Population trends of 48 common terrestrial bird species in Europe: results from the Pan-European Common Bird Monitoring Scheme

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The Pan-European Common Bird Monitoring Scheme has brought together data from national monitoring schemes from 18 European countries. This data has been used to provide European indices for 48 common bird species (24 woodland species, 24 farmland species). The indices were calculated for each country using the program TRIM, which estimates missing counts using Poisson regression. National indices were combined to produce regional indices, imputing missing counts for particular sites*years within countries. Missing year totals of particular countries were estimated from other countries of the same European region (Central & East, North, South and West Europe); these regions were then combined to produce European indices. The estimated breeding population size in each country was used as a weighting factor. Most farmland bird species (17) declined in Europe (long-term trend, period 1966-2002), five species increased and two species' trends were classified as poorly known. Long-term trends of woodland birds show a slightly different picture; 11 species declined, 8 remained stable and 5 increased.

Key words: monitoring, trends, birds, Common Bird Monitoring Scheme, Europe

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There are many good reasons for bird monitoring. In particular, bird monitoring is an essential requirement in assessing the environmental policy process, the effectiveness of various conservation measures, and is required under various international treaties, including European Union (EU) directives. Many patterns of land use and development are affected by EU policies. It is important to measure their sustainability across Europe, including their impact on the accession countries to the EU. Furthermore, The Convention on Biological Diversity and World Summit of Sustainable Development pledged 'a significant reduction in the current rate of biodiversity loss by 2010' and similar commitments have been made at regional and national levels.

Bird monitoring, both at the national and European level, is already well developed. National large-scale generic breeding monitoring schemes have been established in some 20 European countries, and the number of such schemes is still increasing (Vorisek & Marchant 2003). Concurrently, national atlases of bird distributions and numbers, usually focusing on the breeding period, have been produced in many European countries during recent decades. Effort to coordinate monitoring outputs at a European level led to the production of the European breeding bird atlas (Hagemeijer & Blair

1997) and "Birds in Europe, their conservation status" (Tucker & Heath 1994), updated in 2004 (BirdLife International 2004). However, population estimates used in these atlases take significant time to be collated, figures are often based on expert judgement and updating is realistic only at several-year intervals. Annual data on bird population changes are therefore desired, but currently lacking. Thus far, the only such data available are provided by Wetlands International on annual numbers of selected wetland bird species in Europe (Gilissen *et al.* 2002).

Lack of scientific information on changes in breeding bird numbers at the European scale, and demands for scientifically credible and policy relevant indicators of biodiversity, have triggered establishing the Pan-European Common Bird Monitoring Scheme (PECBMS) (Gregory *et al.* 2005). The Pan-European Common Bird Monitoring scheme was established in 2002 by the European Bird Census Council (EBCC) and BirdLife International. The project aims to collate data from existing large-scale national or regional generic breeding bird monitoring schemes across Europe, and to produce Pan-European trends, indices and indicators (Vorisek 2001). The PECBMS builds on existing monitoring initiatives and provides support for new national monitoring schemes.

Methodologically, the way has been paved due to a pilot study by EBCC, which has developed an approach of combining national indices of individual species into a large European data set, enabling production of single species European trends and indices (Van Strien *et al.* 2001). The first Pan-European trends and indices of selected species were produced in 2003, as well as the first European indicators of farmland and woodland birds (Gregory *et al.* 2005).

This paper aims to present trends and indices of individual species, to discuss possible reasons for detected changes in bird numbers, and to outline potential directions of further research including identification of possible weaknesses.

