16th International Conference of the European Bird Census Council

Bird Numbers 2004 Monitoring in a Changing Europe

6th-11th of September 2004, Kayseri, Turkey

Scientific Committee

Anny Anselin
Sancar Baris
Ian Burfield
Przemek Chylarecki
Martin Flade
Ruud Foppen
Lorenzo Fornasari
David Gibbons
Richard Gregory
Ward Hagemeijer
Elena Lebedeva
David Noble
Uygar Özesmi
Tibor Szép
Juha Tiainen
Petr Vorisek

Organizing Committee

Uygar Özesmi, Chairman
Nurten Budak, Vice chairman
Hülya Alkan
Engin Gem
Özge Balkiz
Eray Çaglayan
Burcu Meltem Arik
Nurettin Özbagdatli
Esra Per
Tuba Kiliç

PROGRAM

6 September 2004

Registration between 8 am -12 pm at Faculty of Theology (Ilahiyat Fakültesi)

Welcome party at 19.00 in front of the “Personel Yemekhanesi”

7 September 2004

OPENING CEREMONY

Ýzzet Bayraktar Konferans Salonu (Auditorium)

09:00 – 09:30	Dr. Uygar Özesmi - Conference Organizing Committee
	Günesin Aydemir - Chair of Executive Board of Doga Dernegi,
	Dr. David Gibbons - Chairman of European Bird Census Council
	Prof. Dr. Kerim Güney - Dean of Engineering Faculty, Erciyes University
	Prof. Dr. Cengiz Utas - Rector of Erciyes University
09:30 – 10:20	CONCERT
	Cavid ASADOV – Violin
	Ayna ÝSABABAYEVA - Piano
10:20 - 10:35	BREAK

SCIENTIFIC PROGRAM

7 September 2004

	Auditorium	Meeting Room
	Session 1: Atlas Studies *Chair: Lorenzo Fornasari*	
10:35 - 11:25	Plenary Talk 1: Bird Monitoring in Turkey *Sancar Baris*	
11:25 - 11:45	Talk 2: The development of ornithological atlases *Gibbons, D. W. &. Donald, P. F.*	
11:45 - 12:05	Talk 3: The Catalan Breeding Bird Atlas (CBBA) : Methodological Aspects and Ecological Applications *Brotons,L., Herrando,S., Estrada,J., Pedrocchi,V. and Martin,J.L.*	
12:05 - 12:25	Talk 4: The Second Latvian Breeding Bird Atlas 2000–2004: Preliminary Results *Kerus,V., Racinskis,E.*	
12:25 - 14:30	LUNCH	
	Session 2: Atlas Studies *Chair: Sancar Baris*	Session 3: Long-term Species Monitoring *Chair: Juha Tianinen*
14:30 - 14:50	Talk 5: Atlas of breeding birds in the Czech Republic 2001-2003 *Stastny, K., Bejcek, V., Malkova, P.*	Talk 10: Fort years of grouse monitoring in Finland: long - term population trends and short - term dynamics *Helle,P., Linden,H. & Ranta,E.*
14:50 - 15:10	Talk 6: The Norwegian Web-based breeding bird atlas *Lorentsen, S.- H. & Espelien, A.*	Talk 11: Results of voluntary based corncrake monitoring in European Russia, 2002-2003 *Mischenko, A.*
15:10 - 15:30	Talk 7: General results of the flemish breeding bird atlas project: towards future projects? *Vermeersch, G.*	Talk 12: Population crash of the ortolan bunting *Emberiza hortulana* in an agricultural landscape in southern Finland *Vepsalainen, V.*
15:30 - 15:50	Talk 8: Filling the gaps: using count survey data to predict bird density distribution patterns *Sierdsema, H.*	Talk 13: Breeding densities of great grey shrike in poland: reasons of population increase *Tryjanowski,P., Kuczynski,L., Antczak,M., Lorek,G., & Grzybek,J.*
15:50 - 16:10	Talk 9: Initial results of a grid based monitoring programme *Fornasari, L, De Carli, E., Buvoli, L.*	Talk 14: Current status of ruddy shelduck *Tadorna ferruginea* in Europe *Popovkina, A. B.*
16:10 - 16:30	BREAK	

			Auditorium	Meeting Room
			Session 4: Setting Conservation Priorities *Chair: David Gibbons*	
16:30	-	17:20	Plenary Talk 15: Prioritisation of Species *Ali Stattersfield*	
17:20	-	17:40	Talk 16: Birds in Europe 2: lessons learned while reassessing the conservation status of the continent's birds *Burfield, I.J. and van Bommel, F.P.J.*	
17:40	-	18:00	Talk 17: Numbers and trends of birds in European Russia (by results of the project 'Birds in Europe-II') *Mischenko, A.*	
18:00	-	18:20	Talk 18: Monticola saxatilis or M. solitarius - which is more important? A procedure to determine species of national conservation concern. *Keller, V. & Zbinden, N.*	
18:20	-	19:20	Poster Hang-up	

