1, 8.2 Please provide information on the grid square system used by the scheme.

9. METHODOLOGICAL DETAILS OF THE SURVEY

9.3 For semi-quantitative and quantitative atlases, please provide details of the methods used to collect data on the abundance of species.

10. BIASES, ERRORS AND OTHER PROBLEMS

Tick all boxes which are relevant to the survey, indicating the level of effect of each problem. Use the blank boxes at the bottom for any other problems affecting the scheme. For each problem affecting the survey, please indicate in the fourth column whether the measure of its effect is based on a formal analysis or not.

11. APPROXIMATE ANNUAL COST OF THE SURVEY

The figure should refer to the most recent year of fieldwork of the survey. If this is

not possible an approximate annual cost may be obtained by dividing the total cost of the Atlas by the number of years of the survey.
Please exclude any costs that volunteers pay themselves.
Please include the costs of organisation, administration, analysis and any professional fieldwork. Please include salaries and all overhead costs associated with providing staff with offices, vehicles, equipment and other facilities. Also include the costs of printing any documents associated with the survey, postage, advertising and so on. If another organisation supports the survey by providing free offices, printing, computers, staff time and so on, please include an estimate of these costs.

12. PUBLICATION DETAILS AND FUTURE SURVEYS

12.1 Please provide details of any publication arising from the Atlas survey. If the Atlas survey is planned but has not yet taken place, please provide details of any intended publication.

12.2 Please provide details of any additional publications which are relevant to the Atlas survey.

Please return the completed questionnaire to Claire Forrest, BTO, The Nunnnery, Thetford, Norfolk IP24 2PU, UK.

APPENDIX 4

Summary of Information on Large-Scale Generic Population Monitoring Schemes Received for the Review

Schemes covering more than one country are listed separately at the top of the table. They are not included in the data for the individual countries. The list of European countries is that provided by RSPB.

Country	Atlases	Complete Surveys		Sample Surveys	
		current	non-curr	current	non-curr
All Europe	1	0	0	0	0
Western Palaearctic	0	2	0	0	0
UK & Ireland	3	0	1	2	0
Denmark, Germany, Netherlands	0	1	0	0	0
Finland, Sweden, Norway	0	0	0	0	1
Baltic countries	0	0	0	1	0
11 countries (raptor and owl monitoring)[1]	0	0	0	1	0
Albania	0	1	0	1	0
Andorra[2]					
Austria	1	0	0	0	0
Azores[3]					
Belgium	1	2	0	1	0
Bulgaria	-	-	-	-	-
Byelorusse	1	0	0	0	0
Canary Islands[4]					
Channel Islands[5]					
Croatia	0	0	0	0	0
Cyprus	0	0	0	0	0
Czech Republic	4	4	1	3	0

Country	Atlases	Complete Surveys		Sample Surveys	
		current	non-curr	current	non-curr
Denmark	2	3	1	2	0
Estonia	1	3	0	4	0
Faroe Islands[6]					
Finland	2	0	0	10	0
France	13	3	0	2	0
Germany	1	1	0	2	0
Gibraltar	0	1	0	2	0
Greenland[7]					
Greece	-	-	-	-	-
Hungary	1	2	0	4	0
Iceland	1	1	0	2	0
Irish Republic	0	0	0	0	0
Isle of Man[8]					
Italy	12	3	1	3	1
Latvia	3	2	0	6	0
Liechtenstein[9]					
Lithuania	1	1	1	4	0
Luxembourg	1	0	0	0	0
Macedonia[10]					
Madeira[11]					
Malta	0	0	0	0	0
Moldavia	-	-	-	-	-
Netherlands	2	4	0	5	0
Norway	1	0	0	4	0
Poland	2	0	0	1	0
Portugal	2	5	0	2	0
Romania	1	0	0	0	0
Russia (Tatarstan)	0	1	0	1	0
Russia (rest)	-	-	-	-	-

Country	Atlases	Complete Surveys		Sample Surveys	
		current	non-curr	current	non-curr
Slovakia	0	0	0	1	0
Slovenia	2	1	0	0	0
Spain	7	1	1	2	1
Svalbard[12]					
Sweden	1	0	0	2	0
Switzerland	1	0	0	2	0
Turkey	0	0	0	1	0
Ukraine	3	0	1	0	1
United Kingdom	0	4	0	6	3
Yugoslavia (former)[13]					

Notes

'current' refers to schemes that are still in operation
'non-curr' refers to schemes that are no longer operating
'-' indicates that no information has been received from the country

1 Austria, Czech Republic, Estonia, Germany, Latvia, Lithuania, Poland, Slovakia, Slovenia, Ukraine, UK

2 Included with Spain

3 Included with Portugal

4 Included with Spain

5 Included with UK

6 Included with Denmark

7 Not included because it is not part of Europe

8 Included with UK

9 Included with Switzerland

10 Not included in Review - no EBCC contact

11 Included with Portugal

12 Included with Norway

13 Not included in Review - no EBCC contact

APPENDIX 5

Summary of SAMPLE SURVEY Questionnaires Included in the Review

Scheme	National/ Regional	Species	Habitats	Time of Year	Dates of Survey	Frequency of Survey
International						
Line transect censuses of breeding land birds on a wide belt across the boreal zone	Finland, northern Sweden & Norway	all terrestrial	all terrestrial	breeding	1973-77 1986-91	every 10-15 years
Seabird monitoring in the Baltic	coastal regions of Baltic countries	seabirds	coastal & marine	wintering & passage	1992-2000	2-4 times a year
Garden BirdWatch (formerly Garden Bird Enquiry)	UK & Ireland	all	gardens	all year	1991-	every week
Constant Effort Sites	UK & Ireland	passerines	scrub, grassland, woodland, marsh	breeding	1983-	once a year
Monitoring of raptors and owls	Austria,Czech Republic Estonia,Germany,Latvia, Lithuania,Poland, Slovakia,Slovenia, Ukraine,UK	raptors & owls	all	breeding	?-2005	once a year
Albania						
IWRB Waterfowl Census	Albania	water birds	wetlands	wintering	1993-	once a year

Scheme	National/ Regional	Species	Habitats	Time of Year	Dates of Survey	Frequency of Survey
Belgium						
Point transect counts of winter birds	Flanders	all	all	wintering	1989-	once a year
Czech Republic						
Breeding Bird Census Programme	Czech Republic	all	all	breeding	1981-	once a year
Water Birds Breeding Population Monitoring	Czech Republic	water birds	freshwater	breeding	1988-	2 times a year
Monitoring of breeding populations of birds of prey and owls	Czech Republic	raptors & owls	all	breeding	1993-96	once a year
Denmark						
Reduced midwinter counts	Denmark	water birds	wetlands	wintering	1993-	once a year
Point count censuses of breeding & wintering birds	Denmark	all	all	breeding & wintering	1975-	2 times a year
Estonia						
Point Count Project	Estonia	all	all	breeding	1983-	2 times a year
Land Bird Winter Census	Estonia	terrestrial birds	all	wintering	1987-	3 times a year
Reed-Bird Monitoring Project	Estonia	reed birds	reed-beds	autumn passage	1979-	once a year
Kabli Bird Station	Estonia	all	all	autumn passage	1970-	once a year