Material & Methods

Species and site information

In 2003, 18 European countries provided data for the production of European trends and indices (EU countries: Austria, Belgium, Denmark, France, Germany, Ireland, Italy, Netherlands, Spain, Sweden and United Kingdom; Accession countries: Estonia, Latvia, Poland, Czech Republic and Hungary; Others: Norway and Switzerland). The data were available for different time periods from different countries: Austria – 1998-2002; Belgium – 1992-2001 (Brussels) 1990-2002 (Wallonia); Czech Republic – 1982-2001; Denmark – 1976-2001; Estonia – 1983-2000; France – 1989-2001; Germany – 1989-2001; Hungary – 1999-2002; Ireland – 1998-2000; Italy – 2000-2001; Latvia – 1995-2002; Netherlands – 1990-2002; Norway – 1996-2002; Poland – 2000-2002; Spain – 1996-2002; Sweden – 1975-2002; Switzerland – 1999-2002; United Kingdom – 1966-2000. Because of practical limitations, data on 48 selected species were collected and analysed. These species were selected by monitoring experts (Gregory and Vorisek 2003) to represent two main habitats in Europe, farmland and woodland (incl. parks and gardens). Agricultural species selected were: *Alauda arvensis*, *Athene noctua*, *Carduelis cannabina*, *Carduelis carduelis*, *Carduelis chloris*, *Columba palumbus*, *Corvus corone* (both, *corone* & *cornix*), *Corvus monedula*, *Coturnix coturnix*, *Emberiza citrinella*, *Emberiza schoeniclus*, *Falco subbuteo*, *Falco tinnunculus*, *Hirundo rustica*, *Lanius collurio*, *Miliaria calandra*, *Motacilla flava*, *Passer montanus*, *Pica pica*, *Saxicola rubetra*, *Streptopelia turtur*, *Sturnus vulgaris*, *Sylvia communis*, *Vanellus vanellus*. The woodland, park and garden species selected were: *Accipiter nisus*, *Aegithalos caudatus*, *Anthus trivialis*, *Buteo buteo*, *Dendrocopos major*, *Erithacus rubecula*, *Fringilla coelebs*, *Garrulus glandarius*, *Jynx torquilla*, *Muscicapa striata*, *Periparus ater*, *Cyanistes caeruleus*, *Parus major*, *Phoenicurus phoenicurus*, *Phylloscopus collybita*, *Phylloscopus trochilus*, *Prunella modularis*, *Regulus regulus*, *Sylvia atricapilla*, *Sylvia borin*, *Troglodytes troglodytes*, *Turdus merula*, *Turdus philomelos*, *Turdus viscivorus*. We took into account the proportion of a species' national population breeding in a given habitat type in four categories (less than 25%, 25 to 50%, 50 to 75%, more than 75%), based on the national monitoring coordinators' assessment.

Collating national data

The method developed by EBCC was used to produce European trends and indices (Van Strien *et al.* 2001). Indices and trends at a national level were calculated using the program TRIM ("Trends and Indices for Monitoring data"; Pannekoek & Van Strien 2001), version 3.1. The program enables estimation of missing counts, a problem typical of most large-scale long-running monitoring schemes, using Poisson regression (log-linear models; McCullagh & Nelder 1989). This approach has been suggested as the most appropriate for calculation of trends and indices from monitoring schemes (Ter Braak *et al.* 1994, Van Strien *et al.* 2004). Other formerly used methods of index production, such as chaining methods, have the potential to provide spurious results (Ter Braak *et al.* 1994). At the national level, models included site and year effects. In rare cases, where the data did not allow such models (due to sparse data), simpler models (linear models incorporating all possible change points) were used.

Most of the national monitoring coordinators produced national species indices using TRIM, then supplied imputed yearly indices, and imputed yearly scheme totals, for each species. These yearly scheme totals, together with their standard errors and co-variances were collated by the PECBM scheme. Four countries supplied their raw data. The indices in Belgium were produced regionally (regions Brussels and Wallonia) as the monitoring is organised regionally in Belgium. Indices in Germany were produced separately for former Eastern and Western Germany, because of expected trend differences in these two parts of Germany.

Combining national indices

National indices were combined according to the procedure described by Van Strien *et al.* (2001). The national index was converted into yearly national population sizes. The national index was weighted by the species' population size in each country, to account for different European countries holding different proportions of a species' population. This was calculated as the national population size for a particular year divided by the estimated annual scheme total for that year. Hence, annual national population sizes were obtained. If the weight is treated as a known constant, estimates of the variances of these weighted year totals can be obtained by multiplying the variances of the estimated un-weighted year totals by the square of the weight. Population estimates published in BirdLife International/ European Bird Census Council (2000) were used.

The yearly totals from each country were then combined. Combining total numbers across countries is straightforward in cases where we restricted the analysis to the period for which data were available for all countries; we simply summed the estimated totals for each country. Since the estimates of the year totals are independent between countries, the variance of each combined total is the sum of the variances of the corresponding country totals. However, missing year totals for many countries due to differences in the length of the time series made the combination of year totals more complicated. The missing year totals were estimated by TRIM in a way equivalent to imputing missing counts for particular sites within countries (Van Strien *et al.* 2001). Missing year totals of particular country sites were thus estimated from other countries of the same European region, assuming that all countries within the same region have had similar changes in population numbers. Four regions were identified for this purpose alone: Central & East = Estonia, Latvia, Poland, Hungary, Czech Republic & former East Germany; North = Norway, Sweden & Denmark; South = France, Spain & Italy; and West = Ireland, United Kingdom, Belgium, Netherlands, former West Germany, Switzerland & Austria. After estimating the year totals for the European regions, these regions were then combined to generate European indices for each species. Countries were also combined to assess separate EU indices and indices for the group of EU Accession countries (i.e. the group of eastern European countries that joined the EU in May 2004).