8 September 2004

			Auditorium	Meeting Room
			Session 5: Climate Change *Chair: Jeremy Greenwood*	
09:00	-	09:50	Plenary Talk 19: Climate Change *Brian Huntley*	
09:50	-	10:10	Talk 20: Common birds facing climate change: species and community dynamics at range edges *Jiguet,F. & Delattre, J.C.*	
10:10	-	10:30	BREAK	
			Session 6: Modeling Distributions and Populations *Chair: Ruud Foppen*	Session 7: Integrated Monitoring and Capture Methods *Chair: Martin Flade*
10:30	-	10:50	Talk 21: Producing maps of occurrence and relative abundance of bird populations from survey data *Nevson,S. & Noble,D.*	Talk 27: Integrated monitoring of Eurasian bitterns in the Camargue *Poulin, B., Lefebvre, G., Mathevet, R & A. Mauchamp*

	Auditorium	Meeting Room
10:50 - 11:10	Talk 22: Habitat-based distribution modelling of agricultural steppe-birds in South Portugal – a multi-scale approach *Leitão,P. J.*	Talk 28: Integrated monitoring of the woodcock populations wintering and breeding in France *Ferrand,Y.*
11:10 - 11:30	Talk 23: Modeling avian abundance from replicated counts using binomial mixture models *Kéry,M., Royle,J.A. and Schmid, H.*	Talk 29: Estimating contribution of survival and recruitment to large scale population dynamic *Julliard, R.*
11:30 - 11:50	Talk 24: The Catalan comon bird survey (SOCC) a tool for estimating species population numbers *Herrando,S., Brotons,L., Estrada,J., Pedrocchi,V.*	Talk 30: Greater Flamingo (Phoenicopterus ruber roseus) monitoring and conservation in Turkey *Balkiz, Ö., Özesmi, U., Béchet, A.*
11:50 - 12:10	Talk 25: Linking habitat changes and weather conditions to population dynamics – a case study of the skylark alauda arvensis *Piha,M., Linden, A.,Pakkala, T. & Tiainen, J.*	Talk 31: The first three years of Turkish bird ringing scheme: a synopsis *Can Kesapli Ö., Didrickson Kesapli Ö., Gürsoy,A., Bilgin,C.C., Baris,S., Biricik,M., Vohwinkel,R., Nowakowsky,J., Busse,P.*
12:10 - 12:30	Talk 26: The influence of weather conditions on changes in population size of bearded tit (*Panurus biramicus*) in Western Poland *Surmacki, A., Stepniewski, J.*	
12:30 - 14:30	LUNCH	
	Session 8: Citizen Science: Monitoring with Volunteers and the Public *Chair: Ali Stattersfield*	
14:30 - 15:20	Plenary Talk 32: Citizen Science Projects *Paul Green*	
15:20 - 15:40	Talk 33: The use of large scale citizen science projects in monitoring birds in the UK *Eaton, M.*	
15:40 - 16:00	Talk 34: Using bird-watchers' checklists for bird monitoring through the internet *Donald, Paul.*	
16:00 - 16:20	Talk 35: Can we monitor bird populations through garden bird recording? *Chamberlain,D. & Cannon,A.*	
16:20 - 16:40	Talk 36: The Danish IBA Caretaker Project *Vikström, T.*	
16:40 - 17:00	BREAK	

			Auditorium	Meeting Room
17:00	-	19:00	EBCC Board Meeting	Poster Session (Chair: Anny Anselin)
17:00	-	20:30	Poster Session (Chair: Anny Anselin)	

9 September 2004

Conference Field Trip starting at 7:00 am until 11:30 pm

Destinations :

- Tuzla Lake and Kizilirmak River

- Erciyes Mountain and Sultan Marshes

- Gesi and Capadocia

Groups will meet in a large cave in Capadocia for dinner and show.

10 September 2004

			Auditorium	Meeting Room
			Session 9: Migration *Chair: Can Bilgin*	
09:00	-	09:50	Plenary Talk 37: Migratory birds: a challenge for monitoring and conservation *Bairlein, F.*	
09:50	-	10:10	Talk 38: Migration watch – an Internet survey to monitor spring migration in Britain and Ireland *Baillie,S., Balmer,D., Downie, I., and Wright, K.*	
10:10	-	10:30	Talk 39: Research on soaring bird migration at the Belen pass and Hatay province *Can, O.*	
10:30	-	10:50	BREAK	
			Session 10: Pan-European Monitoring and Indicators *Chair: David Noble*	Session 11: Monitoring: Conservation and Diversity *Chair: Franz Barlein*
10:50	-	11:10	Talk 40: Indicators for the State of the Nature *Van Strien, A.*	Talk 45: Monitoring rare birds: 30 years of the UK's rare breeding birds panel *Stroud, D.A.*