Scheme	National/ Regional	Species	Habitats	Time of Year	Dates of Survey	Frequency of Survey
Finland						
Annual monitoring of breeding land birds	Finland	all terrestrial	all terrestrial	breeding	1978-	once a year
Censuses of wintering birds	Finland	all	all terrestrial	wintering	1956/57-	3 times a year
Waterfowl monitoring programme	Finland	water birds	freshwater	breeding	1986-	once a year
Constant Effort Sites	Finland	passerines	scrub, grassland, forest, reedbeds	breeding	1987-	once a year
Archipelago Birds Census	Islets in Baltic	all	coastal	breeding	1984-	once a year
Long-term changes and annual variation in farmland bird populations	southern Finland	farmland birds	agricultural	breeding	1984-	every 5-10 years
Wildlife Triangle Scheme	Finland	game birds	forest & marsh	breeding & wintering	1988-	2 times a year
Night-singing Birds Census	Finland	night-singing birds	all	breeding	1989-	once a year
The Raptor Grid	Finland	raptors	all	breeding	1982-	once a year
Variation in bird communities	southern Finland	all	forests	breeding	1987-	once a year
France						
Census of population levels of common terrestrial birds	France	all terrestrial	all terrestrial	breeding	1989-	once a year
Population trends in Mountain Grouse & Partridges	France	grouse & partridge spp.	scrub, grassland, forests & upland	breeding	1977-	every 2-3 years
Germany						
DDA monitoring programme for common breeding birds	Germany	all	all	breeding	1989-	once a year
Vogelwarte Radolfzell	southern Germany	all	all	all year	1968-	2-3 times a year

Scheme	National/ Regional	Species	Habitats	Time of Year	Dates of Survey	Frequency of Survey
Gibraltar						
Bird monitoring scheme	Gibraltar	all	all	spring & autumn passage	1987-	continuous
Winter bird census	Gibraltar	passerines	all	wintering	1987-	once a year
Hungary						
Point counts of passerines	Hungary	passerines	all	breeding	1988-	once a year
Monitoring of rare and colonial birds	Hungary	rare & colonial	all	breeding	1992-	once a year
IWRB Waterfowl Census	Hungary	water birds	freshwater	all year	1980-	monthly
Akcio Hungarica	Hungary	all	freshwater, bogs & marshes	all year	1984-	weekly
Iceland						
Population ecology of the Ptarmigan and Gyrfalcon	Iceland	Ptarmigan, Gyrfalcon	scrub, grassland rocks & screes	breeding & wintering	1981-97	once a year
Midwinter bird counts	Iceland	all	coastal, freshwater, forest, agricultural	wintering	?	once a year
Italy						
Wetlands monitoring	Campania & Basilicata	all	wetlands	breeding & wintering	1987-2007	2 times a year
Pluriannual breeding bird census	mainly Campania	all	all	breeding & spring passage	1985-	once a year
Long-term count	Lombardy	terrestrial	all	breeding	1992-2002	once a year
Winter count of terrestrial birds	Lombardy	terrestrial	terrestrial	wintering	1983/84-92/93	2 times a year

Scheme	National/ Regional	Species	Habitats	Time of Year	Dates of Survey	Frequency of Survey
Latvia						
Monitoring of hole-nesting birds	Latvia	hole-nesters	forests	breeding	1984-	2-4 times a year
Monitoring of migratory land birds	Latvia	migratory land birds	coastal & estuarine	autumn passage	1967-	once a year
Hunters' Bag Survey	Latvia	waterfowl	freshwater	autumn passage	1993-	once a year
Breeding Bird Counts	Latvia	common land birds	terrestrial	breeding	1983-	3-4 times a year
Monitoring of birds of prey	Latvia	raptors	all	breeding	1985-	3-4 times a year
Monitoring of owls	Latvia	owls	all	breeding	1990-	3 times a year
Lithuania						
Monitoring of breeding birds	Lithuania	all	all except coast	breeding	1991-	once a year
Monitoring of wintering birds	Lithuania	all	all	wintering	1994-	1-3 times a year
Surveys of nesting raptors	Lithuania	raptors	all	breeding	1993-	2-3 times a year
Beached Bird Survey	Lithuania	all	coastal	wintering & passage	1992-2000	8-10 times a year
Netherlands						
Special species project	Netherlands	rare birds	all	breeding	1985-	once a year
Surveys in the North Sea	Netherlands	all	coastal & marine	all year	1984-	every 2 months
Point transect counts	Netherlands	all	all	wintering	1978-	3 times every winter
Common breeding species project	Netherlands	all	all	breeding	1984-	once a year
Monitoring of nature conservation measurements by game management units	Netherlands	game birds	all	hunting season	1980-	once a year

Scheme	National/ Regional	Species	Habitats	Time of Year	Dates of Survey	Frequency of Survey
Norway						
National monitoring programme for breeding seabirds	Norway	seabirds	coastal & estuarine	breeding	1988-	once a year
Norwegian breeding bird census	Norway	all	all	breeding	1995-	once a year
Monitoring programme for terrestrial ecosystems - passerine birds	Norway	passerines	sub-alpine & alpine	breeding	1991-	once a year
National monitoring programme for wintering waterfowl	Norway	water birds	wetlands	wintering	1980-	once a year
Poland						
Operation Baltic	Poland	all forest	scrub, grassland	passage	1961-	2 times a year
Portugal						
Farmland wader survey	area around Tejo & Mondego Rivers	farmland birds	agricultural	wintering	1993-	once a year
Beached bird surveys	Portugal	all	coastal	wintering & passage	1980-	6 times a year
Russia (Tatarstan)						
Bird population monitoring	middle Volga region	all	all	all year	1978-2005	several times a year
Slovakia						
Breeding birds census	Slovakia	all	all	breeding	1994-2005	once a year

Scheme	National/ Regional	Species	Habitats	Time of Year	Dates of Survey	Frequency of Survey
Spain						
Constant Effort Sites ringing scheme	Spain	passerines	no information	breeding	1995-	no information
Fringillidae monitoring in Andalucia	Andalucia	*Serinus serinus* & *Carduelis* spp.	all	breeding	1993-	2-3 times a year
Winter counts of terrestrial birds	Spain	all	all	wintering	1981-83	no information
Sweden						
Swedish Winter Bird Census	Sweden	all	all	wintering	1975-	5 times a year
Swedish Breeding Bird Census	Sweden	all	all	breeding	1969-	once a year
Switzerland						
Ornithological annual review	Switzerland	all	all	breeding	1984-	once a year
Long-term monitoring	Switzerland	all	scrub, grassland, agricultural & alpine	breeding	ongoing	once a year
Turkey						
IWRB Waterfowl Census	Turkey	water birds	coastal, estuarine freshwater, marshes	wintering	1967-	every 3 years
Ukraine						
Counts of birds in Western Ukraine	Western Ukraine	all	all	breeding & wintering	1980-95	3-6 times a year

Scheme	National/ Regional	Species	Habitats	Time of Year	Dates of Survey	Frequency of Survey
UK						
Breeding Bird Survey	UK	all	all terrestrial	breeding	1994-	once a year
Waterways Bird Survey	UK	water birds	linear waterways	breeding	1974-	once a year
Common Birds Census	UK	all	forests & agricultural land	breeding	1962-	once a year
Wetland Bird Survey low tide counts	UK	water birds	coastal & estuarine	wintering	1992-	monthly, Nov-Feb
Seabird Monitoring Programme	UK	seabirds	coastal & estuarine	breeding	1986-	once a year
Breeding waders of wet meadows	England & Wales	waders	lowland wet grassland	breeding	1982 & 1989	every 7-10 years
Garden Bird Feeding Survey	UK	all	gardens	wintering	1970-	weekly, Oct-Mar
Breeding wader monitoring scheme	UK	waders	marsh & agricultural land	breeding	1984-88	once a year
Sawbill Survey	UK	*Mergus serrator* *Mergus merganser*	rivers	breeding	1987	every 10 years

Some Sample Survey questionnaires were received which did not fit the criteria of the Review: these are listed in Appendix 8.