The long-term trend (slope) and its standard error were estimated for each species in all individual countries and Europe for the whole time-period available. The long-term trend is a multiplicative trend over the time-period considered, and reflects average percentage change per year. If the slope value is 1, there is no trend. If >1, there is a positive trend, if <1, the trend is negative. For instance, 1.08 means an 8% increase per year, 0.93 means a 7% decline per year. The percentage change in the index between 1980 and 2002 (last year) was also calculated. Species trends were classified into following categories, according to their significance and magnitude, (Pannekoek & Van Strien 2001, Van Strien *et al.* 2001):

Substantial decline or substantial increase: Trend significant and magnitude of change significantly > 20% in 20 years
Non-substantial decline or non-substantial increase: Trend significant but magnitude of change significantly < 20% in 20 years
Decline or increase: Trend significant but change not significantly different from 20% in 20 years
Stable: Trend not significant and change significantly < 20% in 20 years
Poorly known: Trend not significant & change not significantly different from 20% in 20 years

Two categories have been used to classify species according to their migration status: 1. Long-distance migrants and 2. Short-distance migrants/residents. Species migrating from Europe to Africa or Asia, or species not wintering in the European part of their range covered by PECBM were considered as long-distance migrants. Species wintering in Europe (countries covered by PECBMS), including migrants which winter within the European part of its range, and also species labelled as "resident", "sedentary" or "eruptive", were considered as short-distance migrants/residents. The migration status of species was evaluated according to Cramp *et al.* (1977-1994).

Results

Slightly more than half (58%) of the species analysed showed a population decline in Europe

Table 1. Trends of farmland bird species in Europe (18 countries) 1966-2002.
Tendències de les especies de zones agrícoles en Europa (18 països) 1966-2002.

Species	Long-term trend 1966-2002 (SE)	Trend classification	Change 1980-2002 (%)	Migration status
Falco tinnunculus	0.99 (0.0035)	decline	-14.7	short-distance/resident
Falco subbuteo 1)	0.97 (0.0323)	poorly known		long-distance
Coturnix coturnix 1)	1.15 (0.0484)	substantial increase		long-distance
Vanellus vanellus	0.97 (0.0036)	substantial decline	-63.5	short-distance/resident
Columba palumbus	1.02 (0.0039)	substantial increase	75.4	short-distance/resident
Streptopelia turtur	0.96 (0.0028)	substantial decline	-60.6	long-distance
Athene noctua	0.98 (0.0067)	decline	-58.1	short-distance/resident
Alauda arvensis	0.97 (0.0013)	substantial decline	-39.7	short-distance/resident
Hirundo rustica	0.99 (0.0024)	decline	-24.5	long-distance
Motacilla flava	0.98 (0.01)	decline	-34.1	long-distance
Saxicola rubetra	0.99 (0.0047)	decline	-14.6	long-distance
Sylvia communis	0.98 (0.0019)	substantial decline	25.0	long-distance
Lanius collurio 2)	0.99 (0.0055)	poorly known	57.1	long-distance
Pica pica	1.02 (0.0015)	substantial increase	22.1	short-distance/resident
Corvus monedula	1.01 (0.0033)	increase	12.8	short-distance/resident
Corvus corone 3)	1.01 (0.0014)	increase	19.4	short-distance/resident
Sturnus vulgaris	0.96 (0.0018)	substantial decline	-48.7	short-distance/resident
Passer montanus	0.91 (0.0036)	substantial decline	-82.1	short-distance/resident
Carduelis chloris	0.99 (0.0016)	decline	15.7	short-distance/resident
Carduelis carduelis	0.99 (0.0024)	decline	5.3	short-distance/resident
Carduelis cannabina	0.96 (0.0019)	substantial decline	-52.1	short-distance/resident
Emberiza citrinella	0.98 (0.0013)	substantial decline	-39.3	short-distance/resident
Emberiza schoeniclus	0.98 (0.0019)	substantial decline	-20.0	short-distance/resident
Miliaria calandra	0.94 (0.0085)	substantial decline	-66.2	short-distance/resident