		Auditorium	Meeting Room
11:10 - 11:30		Talk 41: Multi-species, habitat-specific biodiversity indicators: the importance of species selection procedure *Julliard, R., Levrel, H., Jiguet, F., Couvet, D. & Loïs, G.*	Talk 46: Monitoring gamebird abundance and productivity in the UK: the GCT long-term datasets *Aebischer, N.J. & Baines, D.B.*
11:30 - 11:50		Talk 42: Developing biodiversity indicators using population trends of European breeding birds *Gregory, R.D., Van Strien, A. & Vorisek, P.*	Talk 47: The countryside stewardship scheme benefits cirl buntings *Wotton, S.*
11:50 - 12:10		Talk 43: Trends of 48 common terrestrial bird species in Europe: first outputs of the Pan-European Common Bird Monitoring Scheme. *Vorisek,P., Gregory,R.D., Van Strien A.J., Meyling,A.G.*	Talk 48: Decomposing species richness patterns in central European forest birds *Reif, J., Storch,D., Zajícek,S., Šizling,A. L.*
12:10 - 12:30		Talk 44: The effects of agricultural intensification on European farmland bird populations *Sanderson, F.J., Donald, P.F. and Pain, J.D.*	
12:30 - 14:30		LUNCH	
		Session 12: Monitoring Conservation Action and Policy *Chair: Richard Gregory*	
14:30 - 15:20		Plenary Talk 49: Complementarity and biodiversity hotspots *Carsten Rahbek*	
15:20 - 15:40		Talk 50: The evolution and monitoring of English agri-environment schemes *Bradbury, R.B. & Evans, A.D.*	
15:40 - 16:00		Talk 51: Reversing declines in farmland birds in the UK *Noble, D.*	
16:00 - 16:20		Talk 52: 10 years of farmland bird monitoring in Latvia: population changes 1995-2004 *Auninš,A. & Priednieks,J.*	
16:20 - 16:35		Break	
		Session 13: Monitoring Conservation Action and Policy *Chair: Carsten Rahbek*	Session 14: Sampling Design, Field Methods and Analysis *Chair: Uygar Özesmi*
16:35 - 16:55		Talk 53: The Finnish farmland bird indicator before and after joining EU: Does the agri-environmental program help the birds? *Juha Tiainen*	Talk 58: The debate over detection probability *Dunn,E.*

		Auditorium	Meeting Room
16:55 - 17:15		Talk 54: BBS in protected areas: comparing predicted and measured values as a tool to assess general protection efficiency for common species *Jiguet, F & Godet, L.*	Talk 59: Does a stratification and weighting procedure of the Dutch common breeding bird census data result in different population indices? *Willems, F., van Strien, A., Plate, C., van Turnhout, C.,Teunissen, W., van Dijk, A., Foppen, R.*
17:15 - 17:35		Talk 55: Population changes in forest birds in Germany *Flade, Martin & Schwarz, Johannes*	Talk 60: Monitoring common breeding birds in Switzerland. Trends and indices from the first five years. *Schmid, H. & Zbinden, N.*
17:35 - 17:55		Talk 56: Meadow bird research in the Netherlands, the role of monitoring data. *Foppen, R., Teunissen, W., Schekkerman, H.*	Talk 61: A Pilot Project for monitoring of common and widespread breeding birds in Bulgaria *Spasov, S.*
17:55 - 18:15		Talk 57: Characteristics of the breeding and wintering populations of common bird species in Hungary before the membership of the EU on the base of the 5 years of the MMM program *Szép, T., Nagy, K., Nagy Z.*	Talk 62: New methods for monitoring breeding birds along UK waterways *Marchant, J.*
18:15 - 18:30		Closing Remarks	

ABSTRACTS

Oral Presentations

PT01
Bird monitoring in Turkey
Baris, S.
Ondokuz Mayis University Ornithological Research Center, Turkey - sancarb@superonline.com