APPENDIX 6

Summary of COMPLETE SURVEY Questionnaires Included in the Review

Scheme	National/ Regional	Species	Habitats	Time of Year	Dates of Survey	Frequency of Survey
International						
IWRB Seaduck database	Western Palearctic	sea ducks	wetlands	wintering	1989-	once a year
IWRB Goose database	Western Palearctic	goose spp.	all	winter & passage	1988-	5 times a year
Joint monitoring programme for breeding and migratory birds in the Wadden Sea	Denmark, Germany Netherlands	all	coastal and estuarine	all year	1980-	once a year (breeding) 26 times a year (migration)
Survey of *Larus* gulls nesting on buildings	UK and Ireland	*Larus* species	urban areas	breeding	1976 and 1994	irregular
Albania						
IWRB Waterfowl Census	Albania	water birds	coastal,estuarine & freshwater	wintering	1993-	once a year
Belgium						
IWRB Waterfowl Census	Flanders	water birds	all	wintering	1979-	once a year
Rare and Colonial Breeding Birds Census	Flanders	rare & colonial species	all	breeding	1994-	once a year
Czech Republic						
Acro Project	North-east part of Czech Republic	passerines	bogs and marshes	autumn passage	1979-90	once a year

Scheme	National/ Regional	Species	Habitats	Time of Year	Dates of Survey	Frequency of Survey
White Stork & Black Stork Working Groups	Czech Republic	White & Black Storks	all	breeding	1984-	once a year
Monitoring of Laniidae	Czech Republic	*Lanius* species	scrub, grassland, forest, agricultural and urban	breeding	1993-	once a year
All year monitoring of gulls, terns & skuas	Czech Republic	gulls, terns, skuas	freshwater, bogs, marshes	all year	1993-	7-9 times a year
IWRB Waterfowl Census	Czech Republic	water birds	freshwater	wintering & passage	1967-	3 times a year
Denmark						
National Bird Site Survey	Denmark	indicator species	all	all year	1978-96	every 10 years
Monitoring of internationally-designated bird areas	Denmark	indicator species	all	all year	1987-89	every 5 years
IWRB Waterfowl Census	Denmark	water birds	wetlands	wintering	1969-	3 winters in each decade
Beached Bird Survey	Denmark	water birds	coastal and estuarine	wintering	1984-	once a year
Estonia						
Swan Counts	Estonia	swan species	wetlands & agricultural land	wintering & passage	1990-	3 times a year
IWRB Waterfowl Census	Estonia	water birds	wetlands	wintering	1967-	once a year
IWRB Goose monitoring	Estonia	goose species	wetlands & agricultural land	breeding & passage	1964-	once a year
France						
Raptor monitoring	France	raptors	all	breeding	1970-	once a year
Winter Waterfowl Census	France	ducks and geese	all	wintering	1987-	5 times a year
Monitoring of spring migration	France	ducks and geese	all	spring passage	1992-97	11 times a year

Scheme	National/ Regional	Species	Habitats	Time of Year	Dates of Survey	Frequency of Survey
Germany						
National Waterbird Census	Germany	water birds	all wetland & inland goose sites	wintering & passage	1966-	3-8 times a year
Gibraltar						
Rare breeding birds survey	Gibraltar	rare birds	all	breeding	1991-	once a year
Hungary						
Species specific survey of RTM	Hungary	selected species	all	breeding	1958-	once a year
Raptors survey	Hungary	raptors	all	breeding & wintering	1980-	once a year
Iceland						
Populations of cliff-breeding seabirds	Iceland	seabirds	coastal	breeding	?	every 5-10 years
Italy						
Heronry Census	Italy	herons & egrets	bogs & marshes	breeding	1978-	once a year
Monitoring raptor populations	Campania	raptors	all	all year	1991-	several times a year
Grebe survey	Campania	Grebe species	wetlands	breeding & wintering	1984-	5-10 times a year
Bird ringing station	Campania	migrating birds	all	all year	1980-91	all year
Latvia						
IWRB Waterfowl Census	Latvia	water birds	coastal, estuarine and freshwater	wintering	1967-	once a year

Scheme	National/ Regional	Species	Habitats	Time of Year	Dates of Survey	Frequency of Survey
Census of Latvian Larids	Latvia	Gulls and Terns	all	breeding	1939-	every 10 years
Lithuania						
White and Black Storks Census	Lithuania	White & Black Storks	all	breeding	1994-95	3-4 times a year
Monitoring programme in protected areas	Lithuania	all	all	all year	ongoing	once a year
Netherlands						
Goose and Swan Counts	Netherlands	Geese and swans	wetlands and agricultural land	wintering & passage	1974-	monthly throughout winter
Colonial and rare breeding species project	Netherlands	colonial & rare species	all	breeding	1985-	once a year
Midwinter Census of Water Birds	Netherlands	water birds	wetlands, urban & agricultural	wintering	1967-	once a year
Special species project for non-breeding birds	Netherlands	all non-breeding	all	all year	1989-	once a year
Portugal						
Breeding Seabirds Monitoring	Portugal	seabirds	coastal	breeding	1990-	once a year
Seaduck and Coastal Seabird Survey	Portugal	seabirds and seaducks	coastal	wintering	1992-96	once a year
Colonies of Ardeids including Spoonbill	Portugal	Ardeid species	all	breeding	1991-	once a year
Winter Waterfowl and Wader Counts	Portugal	water birds	wetlands	wintering	1977-	once a year
Counts of wintering wildfowl	Portugal	wildfowl	wetlands	wintering	1992-	6 times a year

Scheme	National/ Regional	Species	Habitats	Time of Year	Dates of Survey	Frequency of Survey
Russia (Tatarstan)						
Bird population monitoring	middle Volga region	all	all	all year	1964-	several times a year
Slovenia						
IWRB Waterfowl Census	Slovenia	water birds	coastal, estuarine, freshwater	wintering	1988-	6 times a year
Spain						
IWRB Waterfowl Census	Spain	water birds	wetlands	wintering	ongoing	once a year
Migration of storks and raptors at the Gibraltar Strait	Gibraltar Strait	storks and raptors	coastal	autumn passage	1972-77	several times a year
Ukraine						
Status of breeding and wintering birds in Western Ukraine	Western Ukraine	all	all	breeding & wintering	1982-86	every 10 years
UK						
Winter Gull Roost Census	UK	gulls	all	wintering	1953-	every 10 years
Wetland Bird Survey	UK	water birds	wetlands	all year	1969-	monthly
Rare Breeding Birds Panel	UK	rare species	all	breeding	1973-	once a year
Seabird Colony Register	UK	seabirds	coastal	breeding	1986-	every 10-15 years

Some Complete Survey questionnaires were received which did not fit the criteria of the Review: these are listed in Appendix 8.

APPENDIX 7

Summary of Atlas Questionnaires Included in the Review

Country	National/ Regional	Time of Year	Dates of Survey
All Europe	Europe	breeding	1985-88 mainly
UK & Ireland	UK & Ireland	breeding	1968-72
UK & Ireland	UK & Ireland	breeding	1988-91
UK & Ireland	UK & Ireland	wintering	1981/82-83/84
Austria	Austria	breeding	1981-85
Belgium	Belgium	breeding	1973-77
Byelorusse	Grodno & Bres	breeding	1995-99
Czech Republic	Czech Republic	breeding	1973-77
Czech Republic	Czech Republic	breeding	1985-89
Czech Republic	Czech Republic	wintering	1982/83-84/85
Czech Republic	Southern Moravia	breeding	1982-
Denmark	Denmark	breeding	1971-74
Denmark	Denmark	breeding	1993-96
Estonia	Estonia	breeding	1977-82
Finland	Finland	breeding	1974-79
Finland	Finland	breeding	1986-89
France	France	breeding	1970-75
France	France	breeding	1985-89
France	France	wintering	1977/78-80/81
France*	France	all year	1977-89
France	Auvergne	wintering	1976-84
France	Rhône-Alpes	breeding	1995-98
France	Île-de-France	breeding	1985-89
France	Picardie	breeding	1983-87
France	Gard	breeding	1985-93
France	Normandie & Îles Anglo-Normandes	breeding	1985-88
France	Nord-Pas-de-Calais	breeding	1985-94
France	Puy-de-Dome	breeding	1980-85
France	Limousin	breeding	1984-90
Germany	Germany	breeding	1969-91
Hungary	Hungary	breeding	1980-85