1)Time series incomplete due to lack of data in some countries. *Falco subbuteo* – data starts in 1989; *Coturnix coturnix* – data starts in 1982. Thus, % change between 1980-2002 could not be calculated.
Series temporals incompletes per la mancança de dades d'alguns països. Falco subuteo- les dades comencen el 1989; Coturnix coturnix – les dades comencen el 1982; d'aquesta manera, el percentatge de canvi entre 1980-2002 no es va poder calcular.
2)Data available from 1975 onwards. / *Dades obtingudes des de 1975 en endavant.*
3)Includes both, *C. corone* corone and *C. c. cornix*. / *Incloses ambdues C. corone corone i C. c. cornix*

between 1966 and 2002 (Table 1 and 2). Seventeen of these species were classified as having undergone substantial decline, one was classified as non-substantial decline and 10 species were classified as having undergone a decline (Table 1 and 2). Eight species were found to have a stable long-term trend, three were increasing and seven were substantially increasing (Table 1 and 2). Long-term trends of two species were classified as poorly known (*Falco subbuteo*, *Lanius collurio*) (Table 1 and 2).

Population trends across the two habitat types differed. Almost two thirds of farmland species declined (Substantial decline: 10 species, decline: 7), compared to less than half of woodland bird species (substantial decline: 7 species, non-substantial decline: 1, decline: 3) (Table 1 and 2).

The Northern Lapwing (*Vanellus vanellus*) and European Turtle-dove (*Streptopelia turtur*) are examples of farmland species which have declined consistently across all regions. Conversley the Common Wood-pigeon (*Columba palumbus*), belongs to the farmland species group showing an overall increase in Europe. In the woodland bird group, numbers of Tree Pipit (*Anthus trivialis*) and Willow Warbler (*Phylloscopus trochilus*) have shown long-term decline across all regions, while the Blackcap (*Sylvia atricapilla*) population has increased significantly across Europe (Table 1 and 2).

Two long-distance migrants (Common Redstart, *Phoenicurus phoenicurus*, Garden Warbler, *Sylvia borin*) declined rapidly in late sixties or early seventies, but have shown some population recovery since (Figure 1 and 2). The Red-backed Shrike (*Lanius collurio,* data available from 1975 only), also a long-distance migrant, showed a population decline in the late 1970s, but has been stable or fluctuating since then. Some short-distance migrants, such as the Goldcrest (*Regulus regulus*), European Robin (*Erithacus rubecula*) or Winter Wren (*Troglodytes troglodytes*), also show large population fluctuations, with remarkable drops in some years (e.g. 1979,

Table 2. Trends of birds of woodland, parks & gardens in Europe (18 countries) 1966-2002.
Tendències de les especies de zones forestals, parcs i jardins (18 països) 1966-2002.

Species	Long-term trend 1966-2002 (SE)	Trend classification	Change 1980-2002 (%)	Migration status
Accipiter nisus	1.03 (0.0084)	substantial increase	153.8	short-distance/resident
Buteo buteo	1.04 (0.0072)	substantial increase	81.0	short-distance/resident
Jynx torquilla 1)	0.96 (0.0062)	substantial decline	-59.5	long-distance
Dendrocopos major	1.02 (0.0027)	substantial increase	3.3	short-distance/resident
Anthus trivialis	0.97 (0.0027)	substantial decline	-44.5	long-distance
Troglodytes troglodytes	1.01 (0.0009)	increase	51.4	short-distance/resident
Prunella modularis	0.97 (0.001)	substantial decline	-37.3	short-distance/resident
Erithacus rubecula	1 (0.0008)	stable	10.4	short-distance/resident
Phoenicurus phoenicurus	0.99 (0.0039)	decline	-14.4	long-distance
Turdus merula	0.99 (0.0007)	non-substantial decline	0.9	short-distance/resident
Turdus philomelos	0.97 (0.001)	substantial decline	-10.8	short-distance/resident
Turdus viscivorus	0.98 (0.0018)	substantial decline	-6.4	short-distance/resident
Sylvia borin	1 (0.0025)	stable	-8.0	long-distance
Sylvia atricapilla	1.02 (0.0015)	substantial increase	85.3	short-distance/resident
Phylloscopus collybita	1 (0.0018)	stable	38.8	long-distance
Phylloscopus trochilus	0.98 (0.001)	substantial decline	-28.8	long-distance
Regulus regulus	0.99 (0.0024)	decline	-28.0	short-distance/resident
Muscicapa striata	0.96 (0.0028)	substantial decline	-56.6	long-distance
Aegithalos caudatus	1 (0.0027)	stable	41.7	short-distance/resident
Periparus ater	1 (0.002)	stable	-7.9	short-distance/resident
Cyanistes caeruleus	1 (0.0008)	stable	13.0	short-distance/resident
Parus major	1 (0.0009)	stable	4.0	short-distance/resident
Garrulus glandarius	0.99 (0.002)	decline	1.9	short-distance/resident
Fringilla coelebs	1 (0.0008)	stable	-2.0	short-distance/resident