Although Turkey possesses a diverse avifauna and impressing array of important bird areas, until recently field ornithology activities have been scarce and number of people interested in birdwatching has been few. There were only about a handfull of Turkish birdwatchers 25 years ago, today Turkish "birdwatcher" community numbers no less than 500 people. Obviously, bird census and monitoring activities in Turkey is closely related to those figures. For several decades bird census activities in Turkey consisted of irregular reports from foreign birdwathcher and observers. Some of these activities have produced formal reports and were published, mainly in "Türkiye'nin Kuslari" series, and OSME's Turkey Bird Reports. Published information on some regularly visited areas like the bald ibis breeding station enabled some means of monitoring for some sites and few species. The only regular census activity has been the mid-winter waterfowl censuses, again performed for several years by foreign experts. It was in the 1990's that the number and quality of Turkish birdwatchers enabled more work to be performed. Since then mid-winter censuses are being carried regularly, important bird area monitoring is being done. Today several local birdwathching groups are carrying their own census and monitoring activities and in some places local atlas studies have been initiated. Another relatively recent development in Turkey has been the development of the institutions concerned with ornithological research and avian conservation. Of these one should mention DHKD which until about 4 years ago was one of the main driving forces behind the growing human resources. The Turkish National Atlas Project was first started in DHKD as well as first capacity building activities and IBA monitoring. Today most of the expertise obtained is now being used by Doga Dernegi who manages special projects for IBA monitoring, Turkish National Atlas, Great Bustard, Caucasian Black Grouse, and Bald Ibis projects. Another important NGO is, the Ornithological Research Society (KAD) which worked on birds of prey migration, Great Bustard conservation and passerine migration. A Turkish ringing scheme has been developed and is being managed by KAD since 2000. Both Doga Dernegi and KAD are co-operating in a number of projects like White Stork census and flamingo ringing. University involvement in the field of ornithology has been very small in the past, one exception being the involvement of Ege University in the Dalmatian Pelican and Flamingo monitoring around Izmir. Recently not only several university birdwatching groups are flourishing, some universities also became more involved in migration studies and ringing. An ornithological research center has been founded in Ondokuz Mayis University in Samsun. Most of the field ornithology in Turkey is still on the development phase and most of the efforts have been made in the establishment of the human and institutional resources. This investment will hopefully be the major driving force in the future projects and activities.

T02 The development of ornithological atlases
Gibbons, D. W., Donald, P. F.
RSPB, UK - david.gibbons@rspb.org.uk

Ornithological atlases - which map bird species' distributions on a (mostly) regular grid - are more than three decades old, and approaching their third generation. First generation atlases merely mapped distributions; presence or absence of each bird species in each grid square. Most were of breeding birds although, increasingly, atlases of wintering birds or year-round atlases are being produced. For breeding atlases, the level of proof of breeding of each species was recorded in each square using the 'possible', 'probable' and 'confirmed' breeding notation developed 35 years ago which has stood the test of time. Second generation atlases measured both distribution and, in many cases, change in distribution over time (mostly ca 20 year periods). In addition, they obtained measures of abundance of each species in each square, thus allowing the geographical pattern of abundance of each species

to be mapped. Unlike the methods used to map distribution, those used to map abundance have varied greatly from atlas to atlas. We review these methods and give the pros and cons of each to assist those who may be planning atlases themselves. Quantitative methods adopted have included: estimates of each species in each square; frequency of occurrence on record cards from a particular square ('reporting rates'); the proportion of yet smaller grid squares in which a species was recorded in each square; timed counts; and yet more quantitative methods such as point counts or reduced visit territory mapping. In practice, some atlases have used several methods, varying between species based on their abundance and biology, for example, whether they are colonial or not. The third generation atlases, which are now upon us, measure not only change in distribution - in some cases over 40 year periods - but also changes in abundance. In Australia, for example, changes in reporting rate have been used to document changes in abundance of species at a continental scale. In addition, data from breeding bird surveys, rather than atlases, are now being used to generate patterns of geographical abundance of common species from country to continental levels, and the distinction that used to exist between bird monitoring schemes and atlases has become blurred.

T03 The Catalan breeding bird atlas (CBBA): methodological aspects and ecological applications

Brotons, L.[1,2], Herrando, S.[1], Estrada, J.[1], Pedrocchi, V.[1], Martin, J. L.[2]

[1] Institut Català d'Ornitologia, Museu de Zoologia, passeig Picasso s/n 08003 - Barcelona, Catalonia, Spain - ornitologia@ornitologia.org

[2] Centre d'Ecologie Fonctionelle et Evolutive-CNRS, 1919 Route de Mende, 34293 Montpellier Cedex, France - brotons@cefe.cnrs-mop.fr