Country	National/ Regional	Time of Year	Dates of Survey
Iceland	Iceland	breeding	1987-2001
Italy	Italy	breeding	1983-86
Italy	Italian Alps	breeding	1977-87
Italy	Piedmont & Aosta Valley	breeding	1980-84
Italy	Piedmont & Aosta Valley	wintering	?
Italy	Lombardy	breeding	1983-87
Italy	Lombardy	wintering	1986/87-89/90
Italy	Tuscany	breeding	1982-86
Italy	Tuscany	wintering	1985-91
Italy	Campania	breeding	1983-87
Italy	Campania	wintering	1990-95
Italy	Basilicata	wintering	1990-95
Italy	Sicily	breeding	1979-83
Latvia	Latvia	breeding	1980-84
Latvia	Latvia	breeding	1985-89
Latvia	Latvia	wintering	1982-90
Lithuania	Lithuania	breeding	1996-98
Luxembourg	Luxembourg	breeding	1976-80
Netherlands	Netherlands	breeding	1973-77
Netherlands	Netherlands	all year	1978-83
Norway	Norway	breeding	1977-89
Poland	Poland	breeding	1986-93
Poland	Malopolska	breeding	1985-91
Portugal	Portugal	breeding	1978-84
Portugal	Baixo Alentejo	wintering	1992/93-94/95
Romania	Romania	breeding	1986-92
Slovenia	Slovenia	breeding	1979-93
Slovenia	Slovenia	wintering	1979-93

Country	National/ Regional	Time of Year	Dates of Survey
Spain	Spain	breeding	1980-90
Spain	Rioja	breeding	1975-76
Spain	Galicia	breeding	1979
Spain	Madrid	breeding	1991-92
Spain	Valenciana	breeding	1985-87
Spain	Navarra	breeding	1982-83
Spain	Catalonia & Andorra	breeding	1981-82
Sweden	Sweden	breeding	1974-86
Switzerland	Switzerland	breeding	1993-96
Ukraine	Ukraine	wintering	1992/93-96/97
Ukraine	Western Ukraine	breeding	1982-86
Ukraine	Lviv	wintering	1983-86

* distribution of mountain grouse and partridges only

Some Atlas questionnaires were received which did not fit the criteria of the Review: these are listed in Appendix 8.

APPENDIX 8

Questionnaires received that did not fit the criteria of the Review

One of the criteria of the Review was that schemes must cover a geographic area of at least 10,000km^2 (unless covering whole countries of a smaller area). Information on the following schemes covering areas of less than 10,000km^2 was submitted but has not been incorporated into the databases.

Austria:	Atlas of Breeding Birds in Vorarlberg 1981-89
Finland:	Breeding Bird Atlas of Lammi 1994-
Czech Republic:	
	Waterfowl census of Vltava River in Prague 1975-
	Monitoring of reed-bed bird species in Lednické Rybníky National Nature Reserve 1978-98
	Breeding bird distribution mapping in the Territory of Greater Prague 1985-89
France:	Atlas of Breeding Birds in the Departement de l'Allier 1972-82
	All Year Atlas of Birds in the Loire-Atlantique 1982-85
	Atlas of Breeding Birds in Vaucluse and la Drôme Provençale 1983-94
	Atlas of Breeding Birds in Deux-Sèvres 1985-92
	Atlas of Breeding Birds in the Departement de la Mayenne 1984-88
	Atlas of Breeding Birds in Jura 1985-92
	Atlas of Breeding Birds in Lorraine 1985-92
Iceland:	Monitoring of the Myvatn-Laxa Ecosystem 1975-
Italy:	Atlas of Breeding Birds in Liguria 1981-86
	Atlas of Wintering Birds in Liguria 1987/88-91/92
	Atlas of Breeding Birds in Varese Province, Lombardy 1983-87
	Atlas of Breeding Birds in Brescia Province, Lombardy 1980-84
	Atlas of Wintering Birds in Brescia Province, Lombardy 1984/85-87/88
	Atlas of Breeding Birds in Treviso and Belluno Province, Veneto 1983-88
	Atlas of Breeding Birds in Pordenone Province, Friuli-Venezia Giulia 1981-86
	Atlas of Wintering Birds in Modena Province 1987-93
	Atlas of Breeding Birds in Modena Province 1982-86
	Atlas of Breeding Birds in Forli Province 1983-87
Latvia:	Duck and wader nest count on Lake Engure 1958-
Lithuania:	Waterfowl counts on three lakes in south Lithuania 1991-
	Three regional atlases of breeding birds 1989-95
Spain:	Atlas of Breeding Birds in Tenerife 1980-84
	Atlas of Breeding Birds in Alava, Vizcaya and Guipuzcoa 1982-83
Ukraine:	Atlas of Wintering Birds in Lutsk District 1988-92

In addition, Ukraine supplied a questionnaire containing information on their contribution to the BirdLife project 'Conservation of dispersed species in Europe'. No other country submitted a questionnaire for this project and, because of doubt over the project's status as a monitoring scheme, the Ukrainian questionnaire was not included.

APPENDIX 9: Notes to accompany the survey databases

Paradox filenames: SAMPLQUE.DB - sample surveys; COMPLQUE.DB - complete surveys; ATLASQUE.DB - atlas surveys

Each database summarises most, but not all, of the information supplied on the questionnaires by responding countries. It is ordered alphabetically by country, with international schemes at the top. To see the full details provided for a particular scheme: please refer to the original completed questionnaires. The explanatory notes accompanying the questionnaire contain a list of the criteria governing the inclusion of sample surveys in the Review.

'-' in a database field indicates either that the information requested is not relevant to the scheme, or that the information, although relevant, was not supplied on the questionnaire.

Fields common to all three databases

Field Name	Contents of Field
Scheme code	Sequential code for each scheme
Country	Country/countries in which scheme is located
National/regional	Country/region covered by the scheme
Habitats	The habitats covered by the scheme
Time of year	The season(s) covered by the scheme
Dates of survey	The beginning and end year of the scheme (- indicates that the scheme is ongoing)
Habitat recording?	Were habitat features recorded during the survey?
% species covered	The proportion of species included in the scheme, out of those present in the particular season(s) in the area covered by the scheme
Central organisation	The % of paid staff involved in central organisation of the scheme
Non-central organisation	The % of paid staff involved in non-central organisation of the scheme
Field work	The % of paid staff involved in fieldwork
Data analysis	The % of paid staff involved in data analysis
Type/level of problems	(see below for codings used in each database)
Annual cost	The approximate annual cost of the scheme in Deutschmarks

Contact name & add.	Name and address given as contact for scheme

Fields common to both Sample Survey and Complete Survey databases

Name of scheme	Full title of the scheme as provided in the questionnaire
Species	A summary of the species covered
Frequency of survey	How often does the whole scheme take place?
Ann/<ann	Is scheme annual or less than annual?
Common or rare	Were only common species, only rare species or both included in the scheme?

Fields in Sample Survey database only

Type of methodology	The methodology used by the scheme
Selection of plots	The method(s) of selection of plot location
Strata used	The types of strata used, if a stratified method of plot selection is employed
Analytical method	The method(s) used to assess long-term changes in populations. GLM = methods based on the General Linear Model
Type/level of problems	Codes have been used to indicate the problems affecting the scheme, the level of their effect and whether this level has been measured using a formal analysis. The problems are numbered as follows: 1. Small number of plots. 2. Uneven geographical distribution of plots. 3. Bias from observers' selection of plots. 4. Plot turnover. 5. Poor comparability of surveys between years. 6. Habitat changes on census plots. 7. Incomplete 'full' surveys of sample plots. 8. Poor species coverage. The level of effect is indicated as follows: I = important, M = medium, L = low. Whether the level has been measured formally is indicated by /Y or /N.

Fields in Complete Survey database only

Field Name	Contents of Field
% populations counted	The percentage of the populations included in the scheme that are/were actually counted

Index used?	Is an index used to monitor population trends, and if yes a one word summary of the index
Type/level of problems	The problems are numbered as follows: 1. Poor comparability of surveys between years. 2. Incomplete 'full' surveys. 3. Labour-intensive methods. 4. Poor species coverage.