1)Data available from 1975 onwards. / *Dades obtingudes des de 1975 en endavant.*

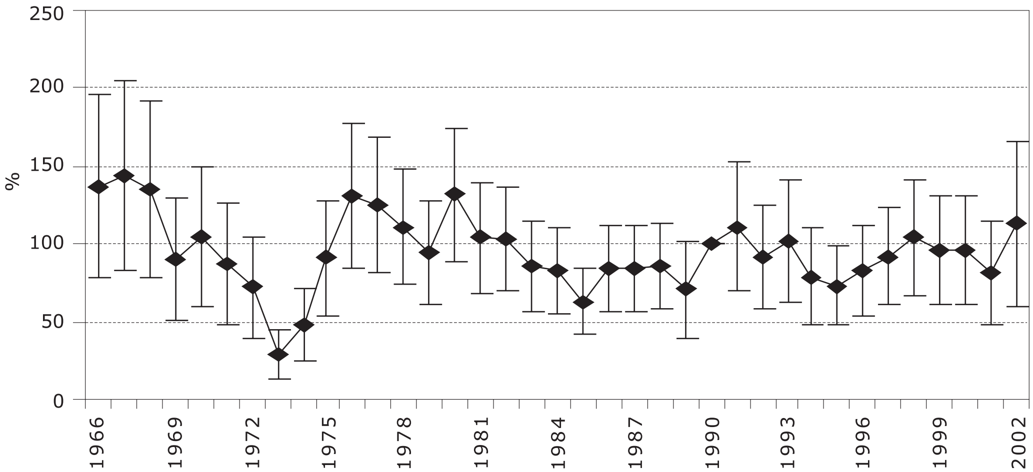

Figure 1. The population trend for the Common Redstart, *Phoenicurus phoenicurus*, a long-distance migrant. The Y-axis is an index value with 95% confidence limits derived from TRIM and set to a value of 100 in 1990. The X-axis is year.
Tendència poblacional de la Cotxa cua-roja Phoenicurus phoenicurus*, una espècie migradora de llarga distància. Índexs anuals amb els límits de confiança del 95%.*

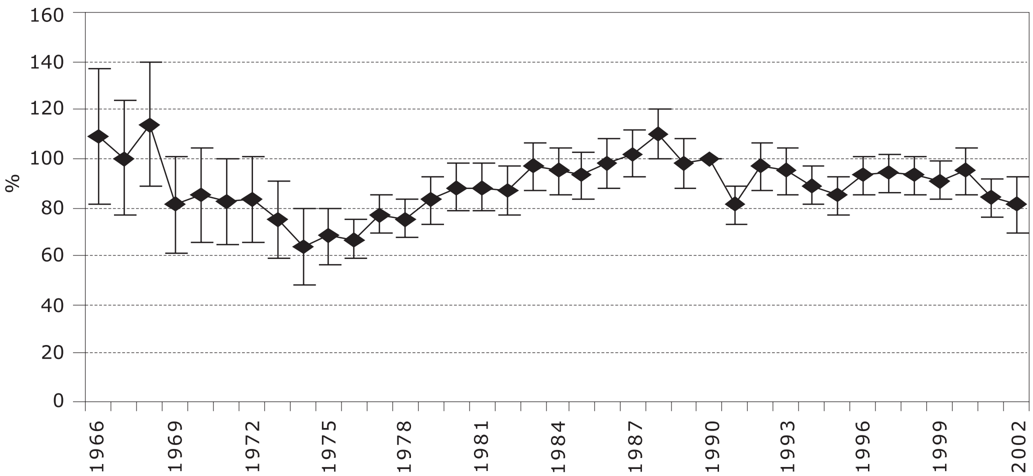

Figure 2. The population trend for the Garden Warbler, *Sylvia borin*, a long-distance migrant. The Y-axis is an index value with 95% confidence limits derived from TRIM and set to a value of 100 in 1990. The X-axis is year.
Tendència poblacional del Tallarol gros Sylvia borin*, una espècie migradora de llarga distància. Índexs anuals amb els límits de confiança del 95%.*

1986, 1987, 1991, 1996, 1997) (Figures 3, 4 and 5). Among raptors, two species, Eurasian Sparrowhawk (*Accipiter nisus*) and Common Buzzard (*Buteo buteo*), show a steady increase, while the Common Kestrel (*Falco tinnunculus*) population shows a decline (Table 1 and 2).

The only declining corvid is the Eurasian Jay (*Garrulus glandarius*), with a long-term trend of 0.99; all other corvids are increasing across their long-term population trend.