The first Catalan Breeding Bird Atlas (CBBA) published in the early eighties, covered, with a 10x10 km UTM grid, an area of 32,000 km^2 in north-east Spain and stands as a pioneer landmark in bird mapping in the Mediterranean region. Here, we present the context, novelties and main results of the new CBBA conducted 20 years later, between 1999 and 2002. This new atlas has included a series of methodological innovations amongst which we should emphasize the establishment of small scale timed censuses on a sample of 1x1 km UTM squares within each of the original squares of the 10x10 km UTM grid. These small scale censuses (about 3,200) allowed a consistent sampling of the territory by covering uniformly about 10% of the total study area, and make possible the production of species distribution maps at local scales (e.g. 500 m resolution). These maps were generated through spatial logistic regressions in the frame of niche based modelling approaches. Such models included information from 45 environmental variables ranging from land use and relief to direct human influence and climate, as well as information on the spatial structure of the data collected for each sampled species data to account for spatial autocorrelation. Currently, the CBBA stands amongst the best current quantitative mapping of bird distribution in Europe. We also used data from the 1x1 km UTM squares to develop species-time curves and modelling the number of species found in each 10x10 km squares per unit of time. The application of these models to the first and the new CBBAs allowed an accurate estimation of changes in bird distribution between the two atlases by taking into account local differences in sampling effort (e.g. time spent on a given square) between the two periods. Overall, the new CBBA atlas provides one of the bests large scale pictures of the changes occurred during the last 20 years in southern Europe. The results obtained strongly support the hypothesis that strong changes in bird community patterns have occurred in large areas of the country, often associated to changes in land use patterns.

T04 The Second Latvian Breeding Bird Atlas 2000–2004: Preliminary Results

Kerus, V., Racinskis, E.

Latvian Ornithological Society, A.k. 1010, Riga, LV-1050, Latvia - viesturs@lob.lv

Data for the second Latvian Breeding Bird Atlas were collected during years 2000–2004. The aim of this project was to update distribution maps for all Latvian breeding bird species, and where possible detect changes since the first Breeding Bird Atlas (1980-1984). Unlike the 10x10 km UTM squares in the latter, grid units for the current study were 5x5 km squares in LKS-92 (rectangular) coordinate system. In all there are 2785 squares, 14.3% (398) of them incomplete due to overlap with the country border. As in the EBCC Atlas of European Breeding Birds, 16 codes in three categories of breeding probability (possible, probable and confirmed breeding) were used to record species' presence in each square. Observations of non-breeding birds were recorded only in exceptional cases. Systematic

surveys to obtain data on abundance were not performed. Preliminary results are presented here, the last season's work still being in progress. To this date (April 28, 2004) 2613 squares (93.8%) have been at least partially covered. A minimum of 50 breeding species per square was arbitrarily considered a level of satisfactory coverage. In total, there were 1227 (44.1 %) such squares. The overall and satisfactory coverage is expected to increase to 97% and 50%, respectively, by the end of 2004. 219 breeding bird species have been recorded, with breeding of 194 species confirmed, 13 species probable, and 12 species possible. In comparison with the first Breeding Bird Atlas, there is a net increase of 11 species. The most recent new breeders are Whiskered Tern *Chlidonias hybridus*, European Bee-eater *Merops apiaster* and Collared Flycatcher *Ficedula albicollis*. Although hindered by difference in grids, comparison of both atlases reveals some obvious distribution changes over the last 20 years. Dramatic decline is recorded for Roller *Coracias garrulus*, now only found in a few scattered places. On the contrary, Middle Spotted Woodpecker *Dendrocops medius* has spread northwards all over Latvia; range expansion also being obvious in Whooper Swan *Cygnus cygnus*, Crane *Grus grus*, Citrine Wagtail *Motacilla citreola* and Black Redstart *Phoenuicurus ochruros*.

T05 Atlas of breeding birds in the Czech Republic 2001-2003

Stastny, K., Bejcek, V., Malkova, P.
Dept. of Ecology, Forestry Faculty, Czech University of Agriculture, Kamycka 129, 16521 Prague 6 - Suchdol, Czech Republic - stastny@lf.czu.cz

Two Atlases of breeding birds distribution were published in the Czech Republic so far. The first Atlas comprices the results from the period 1973-1977, the second one from 1985-1989. The third mapping of breeding distribution of birds was realized in 2001-2003 (only in three-year period) in the network of quadrates 10´L. x 6´Lat. (i.e. 12 x 11,1 km). The start of new mapping of birds was purposely stated on the year 2001. It was the beginning of the new century (and even millennium) and acquired data represent the basic material for the comparison of quantitative and spatial distribution changes of bird species which will occur in the 21st century. The biggest value of mapping is just the comparison between starting point (1973-1977 in the CR) and each subsequent interval in the future. In addition to that, quite actual data will be utilizable upon the planned entry of the CR into the European Union and in newly created network of protected areas NATURA 2000. The EU issued many directives for member states, which represent just the laws of the EU and they have to be realized by member states in certain terms. All 628 quadrates were covered by ca 540 collaborators revealing the presence of 200 breeding bird species. The breeding distribution is shown in maps in three categories: breeding possible (small dots), probable (medium-sized dots) and confirmed (large dots). Compared to the 1985-1989 Atlas, 5 new species (2.5 %) began breeding anew (Aquila heliaca, Recurvirostra avosetta, Himantopus himantopus, Larus cachinnans, Phylloscopus trochiloides), whereas 6 species (3 %) ceased to breed (Aquila pomarina, Aythya nyroca, Otis tarda, Burhinus oedicnemus, Coracias garrulus, Lanius senator); 31 % of breeding birds increased in numbers, 16.5 % decreased, no such changes can be seen in 46 %.The data from the Atlas are continually used for the protection of biofund and gene pool of avifauna including the data for the Red list of endangered species (published 2003), for utilization of birds with respect to biodiagnostics of long-term changes in the landscape (bioindicators) as well as for purposes of land-use planning.This work was supported by the grant of the Grant Agency of the CR no. 206/01/1375.