Fields in Atlas Survey database only

Species	If only a few species were covered these are specified, otherwise 'all'
No., type, size grid sqs.	Details of the grid squares used in atlas fieldwork. UTM = Universal Transverse Mercator, nat. grid = national grid, lat. & long. = lines of latitude and longitude. Size of squares is given in km.
Pres/absence recorded?	Is presence/absence of species recorded by the atlas?
Level of proof of breed.	Applies to breeding atlases only. Poss/prob/conf = possible/probable/confirmed
Abund. estimates made?	Were abundance estimates per square recorded? The letters represent the following methods: a) = complete counts b) = count corrected for time spent in field c) = uncorrected count d) = frequency of occurrence within smaller grid squares e) = frequency of occurrence on record cards per species per square f) = transects g) = point counts h) = best informal estimate
Pop. estimates made?	Were national/regional population estimates made as part of the atlas survey?
Type/level of problems	The problems are numbered as follows: 1. Bias from observers' selection of where to look for birds. 2. Bias from variations in observer effort. 3. Poor comparability of surveys between atlases, if atlas is a repeat. 4. Poor habitat coverage 5. Poor species coverage 6. Labour-intensive methods
Future atlas planned?	Is another atlas planned, and if yes then the proposed period of fieldwork

APPENDIX 10: Names and addresses of people running surveys

The names and addresses that follow are those supplied on the questionnaires as scheme contacts, in response to question 1.4. They have not been revised for this second edition of the report, and some names, addresses or both may already be outdated. Nevertheless, the list will be of value to readers wishing to obtain further details or offering assistance.

Sample surveys

International

Line transect censuses of breeding land birds in boreal zone	Risto A. Väisänen, Zoological Museum, PO Box 17 FIN-00014 University of Helsinki, Finland
Seabird monitoring in the Baltic	Gediminas Vaitkus, Institute of Ecology, Akademijos-2, LT-2600 Vilnius, Lithuania
UK & Ireland Garden BirdWatch	Tracey Brookes, BTO, The Nunnery, Thetford, Norfolk IP24 2PU, UK
UK & Ireland Constant Effort Sites	Dr Will J. Peach, BTO, The Nunnery, Thetford, Norfolk IP24 2PU, UK
Monitoring of raptors and owls	Prof Dr Michael Stubbe, Martin-Luther Universität, Institut für Zoologie, Domplatz 4, D-06099 Halle, Germany

Albania

IWRB Waterfowl Census	Taulant Bino, Museum of Natural Sciences, Rruga e Kavajës, Tirana, Albania

Belgium

Point transect counts of winter birds	Paul van Sanden, Chrysantenpad 3, 3590 Achel, Belgium

Czech Republic

Breeding Bird Census Programme	Prof Karel Štástný, Forestry Faculty, Czech Agricultural University in Prague, 281 63 Kostelec n. C.L., CZ-97521 Czech Republic
Monitoring of breeding birds of prey and owls	Petr Vorišek, Dept. Zoology, Charles University, Vinicna 7, 128 44 Prague 2, Czech Republic
Water Birds Breeding Population Monitoring	Petr Musil, Inst. of Applied Ecology, Czech Agricultural University in Prague, Kostelec n. C.L., CZ-97521, Czech Republic

Denmark

Point count censuses of breeding & wintering birds	Erik Mandrup Jacobsen, Vesterbrogade 140, DK-1620 København V, Denmark
Reduced midwinter counts	Stefan Pihl, Grenåvej 12, DK-8410 Rønde, Denmark

Estonia

Kabli Bird Station	Agu Leivits, Aia St. 22-18, Kilingi-Nômme, EE-3622 Estonia
Land Bird Winter Census	Jaanus Elts, PO Box 227, EE-2400 Tartu, Estonia
Point Count Project	Andres Kuresoo, PO Box 227, EE-2400 Tartu, Estonia
Reed-Bird Monitoring Project	Agu Leivits, Aia St. 22-18, Kilingi-Nômme, EE-3622 Estonia

Finland

Annual monitoring of breeding land birds	Risto A. Väisänen, Zoological Museum, PO Box 17 FIN-00014 University of Helsinki, Finland
Archipelago Birds Census	Martti Hario, Game and Fisheries Research Institute, PO Box 202, FIN-00151 Helsinki, Finland
Censuses of wintering birds	Risto A. Väisänen, Zoological Museum, PO Box 17 FIN-00014 University of Helsinki, Finland

Constant Effort Sites	Pertti Saurola, Ringing Centre, Zoological Museum, PO Box 17, FIN-00014 University of Helsinki, Finland
Long-term changes and annual variation in farmland populations	Dr Juha Tiainen, Game and Fisheries Research Institute, PO Box 202, FIN-00151 Helsinki, Finland
Night-singing Birds Census	Pertti Koskimies, Zoological Museum, PO Box 17 FIN-00014 University of Helsinki, Finland
The Raptor Grid	Pertti Saurola, Ringing Centre, Zoological Museum, PO Box 17, FIN-00014 University of Helsinki, Finland
Variation in bird communities	Timo Pakkala, Dept. of Ecology and Systematics, PO Box 17, FIN-00014 University of Helsinki, Finland
Waterfowl monitoring programme	Esa Lammi, Zoological Museum, PO Box 17 FIN-00014 University of Helsinki, Finland
Wildlife Triangle Scheme	Harto Lindén, Game and Fisheries Research Institute, PO Box 202, FIN-00151 Helsinki, Finland

France

Census of population levels of common terrestrial birds	Christian Vansteenwegen, 55 rue Buffon, 75005 Paris, France
Population trends in mountain grouse & partridges	Yann Magnani, Office National de la Chasse, Route du Col de Leschaux, 74320 Sevrier, France

Germany

DDA monitoring programme for common breeding birds	Dr Martin Flade, Landesanstalt für Grosschutzgebiete, Am stadtsee 1-4, D-16225 Eberswalde, Germany
Vogelwarte Radolfzell	Prof Dr Peter Berthold, Schloss Moeggingen, D-78315 Radolfzell, Germany

Gibraltar

Bird monitoring scheme	Dr John Cortes, Gibraltar Natural History Field Centre, Jew's Gate, Upper Rock Nature Reserve, PO Box 843, Gibraltar
Winter bird census	Dr John Cortes, Gibraltar Natural History Field Centre, Jew's Gate, Upper Rock Nature Reserve, PO Box 843, Gibraltar

Hungary

Akcio Hungarica	Tibor Gjörgo, Hungarian Ornithological Society, Költö ut 21, H-1121 Budapest, Hungary
IWRB Waterfowl Census	György Szimuly, Hungarian Ornithological Society, Költö ut 21, H-1121 Budapest, Hungary
Monitoring of rare and colonial birds	György Szimuly, Hungarian Ornithological Society, Költö ut 21, H-1121 Budapest, Hungary
Point counts of passerines	Andras Bóhm, Hungarian Ornithological Society, Költö ut 21, H-1121 Budapest, Hungary

Iceland

Midwinter bird counts	Ævar Petersen, Icelandic Institute of Natural History, Hlemmur 3, IS-125 Reykjavik, Iceland
Population ecology of Ptarmigan & Gyrfalcon	Olafur Karl Nielsen, Icelandic Institute of Natural History, Hlemmur 3, IS-125 Reykjavik, Iceland

Italy

Long-term count	Lorenzo Fornasari, DISAT, Università di Milano, Via Emanueli 15, 20126 Milano, Italy
Pluriannual breeding bird census	Prof Mario Milone, Dept. Zoology, University of Naples, Via Mezzocannone 8, I-80134 Naples, Italy
Winter count of terrestrial birds	Lorenzo Fornasari, DISAT, Università di Milano, Via Emanueli 15, 20126 Milano, Italy

Wetlands monitoring	Prof Mario Milone, Dept. Zoology, University of Naples, Via Mezzocannone 8, I-80134 Naples, Italy