Discussion

Patterns of change

Our results show that many farmland bird species have undergone a long-term population decline across Europe. This supports the findings of several other studies (e.g. Donald *et al.* 2001a, b) including the combined multi-species index of farmland birds in Europe, which showed a 29%

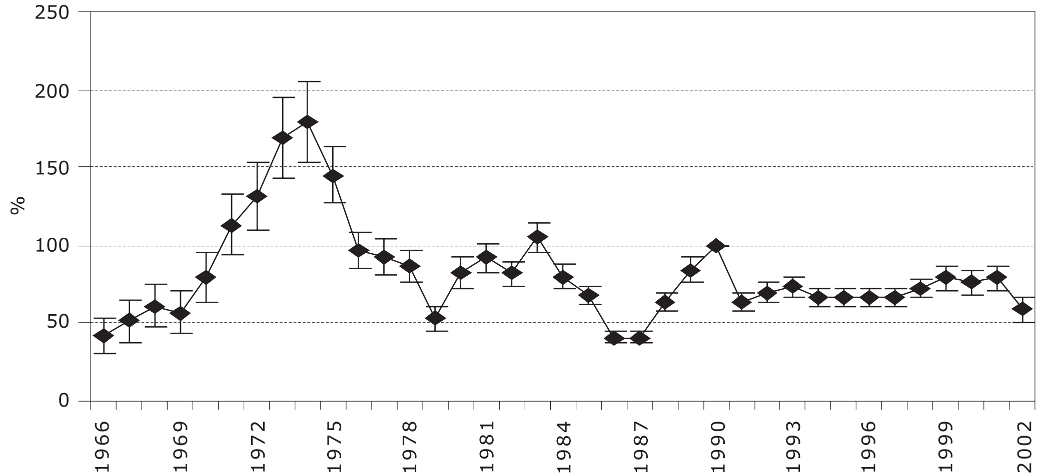

Figure 3. The population trend for the Goldcrest, *Regulus regulus*, a short-distance migrant/resident species. The Y-axis is an index value with 95% confidence limits derived from TRIM and set to a value of 100 in 1990. The X-axis is year.
Tendència poblacional del Reietó Regulus regulus*, una espècie migradora de curta distància/resident. Índexs anuals amb els límits de confiança del 95%.*

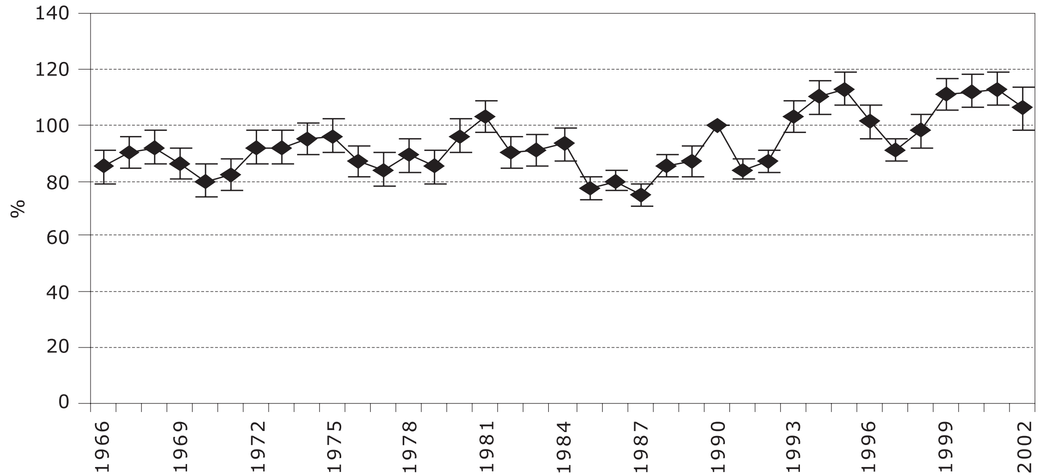

Figure 4. The population trend for the European Robin, *Erithacus rubecula*, a short-distance migrant/resident species. The Y-axis is an index value with 95% confidence limits derived from TRIM and set to a value of 100 in 1990. The X-axis is year.
Tendència poblacional del Pit-roig Erithacus rubecula, una espècie migradora de curta distància/resident. Índexs anuals amb els límits de confiança del 95%.