T06 The Norwegian web-based breeding bird atlas

Lorentsen, S.- H., Espelien, A.
Norwegian Institute for Nature Research, Tungasletta 2, N-7485 Trondheim, Norway - shl@nina.no

In order to give an easy access to data on Norwegian breeding birds a web-based Atlas was developed. The system (www.fugleatlas.no), consists of a database where information about the observations (species, geographical coordinates, breeding status and parameters etc.) are stored, and an integrated GIS solution to display the observations on maps with a geographical resolution defined by the user. Different user groups are defined in order to shield observations on threatened and rare species. Only the owner of the observation and cleared persons are allowed to view the observations with maximum resolution. For other people the observations are displayed in aggregated 1x1, 10x10 or 50x50 km grid squares, depending of the red-list status of the species selected. The system has become a valuable tool for nature managers and researchers, as well as average bird-watchers.

T07 General results of the flemish breeding bird atlas project: towards future projects?
Vermeersch, G.
Institute of Nature Conservation, Kliniekstraat 25 1070, Brussels, Belgium - glenn.vermeersch@instnat.be

In 2002 fieldwork for the flemish breding bird atlas ended and the writing-period began. In november 2004 the book is scheduled to be published. The results of this project show that in the last 30 years, the breeding avifauna in Flanders has changed dramatically. Although general species richness has increased, the 'quality' has decreased severely. In the absence of a common bird monitoring scheme the past 30 years, the actual rate of the decline of some of the 'common' species linked to agricultural activities, came as a surprise. It is clear that we urgently need a CBC in the near future to be able to ring the alarm bell much earlier. Along with agricultural species, species of marshland aren't doing well at all eather. On the other hand, almost all raptors, species of mature woodlands and introduced species are increasing, some also unexpectedly rapid. The relative abundance maps along with so-called prediction maps show us in a very detailed way, which are the problem areas in Flanders. The results of this project will not only be used to write a book, but also to try and convince our regional government of the fact that new research and actions is necessary. As for now, they seem especially interested in projects concerning agricultural species as a result of the iincreasing interest of the EC in farmland birds in relation to long term agricultural policy. Another possible spin-off would be to participate in the creation of a European abundance map. Finally, the collected point-data will certainly be used to evaluate the SPA's in Flanders and to propose several new ones.

T08 Filling the gaps: using count survey data to predict bird density distribution patterns
Sierdsema, H.
SOVON Dutch Centre for Field Ornithology / University of Amsterdam, Netherlands - henk.sierdsema@sovon.nl

Birds play an increasing role in politics, nature conservation and nature management. Many species are of conservation concern and protected through national and international laws and agreements. Therefore projects like the construction of roads or building project have to tested against their consequences on the distribution and abundance of birds. Also issues like climate-change, pollution and the increasing disturbance by traffic have to be addressed to estimate their consequences on bird populations. Estimates of population sizes form an important tool in (inter)national or regional policies. The selection of for example Red List Species, Habitat directive or 'target species' is for a major part based on population estimates. With the increasing influence of these lists in the society reliable and reproducible estimates are becoming more and more necessary. Nationwide mappings of bird distribution or abundance are not easy to obtain though. They require intensive fieldwork of hundreds or thousands of volunteers and can only be carried out every few decades. Only a small number of rare or very aggregated species can be monitored on a national scale every year, let alone every month. For other species we therefore have to rely on information obtained at sample sites. Since the sites obviously don't cover the whole area of interest, we need something to fill in the gaps between the sites if we want to create distribution maps or estimate population sizes from these data. With statistical models descriptions can be made of the relation between bird distribution and abundance and explanatory variables. With the aid of spatial modelling techniques data of bird numbers collected on sample sites can be interpolated to maps with full coverage. For this interpolation a number of different techniques can be used. We will show a number of examples to demonstrate how maps with complete spatial cover can be derived from sample data.