Latvia

Breeding Bird Counts	Jānis Priednieks, Dept. of Zoology and Genetics, University of Latvia, Kronvalda Bulv. 4, LV-1842 Riga, Latvia
Hunters' Bag Survey	Ilmārs Bauga, Lab. of Ornithology, Miera Str. 3, LV-2169 Salaspils, Latvia
Monitoring of birds of prey	Aivars Petrinš, Museum of Zoology, Kronvalda Bulv. 4, LV-1842 Riga, Latvia
Monitoring of hole-nesting birds	Ilze Vilka, Raunas Str. 45-95, Riga, Latvia
Monitoring of migratory land birds	Jānis Baumanis, Lab. of Ornithology, Miera Str. 3, LV-2169 Salaspils, Latvia
Monitoring of owls	Andris Avotins, Nature Reserve Teichi, Aiviekstes Str. 3, LV-4862 Laudona, Latvia

Lithuania

Beached Bird Survey	Gediminas Vaitkus, Institute of Ecology, Akademijos-2, LT-2600 Vilnius, Lithuania
Monitoring of breeding birds	Petras Kurlavicius, Lithuanian Ornithological Society, Akademijos-2, LT-2600 Vilnius, Lithuania
Monitoring of wintering birds	G. Matiukas, Lithuanian Ornithological Society, Akademijos-2, LT-2600 Vilnius, Lithuania
Surveys of nesting raptors	G. Matiukas, Lithuanian Ornithological Society, Akademijos-2, LT-2600 Vilnius, Lithuania

Netherlands

BMP - common breeding species project	Arend van Dijk, SOVON, Rijksstraatweg 178, 6573 DG Beek-Ubbergen, The Netherlands
BMP - special species project	Arend van Dijk, SOVON, Rijksstraatweg 178, 6573 DG Beek-Ubbergen, The Netherlands
Monitoring of conservation measurements by game units	M. Montizaan, KNJV, Postbus 1165, 3800 BD Amersfoort, The Netherlands
Point transect counts	Henk Sierdsema, SOVON, Rijksstraatweg 178, 6573 DG Beek-Ubbergen, The Netherlands
Surveys in the North Sea	Henk Baptist, RIKZ, PO Box 8039, 4330 EA Middelburg, The Netherlands

Norway

Monitoring programme for terrestrial passerines	John Atle Kålås, Norwegian Institute for Nature Research, Tungasletta 2, N-7005 Trondheim, Norway
Monitoring programme for breeding seabirds	Svein-Håkon Lorentsen, Norwegian Institute for Nature Research, Tungasletta 2, N-7005 Trondheim, Norway
Monitoring programme for wintering waterfowl	Svein-Håkon Lorentsen, Norwegian Institute for Nature Research, Tungasletta 2, N-7005 Trondheim, Norway
Breeding bird census	Magne Husby, Norsk Ornitologisk Forening, N-7630 Åsen, Norway

Poland

Operation Baltic	Prof Dr Przemyslaw Busse, Bird Migration Research Station, Przebendowo, 84-210 Choczewo, Poland

Portugal

Beached bird surveys	Mário Silva, Rua Filipe Folque 46-3°, 1050 Lisboa, Portugal
Farmland wader survey	Rui Rufino, CEMPA/ICN, Rua Filipe Folque 46-5°, 1050 Lisboa, Portugal

Russia (Tatarstan)	
Bird population monitoring	Dr V. Juliev, Institute of Natural Systems Ecology, Dauzskaja St. 28, Kazan 420089, Tatarstan, Russia
Slovakia	
Breeding birds census	Dr Rudolf Kropil, Dept. of Forest Protection, Technical University Zvolen, Masarykova 20, SK-96053 Zvolen, Slovakia
Spain	
Constant Effort Sites ringing scheme	Antonio Fernandez, SEO/Birdlife, Ctra. de Humera 63-1, 28224 Pozuelo, Madrid, Spain
Fringillidae monitoring in Andalucia	Ramón Martí, SEO/Birdlife, Ctra. de Humera 63-1, 28224 Pozuelo, Madrid, Spain
Winter counts of terrestrial birds	Ramón Martí, SEO/Birdlife, Ctra. de Humera 63-1, 28224 Pozuelo, Madrid, Spain
Sweden	
Swedish Breeding Bird Census	Sören Svensson, Dept. of Ecology, Ecology Building, S-22362 Lund, Sweden
Swedish Winter Bird Census	Sören Svensson, Dept. of Ecology, Ecology Building, S-22362 Lund, Sweden
Switzerland	
Long-term monitoring	Hans Schmid, Schweizerische Vogelwarte, CH-6204 Sempach, Switzerland
Ornithological annual review	Hans Schmid, Schweizerische Vogelwarte, CH-6204 Sempach, Switzerland
Turkey	
IWRB Waterfowl Census	Gernant Magnin, c/o DAKD, PO Box 18, 80810 Bebek, Istanbul, Turkey
Ukraine	
Counts of birds in Western Ukraine	Dr Igor Gorban, Dept. of Zoology, Lviv University, Grushevsky 4, Lviv 290005, Ukraine
UK	
Breeding Bird Survey	Dr R.D. Gregory, BTO, The Nunnery, Thetford, Norfolk IP24 2PU, UK
Breeding wader monitoring scheme	Dr Ken W. Smith, RSPB, The Lodge, Sandy, Bedfordshire SG19 2DL, UK
Breeding waders of wet meadows	Dr R.J. Fuller, BTO, The Nunnery, Thetford, Norfolk IP24 2PU, UK
Common Birds Census	John Marchant, BTO, The Nunnery, Thetford, Norfolk IP24 2PU, UK
Garden Bird Feeding Survey	David Glue, c/o BTO, The Nunnery, Thetford, Norfolk IP24 2PU, UK
Sawbill Survey	Dr R.D. Gregory, BTO, The Nunnery, Thetford, Norfolk IP24 2PU, UK
Seabird Monitoring Programme	Kate Thompson, Seabirds and Cetaceans Branch, JNCC, Wynne-Edwards House, 17 Rubislaw Terrace, Aberdeen AB1 1XE, UK
Waterways Bird Survey	John Marchant, BTO, The Nunnery, Thetford, Norfolk IP24 2PU, UK
Wetland Bird Survey low tide counts	Dr Mark Rehfisch, BTO, The Nunnery, Thetford, Norfolk IP24 2PU, UK

Complete surveys

International

IWRB Seaduck database	Stefan Pihl, Natural Environment Research Institute, Grenåvej 12, DK-8410 Rønde, Denmark
IWRB Goose database	Stefan Pihl, Natural Environment Research Institute, Grenåvej 12, DK-8410 Rønde, Denmark
Monitoring breeding and migratory birds in the Wadden Sea	Bettina Reineking, CWSS, Virchowstrasse 1, 2940 Wilhelmshaven, Germany
Survey of *Larus* gulls nesting on buildings	Susan Raven, Dept. of Biological Sciences, University of Durham, South Road, Durham DH1 3LE, UK

Albania

IWRB Waterfowl Census	Taulant Bino, Museum of Natural Sciences, Rruga e Kavajës, Tirana, Albania

Belgium

IWRB Waterfowl Census	Koen Devos, Institute of Nature Conservation, Kiewitdreef 5, 3500 Hasselt, Belgium
Rare and Colonial Breeding Birds Census	Koen Devos, Institute of Nature Conservation, Kiewitdreef 5, 3500 Hasselt, Belgium

Czech Republic

Acro Project	Dr I. Literák, University of Veterinary and Pharmaceutical Sciences, Palactéhr 1-3, 612 42 Brno, Czech Republic
All year monitoring of gulls, terns & skuas	Mgr Martin Vavřík, Dept. of Zoology, Palacky University, trída Svobody 26, 771 46 Olomouc, Czech Republic
IWRB Waterfowl Census	Dr Jitka Pellantová, Agency for Nature and Landscape Protection, Lidická 25/27, 657 20 Brno, Czech Republic
Monitoring of Laniidae	Dr Vladimír Holáň, Renoirova 619, 152 00 Prague 5, Czech Republic
White Stork & Black Stork Working Groups	Rohumil Rejman, Trstenická 756, 570 01 Litomysl, Czech Republic