decline in last 22 years (Gregory *et al.* 2005). There is growing evidence to suggest that agricultural intensification has played a significant role in the decline of farmland birds (e.g. Aebischer *et al.* 2000, Donald & Vickery 2000). Donald *et al.* (2001) showed that the main driving force of agricultural intensification has been the Common Agricultural Policy, and that agriculture in the new EU member states has been less intensive. Farmland birds declined in the new EU states in the 1980s, but after the collapse of the agricultural support system in late 1980s and early 1990s, the trend of combined multi-species farmland bird indicator has reversed (Gregory *et al.* 2005). These data provide only indirect evidence, but together with studies of the mechanisms of influence of modern agriculture on birds and other taxa, our results point to agricultural intensification as a

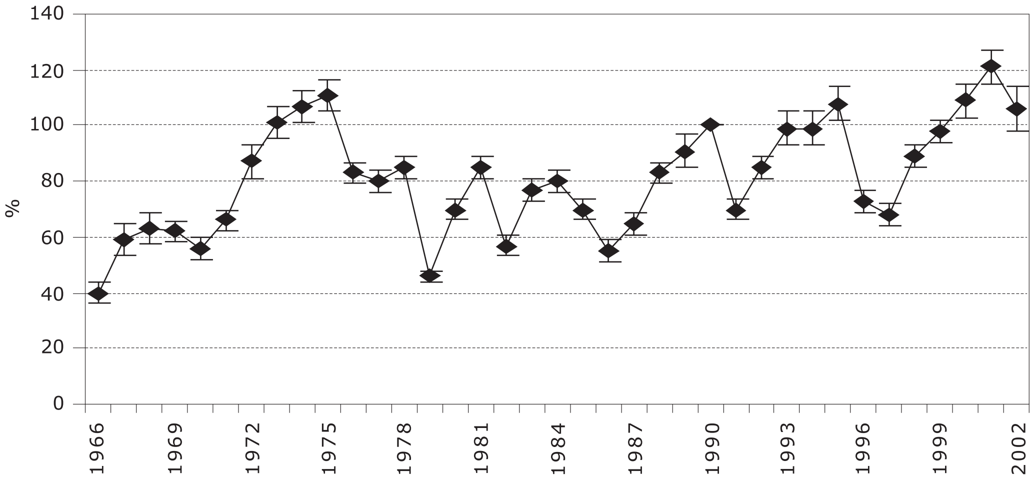

Figure 5. The population trend for the Winter Wren, *Troglodytes troglodytes*, a short-distance migrant/resident species. The Y-axis is an index value with 95% confidence limits derived from TRIM and set to a value of 100 in 1990. The X-axis is year.
Tendència poblacional del Cargolet Troglodytes troglodytes*, una espècie migradora de curta distància/resident. Índexs anuals amb els límits de confiança del 95%.*

main driving force responsible for decline of farmland birds in Europe. Understanding the causes of declines of species in the woodland bird group is, however, much more difficult.

Understanding population change in long-distance migrants is difficult, as the cause could be rooted in their breeding sites, on migration routes or at wintering grounds (Newton 2004). The large drop in numbers of Common Whitethroat, Common Redstart and Garden Warbler in the late 1960s and early 1970s was caused, at least in part, by droughts in sub-Saharan Africa (Hagemeijer & Blair 1997, Winstanley *et al.* 1974). However, a combination of other effects, e.g. modern forestry practices in case of Common Redstart, could also have played a role (Hagemeijer & Blair 1997). There is little understanding of the causes of long-term decline of other long-distance migrants, e.g. Tree Pipit or Willow Warbler.

Numbers of some short-distance migrants/residents, particularly woodland species (e.g. Winter Wren, European Robin and Goldcrest), appear to be affected by large-scale factors, e.g. hard winters(Hagemeijer & Blair 1997; Figures 4, 5 and 6). The potential effects of large-scale climatic events on population changes of species wintering within their European range need further investigation.

Improvements to the technique

Trends and indices of 48 common European bird species have been produced for the first time at such a large geographical scale. Despite the fact that collation and analysis of data from 18 European countries represents a significant step forward, the findings should be considered as preliminary in some respects. The current study suffers from several potential weaknesses, which need to be removed or reduced in the future. The precision of the European index and trend depends on the precision of the national monitoring schemes, and can be evaluated according to standard errors. Only two species long-term trends were classified as poorly known showing that data on most species produced trends of considerable precision. However, when smaller groups of countries (regions) are considered, the number of species with less precise trends increases. Furthermore, the indices for 1966-1980 largely rely on data from UK. Thus, the 1980-2002 time series are more reliable, and will be used in future.