T09 Initial results of a grid based monitoring programme
Fornasari, L.[1], De Carli, E.[2], Buvoli, L.[2]
[1] DISAT, Univ. Milano Bicocca, P.zza della Scienza 1, I-20126 Milano, Italy - mito2000.disat@unimib.it
[2] FaunaViva, Via Biringhello 114, I-20017 Rho (MI), Italy

The Italian Breeding Bird Monitoring Programme started on 2000, mainly based on a two stage sampling design. Randomly selected point counts were foreseen within each of the 181, 50x50 km UTM squares. In the first two surveys 14,095 single visit point counts were performed, and 272,336 bp were estimated, pertaining to about 230 breeding species. As the methods adopted are adequate for Passerines and allies, a bulk of 103 species properly monitored has been identified. Very few species showed a significant change: an increase was found for Streptopelia turtur and Cisticola juncidis, a decrease for Muscicapa striata and Parus ater. The samples distribution throughout the whole country

allowed to identify localized contributes to general trends, i.e. the variation appeared more evident close to the range limits for C. juncidis (increasing in the Po valley, at the northern limit) and for P. ater (decreasing in the Apennines, at the southern limit). Distribution changes may be also shown on a longer time scale by comparing present distribution to the one shown in the previous breeding atlas: a very good example is given by Streptopelia decaocto, that completed its colonization of Italy by spreading South. The case of Turdus merula, with a limited decresing area in North-western Italy, highlights the effectiveness of this approach. In fact, the species was affected by avian malaria during summer and autumn 2000, and we were able to identify, with data collected in 2001, its contagion area. As data collected through the random sampling may be considered representative of the actual bird distribution, we used them to locate national biodiversity centres by taking into account the entire set of "common" bird species distributions. In addiction to well known biogeographycal assets (e.g. Alps, Sardinia and Po Delta), we highlighted in this way the importance of some traditional agricoltural districts. Bird community approach (together with habitat information analysis) allowed us to recognize biodiversity indicator species and relevant habitat thresholds influencing biodiversity values. Increasing point counts density will permit to draw interpolate maps for the whole set of common species.

T10 Fort years of grouse monitoring in Finland: long - term population trends and short - term dynamics

Helle, P.[1], Linden, H.[2], Ranta, E.[3]

[1] Finnish Game and Fisheries Research Institute, Tutkijantie 2 A,fin-90570 Oulu, Finland - pekka.helle@rktl.fi

[2] Finnish Game and Fisheries Research Institute, P. O. Box 6, FIN-00721 Helsinki, Finland

[3] Department of Biological and Environmental Sciences, P. O. Box 65, FIN-00014 University of Helsinki, Finland

Annual monitoring of Finnish grouse by line transect counts covers 40 years. Boreal Species of tetraonids include capercaillie Tetrao urogallus, black grouse Tetrao tetrix, Hazel grouse Bonasa bonasia and willow grouse Lagopus lagopus. August is prime time for counting, because young are stil together with their parent(s) and a reliable measure of reproductive success is obtained. Close to 1000 transects all across the country are studied annually: total lenght has been about 25000 km in 1960-80s and about 1000 km during the past 15 years. The field work is carried outby voluntary hunters, who are well motivated in the scheme, partly because grouse are eagerly hunted. Research has utilized these massive data in many ways, especially in assessing problems of population dynamics and landscape ecology. All grouse species have decreased in numbers during the monitoring period, more so in southern than northern part of the country.Capercaillie has experienced the most profound decrease (about 60 %) and hazel grouse has done best with a slight decrease only.The steepest phase of decline occurred during 1960-80s, and the populations have shown no more decline during the past 15 years. Geographical variation in population declines has been studied removing short-term variation and assessing underlying trends .Variables describing characteristics of landscape and forest structure have been used in modelling long-term trends .The models have a relatively poor explanatory power, probably because the scale of analyses may not be valid (environmental variables allow analyses at province level only) and unknown delays between an environmental change and the response in bird populations. A typical characteristics in short-term dynamics of Finnish grouse has been the cyclic fluctuation in population density with a cycle lenght of 5-7 years. This holds true for most areas and species involved. During 1960-80s the cycles were relatively regular and predictable. However. Cyclic fluctuations largely disappeared in late 1980s, and presently the populations vary erratically. The reason for the change is not known.Explanations given includee fragmentation of forests which may have affected dispersal of individuals, generally too low population densities, increased predation pressure , among others.Synchrony between species and spatial synchrony within species have also decreased, which may be connected to the disappearance of population cycles.