Denmark

Beached Bird Survey	Henrik Skov, Vesterbrogade 140, DK-1620 København V, Denmark
IWRB Waterfowl Census	Stefan Pihl, Natural Environment Research Institute, Grenåvej 12, DK-8410 Rønde, Denmark
Monitoring of internationally-designated protection areas	Sten Asbirk, NFNA, Haraldsgade 53, 2100 København 0, Denmark
National Bird Site Survey	Michael Grell, Fuglenes Hus, Vesterbrogade 140 A, DK-1620 København V, Denmark

Estonia

IWRB Goose monitoring	Aivar Leito, Roomu tee 2, EE-2400 Tartu, Estonia
IWRB Waterfowl Census	Andres Kuresoo, Institute of Zoology and Botany, Riia 181, EE-2400 Tartu, Estonia
Swan Counts	Leho Luigujõe, Institute of Zoology and Botany, Riia 181, EE-2400 Tartu, Estonia

France

Monitoring of spring migration	Jacques Trouvilliez, Office National de la Chasse, Domaine de St. Benoist, 5 Rue de St. Thibault, 78610 Auffargis, France
Raptor monitoring	Jean-François Terrasse, Fonds d'Intervention pour les Rapaces,

Winter Waterfowl Census	11 Av. du Chat. de Malmaison, 92500 Rueil-Malmaison, France Jacques Trouvilliez, Office National de la Chasse, Domaine de St. Benoist, 5 Rue de St. Thibault, 78610 Auffargis, France
Germany	
National Waterbird Census	Dr Christoph Sudfeldt, Biologische Station Rieselfelder Münster, Coermühle 181, 48157 Münster, Germany
Gibraltar	
Rare breeding birds survey	Dr John Cortes, Gibraltar Natural History Field Centre, Jew's Gate, Upper Rock Nature Reserve, PO Box 843, Gibraltar
Hungary	
Raptors survey	János Bagyvra, Hungarian Ornithological Society, Költö u. 21, H-1121 Budapest, Hungary
Species specific survey of RTM	György Szimuly, Hungarian Ornithological Society, Költö u. 21, H-1121 Budapest, Hungary
Iceland	
Populations of cliff-breeding seabirds	Arnthor Gardarsson, Institute of Biology, University of Iceland, Grensasvegor 12, IS-108, Reykjavik, Iceland
Italy	
Grebe survey	Maurizio Fraissinet, Via Cavalli di Bronzo 95, 80046 S. Giorgio a Cremano, Napoli, Italy
Heronry Census	Mavro Fasola, Dipartimento Biologia Animale, Piazza Botta 9, I-27100 Pavia, Italy
Bird ringing station	Maurizio Fraissinet, Via Cavalli di Bronzo 95, 80046 S. Giorgio a Cremano, Napoli, Italy
Monitoring raptor populations	Maurizio Fraissinet, Via Cavalli di Bronzo 95, 80046 S. Giorgio a Cremano, Napoli, Italy
Latvia	
Census of Latvian Larids	Jãnis Viksne, Institute of Biology, Latvian Academy of Sciences, Miera Str. 3, LV-2169 Salaspils, Latvia
IWRB Waterfowl Census	Antra Stipniece, Institute of Biology, Miera Str. 3, Salaspils, LV-2169 Latvia
Lithuania	
Monitoring programme in protected areas	Not given
White and Black Storks Census	V. Malinauskas, Gireles 55-204, Kaisiadorys, Lithuania
Netherlands	
Colonial and rare breeding species	Arend van Dijk, SOVON, Rijksstraatweg 178, 6573 DG Beek-Ubbergen, The Netherlands
Goose and Swan Counts	Marc van Roomen, SOVON, Rijksstraatweg 178, 6573 DG Beek-Ubbergen, The Netherlands
Midwinter census of water birds	Marc van Roomen, SOVON, Rijksstraatweg 178, 6573 DG Beek-Ubbergen, The Netherlands
Special species project for non-breeding birds	Fred Hustings, SOVON, Rijksstraatweg 178, 6573 DG Beek-Ubbergen, The Netherlands
Portugal	
Breeding Seabirds Monitoring Scheme	José Pedro Granadeiro, R. Filipe Folque 46-3°, 1050 Lisboa, Portugal
Colonies of Ardeids including Spoonbill	Joao Carlos Farinha, Instituto da Conservacao da Natureza, Rua Filipe Folque 46-3°, 1050 Lisboa, Portugal
Counts of wintering wildfowl	Luis T. Costa, CEMPA/ICN, R. Filipe Folque 46-3°, 1050

	Lisboa, Portugal
Seaduck and Coastal Seabird Survey	Rui Rufino, CEMPA/ICN, R. Filipe Folque 46-3°, 1050 Lisboa, Portugal
Winter Waterfowl and Wader Counts	Rui Rufino, CEMPA/ICN, R. Filipe Folque 46-5°, 1050 Lisboa, Portugal
Russia (Tatarstan)	
Bird population monitoring	Dr V. Juliev, Institute of Natural Systems Ecology, Dauzskaja St. 28, Kazan, 420089 Tatarstan, Russia
Slovenia	
IWRB Waterfowl Census	Andrej Bibic, DOPPS, Langusova 10, SLO-61000 Ljubljana, Slovenia
Spain	
IWRB Waterfowl Census	Magdalena Bernues, ICONA, Gran Via de San Francisco 4, 28071 Madrid, Spain
Migration of storks and raptors at the Gibraltar Strait	Ramón Martí, SEO/Birdlife, Ctra. de Humera 63-1, 28224 Pozuelo, Madrid, Spain
Ukraine	
Status of breeding and wintering birds in Western Ukraine	Dr Igor Gorban, Dept. of Zoology, Lviv University, Grushevsky 4, Lviv 290005, Ukraine
UK	
Rare Breeding Birds Panel	Dr M.A. Ogilvie, Glencairn, Bruichladdich, Isle of Islay, PA49 7UN, UK
Seabird Colony Register	Kate Thompson, Seabirds and Cetaceans Branch, JNCC, Wynne-Edwards House, 17 Rubislaw Terrace, Aberdeen AB1 1XE, UK
Wetland Bird Survey	Ray Waters, BTO, The Nunnery, Thetford, Norfolk IP24 2PU, UK
Winter Gull Roost Census	Ray Waters, BTO, The Nunnery, Thetford, Norfolk IP24 2PU, UK

Atlas surveys

International	
All Europe (breeding)	Mike Blair, BTO, The Nunnery, Thetford, Norfolk, IP24 2PU, UK
UK & Ireland (breeding)	Dr Rob Fuller, BTO, The Nunnery, Thetford, Norfolk, IP24 2PU, UK
UK & Ireland (wintering)	Dr Peter Lack, BTO, The Nunnery, Thetford, Norfolk IP24 2PU, UK
Austria	
Austria (breeding)	Andreas Ranner, Birdlife Austria, Burgring 7, A-1014 Vienna, Austria
Belgium	
Belgium (breeding)	P. Devillers/W. Roggeman, KBIN, Vautierstraat 29, B-1040 Brusssels, Belgium
Byelorusse	
Grodno & Bres (breeding)	Alexander E. Vintchevsky, ZBTAP, PO Box 197, 230023 Grodno, Belarus

Czech Republic

Czech Republic (breeding)	Prof Karel Štăstný, Forestry Faculty, Agricultural University of Prague, 28163 Kostelec n. C.L., Czech Republic
Czech Republic (wintering)	Vladimir Bejček, Forestry Faculty, Agricultural University of Prague, 28163 Kostelec n. C.L., Czech Republic
Southern Moravia (breeding)	Josef Martiško, Havlíčkova 69, CZ-60200 Brno, Czech Republic