The breeding population size of each species has been used as a weighting factor when combining species' indices from individual countries. However, the population size estimates could vary greatly in their quality and reliability. Quantitative assessment of the potential effect of this on the population estimates is beyond the scope of this study. We believe, however, that the quality of the population estimates was unlikely to influence the general pattern of trends found. Combining national indices without any weighting would be more risky and would probably produce biased results. In order to reduce the possible effect of population estimate quality, information gathered through Birds in Europe II (Callaghan & Gibbons 2001), published in 2004 (BirdLife International 2004), which includes information on quality of estimates, will be used in future.

The design of national monitoring schemes could affect European indices. While recently established monitoring schemes use (semi) randomised selection of sample plots, older monitoring schemes usually use free choice (Vorisek & Marchant 2003). Biased results in a country could affect indices in a region or in Europe as a whole, particularly when a country with biased indices contributes significantly to the regional or European indices. It is difficult to assess whether data from some countries were biased, or whether they affected the European indices produced. To take one example of potential bias, indices from Latvia come from a monitoring scheme aimed at monitoring birds in agricultural habitats, therefore Latvian indices of species classified as woodland should be interpreted with caution. However, it is unlikely that this affected European indices of woodland bird species, because of the relatively small populations of such species in Latvia, giving a lower weight to their indices.

Future aims

In the next phase of the Pan-European Common Bird Monitoring scheme, we plan to build on the considerable success to date by reducing the weaknesses mentioned above, increasing number of species studied, and increasing the geographical coverage of the scheme.

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Resum

Tendències poblacionals de 48 espècies d'ocells terrestres comunes a Europa: resultats del Programa de Seguiment Pan-Europeu d'Ocells Comuns

L'any 2003 es va obtenir un primer i ampli conjunt d'índexs poblacionals d'espècies d'ocells comuns per al Programa de Seguiment Pan-Europeu d'Ocells Comuns, a partir dels resultats d'espècies reproductores en 18 països europeus. Per a l'anàlisi es van seleccionar espècies característiques de zones forestals, parcs i jardins, o d'hàbitats agrícoles d'Europa, 48 en total (24 de forestals, 24 de zones agrícoles). Els índexs es van calcular per a cada país usant el programa TRIM, que estima els comptatges absents mitjançant una regressió de Poisson. Els índexs nacionals es van combinar per produir índexs regionals d'una manera equivalent a com es va realitzar per als comptatges absents en determinats llocs d'alguns països. Les dades absents d'anys totals en determinats llocs de cada país es van estimar a partir d'altres països de la mateixa regió d'Europa (centre i est, nord, sud i oest d'Europa) de manera que es poguessin elaborar els índexs regionals. Com a factor de ponderació es van usar les estimes de mida poblacional nidificant. La majoria de les espècies agrícoles (17) han disminuït a Europa (tendència a llarg termini, període 1966-2002), mentre que cap tendència d'aquestes espècies es va classificar com a estable, cinc espècies van augmentar i les tendències de dues espècies es van classificar com a poc conegudes. Les tendències a llarg termini de les espècies característiques de zones forestals, parcs i jardins van mostrar un escenari diferent: 11 espècies van disminuir, vuit es van mantenir estables i cinc van augmentar.

Resumen

Tendencias poblacionales de 48 especies de aves terrestres comunes en Europa: resultados del Programa de Seguimiento Pan-Europeo de Aves Comunes

El año 2003 se obtuvo un primer y amplio conjunto de índices poblacionales de especies de aves comunes para el Programa de Seguimiento Pan-Europeo de Aves Comunes, a partir de los resultados de los programa de seguimiento a gran escala de especies reproductoras en 18 países europeos. Para el análisis se seleccionaron especies características de zonas forestales, parques y jardines, o de hábitats agrícolas de Europa, 48 en total (24 de forestales, 24 de zonas agrícolas). Los índices fueron calculados para cada país usando el programa TRIM, que estima los conteos ausentes mediante una regresión de Poisson. Los índices nacionales se combinaron para producir índices regionales de una manera equivalente a como se realizó para los conteos ausentes en determinados lugares de algunos países. Los datos ausentes de años totales en determinados sitios de cada país se estimaron a partir de otros países de la misma región de Europa (centro y este, norte, sur y oeste de Europa) de manera que se pudieran elaborar los índices regionales. Como factor de ponderación se usaron las estimas de tamaño poblacional reproductor. La mayoría de las especies agrícolas (17) han disminuido en Europa (tendencia a largo plazo, período 1966-2002), mientras que ninguna tendencia de estas especies fue clasificada como estable, cinco especies aumentaron y las tendencias de dos especies fueron clasificadas como poco conocidas. Las tendencias a largo plazo de las especies características de zonas forestales, parques y jardines mostraron un escenario diferente: 11 especies disminuyeron, ocho se mantuvieron estables y cinco aumentaron.

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