Denmark

Denmark (breeding, 71-74)	Tommy Dybbro, WWF-Verdensnaturfonden, Ryesgade 3F, DK-2200 København N, Denmark
Denmark (breeding, 93-96)	Michael Grell, Fuglenes Hus, Vesterbrogade 140 A, DK-1620 København V, Denmark

Estonia

Estonia (breeding)	Agu Leivits, Nigula State Nature Reserve, Pärnu 2A, EE-3622 Kilingi-Nõmme, Pärnu District, Estonia

Finland

Finland (breeding)	Risto A. Väisänen, Zoological Museum, PO Box 17, FIN-00014 University of Helsinki, Finland

France

France (breeding & wintering)	Dosithée Berthelot, Société Ornithologique de France, 55 rue Buffon, F-75005 Paris, France
France (mountain grouse & partridges)	Yann Magnani, Office National de la Chasse, Route du Col de Leschaux, 74320 Sevrier, France
Auvergne (breeding)	J.J. Lallemant, LPO, 2 Bis rue du Clos Perret, 63100 Clermont-Ferrand, France
Gard (breeding)	Gilles Bousquet, 11 Montée des Alpins, 30000 Nîmes, France
Île-de-France (breeding)	Pierre Le Marechal, 11 allée de l'Acerma, 91190 Gif sur Yvette, France
Limousin (breeding)	Pascal Boulesteix, Société pour l'Étude et la Protection des Oiseaux en Limousin, 11 Rue Jauvion, 87000 Limoges, France
Nord-Pas-de-Calais (breeding)	Jean-Charles Tombal, 38 Rue de la Nation, 59296 Avesnes-le-Sec, France
Normandie & Îles Anglo-Normandes (breeding)	G. Debout, Groupe Ornithologique Normand, Université, 14032 Caen Cedex, France
Picardie (breeding)	Xavier Commecy, 4 Place Godailler Decaix, 80380 Gentelles, France
Puy-de-Dome (breeding)	J.P. Dulphy, LPO, 2 Bis Rue du Clos Perret, 63100 Clermont-Ferrand, France
Rhône-Alpes (breeding)	Christophe Reboud, 32 rue Sainte Hélène, 69002 Lyon, France

Germany

Germany (breeding)	Dr Goetz Rheinwald, Adenauerallee 160, 53113 Bonn, Germany

Hungary

Hungary (breeding)	Laszlo Haraszthy, Hungarian Ornithological and Nature Conservation Society, Költo ut 21, H-1121 Budapest, Hungary

Iceland

Iceland (breeding)	Kristinn H. Skarphédinsson, Icelandic Institute of Natural History, Hlemmur 3, IS-125 Reykjavik, Iceland

Italy

Italy (breeding)	Dr Toni Mingozzi, Dipartimento di Ecologia, Università della Calabria, I-87036 Rende (CS), Italy
Basilicata (wintering)	Prof Mario Milone, Dipartimento di Zoologia, Via Mezzocannone 8, 80126 Napoli, Italy
Campania (wintering)	Prof Mario Milone, Dipartimento di Zoologia, Via Mezzocannone 8, 80126 Napoli, Italy
Campania (breeding)	Maurizio Fraissinet, Via Cavalli di Bronzo 95, 80046 S Giorgio a Cremano, Napoli, Italy
Italian Alps (breeding)	Pierandrea Brichetti, Via V. Veneto 30, 25029 Verolavecchia (BS) Italy
Lombardy (breeding)	Pierandrea Brichetti, Via V. Veneto 30, 25029 Verolavecchia (BS), Italy
Lombardy (wintering)	Lorenzo Fornasari, Università di Milano, Via Emanueli 15, 20126 Milano, Italy
Piedmont & Aosta Valley (breeding)	Dr Toni Mingozzi, Dipartimento di Ecologia, Università della Calabria, I-87036 Rende (CS), Italy
Piedmont & Aosta Valley (wintering)	Giovanni Boano, Museo Civico di Storia Naturale, Cas. Post. 89, 10022 Carmagnola, Italy
Sicily (breeding)	Dr Toni Mingozzi, Dipartimento di Ecologia, Università della Calabria, I-87036 Rende (CS), Italy
Tuscany (breeding & wintering)	Guido Tellini, Via R. Scoti 30, 52011 Bibbiena (AR), Italy

Latvia

Latvia (breeding & wintering)	Jānis Priednieks, Dept. of Zoology and Genetics, University of Latvia, Kronvalda Bulv. 4, LV-1842 Riga, Latvia

Lithuania

Lithuania (breeding)	Gintaras Matiukas, Lithuanian Ornithological Society, Akademijos 2, LT-2600 Vilnius, Lithuania

Luxembourg

Luxembourg (breeding)	Ed Melchior, 14 rue des Prés, L-3941 Monder Cange, Luxembourg

Netherlands

Netherlands (breeding & all-year)	Fred Hustings, SOVON, Rijksstraatweg 178, 6573 DG Beek-Ubbergen, The Netherlands

Norway

Norway (breeding)	Per Gustav Thingstad, University of Trondheim, Department of Zoology, Erling Skakkes gt. 47, N-7004 Trondheim, Norway

Poland

Poland (breeding)	Maciej Gromadzki, Ornithological Station, 80-680 Gdansk, Poland
Malopolska (breeding)	Kazimierz Walasz, Institute of Environmental Biology, Ingardena 6, 30-060 Krakow, Poland

Portugal

Portugal (breeding)	Rui Rufino, CEMPA/ICN, R. Filipe Folque 46 5°, 1050 Lisboa, Portugal
Baixo Alentejo (wintering)	Tiago Silva, Sociedade Portuguese para o Estudo das Aves, Rua da Vitória 53 - 4° DTO, 1100 Lisboa, Portugal

Romania

Romania (breeding)	Dan Munteanu, Romanian Ornithological Society, Str. Republicii 48, 3400 Cluj-Napoca, Romania

Slovenia

Slovenia (wintering)	Andrej Sovinč, DOPPS, Pod Kostanji 44, SLO-61000, Ljubljana, Slovenia
Slovenia (breeding)	Iztok Geister, DOPPS, Pokopaliska 13, SLO-6420 Naklo, Slovenia

Spain

Spain (breeding)	Francisco J. Purroy, SEO/Birdlife, Ctra. de Humera 63-1, 28224 Pozuelo, Madrid, Spain
Catalonia & Andorra (breeding)	Xavier Ferrer, Catedra de Zoologia, Facultad de Biologia, Universidad de Barcelona, 08071 Barcelona, Spain
Galicia (breeding)	José Guitian Rivera, Facultad de Biologia, Universidad de Santiago, Spain
Madrid (breeding)	Ramón Martí, SEO/Birdlife, Ctra. de Humera 63-1, 28224 Pozuelo, Madrid, Spain
Navarra (breeding)	Jesus Elosegui, c/o Ramón Martí, SEO/Birdlife, Ctra. de Humera 63-1, 28224 Pozuelo, Madrid, Spain
Rioja (breeding)	Eduardo de Juana, Dept. Biologia Animal I. Fac. de Biologicas, Universidad Complutense, 28070 Madrid, Spain
Valenciana (breeding)	Juan A. Gomez, Centro de Proteccion des Medio Natural, Avda. los Pinares 106, 46012 El Saler, Valencia, Spain

Sweden

Sweden (breeding)	Sören Svensson, Dept. of Ecology, Ecology Building, S-22362 Lund, Sweden

Switzerland

Switzerland (breeding)	Hans Schmid, Schweiz Vogelwarte, CH-6204 Sempach, Switzerland

Ukraine

Ukraine (wintering)	Dr Igor Gorban, Dept. of Zoology, Lviv University, Grushevsky 4, Lviv 290005, Ukraine
Western Ukraine (breeding)	Dr Igor Gorban, Dept. of Zoology, Lviv University, Grushevsky 4, Lviv 290005, Ukraine
Lviv region (wintering)	Dr Igor Gorban, Dept. of Zoology, Lviv University, Grushevsky 4, Lviv 290005, Ukraine