T11 Results of voluntary based corncrake monitoring in European Russia, 2002-2003

Mischenko, A.
Russian Bird Conservation Union, Shosse Entuziastov, 60, bld.1, Moscow 111123, Russia - almos@redro.msk.ru

The results of the Corncrake projects carried out in Russia in 1995-1996, revealed the recent numbers and distribution of this species. Taking into account the main role of Russia for the world population of this species, establishment a network of sites for annual Corncrake monitoring in European part of Russia is extremely important. In 2002-2003 Russian Bird Conservation Union realized the Corncrake counts within the framework of the International Corncrake Monitoring Scheme (CMS), thanks to the support of the RSPB. Counts of calling males were carried out in accordance to the CMS methods. The surveys in 2003 were conducted in 27 sites of 14 regions in different parts of the European Russia. Also 2 sites were surveyed in Sverdlovsk Region, located directly to the east from Urals, formally in the Asian Russia. The total number of the surveyors was 31; 23 from them were amateur ornithologists (adult people and school children). On the same general area (55.99 sq.km) total Corncrake number was 159 in 2002 and 318 in 2003. 2002 was abnormal, extremely dry and hot year in most part of European Russia. The situation in the Ural Region (Perm and Sverdlovsk) was completely other. That year was rather rainy and favorable for the Corncrake in Urals. In 2003 humidity and vegetation were auspicious for this bird on all European Russia. The comparison of data 2002-2003 shows significant fluctuations of the Corncrake's numbers, connected with the general weather features of spring and summer and local peculiarities of humidity and vegetation. In connection with the extremely dry season, the amount of calling corncrakes in flood-plain meadows of the rivers Oka and Klyazma was much lower than the last years. As example, in Solotcha surveyed site (Oka valley) the number of Corncrake males in 2002 (n=14) was more than in 10 times smaller, than in 2001 (n=167). In 2003, in comparison with abnormally dry 2002, numbers in Solotcha and Klyaz'ma surveyed sites have increased accordingly in 10 and 3 times. On the surveyed site in Perm Region (Urals) the situation was contrary: numbers in 2003 has decreased in 2.7 times in comparison with the last year. The probable reasons of these fluctuations are discussed. The Corncrake density in 2003 varied from 0.13 males per sq.km (extensive monotonous grassland in a forest-steppe zone, Lipetsk Region) up to 61.85 males per sq.km (small mosaic meadows among a wood in taiga zone, Vologda Region). The main result of the two years counts is the establishment of network for the Corncrake monitoring in the European Russia on one hand and making the voluntary team of surveyors on the other hand. Operative monitoring network can help to reveal any positive or negative tendencies in the core part of the Corncrake' range.

T12 Population crash of the ortolan bunting *Emberiza hortulana* in an agricultural landscape in southern Finland

Vepsalainen, V.
Finnish Game and Fisheries Research Institute (FGFRI), Finland - ville.vepsalainen@rktl.fi

The Ortolan Bunting *Emberiza hortulana* is one of the most declined bird species of agricultural areas in Europe during the recent decades. We studied density changes and environment associations of the Ortolan Bunting in a large area of agricultural landscape in southern Finland in 1984–2002. Spatial scales of the study ranged from territory to landscape scale. Crash of the Ortolan Bunting population took place synchronously in all subpopulations in the early 1990s, resulting a total decrease of 78% during the study period. We found associations with the decline and the amount of environmental heterogeneity, agricultural practices, species density and territory group structure. The species was found to be associated with bush- and tree-growing ditches and other vegetated landscape elements, which are important for structural and biological diversity in otherwise relatively open field areas. Our results show that there was a connection between a decrease in the amount of bush- and tree-growing ditches and the decline of the Ortolan Bunting. The species was also found to be associated with the field area not covered by vegetation in springtime, instead of the field area covered by springtime vegetation. The European-wide decrease of the Ortolan Bunting is, however, probably dependent also changes in migrating and wintering areas of which must be taken into account for reliable quantitative scenarios for maintaining sustainable population development of the species.

T13 Breeding densities of great grey shrike in poland: reasons of population increase
Tryjanowski, P., Kuczynski, L., Antczak, M., Lorek, G., Grzybek, J.
Department of Avian Biology and Ecology, Adam Mickiewicz University, Fredry 10, 61-701 Poznan, Poland – ptasiek@amu.edu.pl

In this paper we explained why densities of the great grey shrike *Lanius excubitor* increased in last decades in Poland. Birds were counted at 16 study plots in years 2000-2003 located over whole the country and findings were compared with all available results obtained before that time. Structure of study plots during last years and in previous time did not differ with respect to heterogeneity of landscape and percentage of chosen microhabitats. However, the density in 2000-2003 varied between 7.4 – 14.1 breeding pairs per 100 km^2 and was higher in comparison to previous studies (mean 7.6 bp /100 km^2). All parable comparison suggested population increasing during last decades, especially in western Poland. We linked obtained results with: (1) increased efficiency of monitoring methods; (2) changes in winter period – mainly snow cover and wind directions; (3) increased of population size in the fieldfare *Turdus pilaris*, what effected positively breeding success of the great grey shrike. *Funded by the Polish Science Committee grant – KBN 6PO4053 25.*

T14 Current status of ruddy shelduck *Tadorna ferruginea* in Europe
Popovkina, A. B.
Moscow State University, Moscow, Russia - nastya@soil.msu.ru

The European population is the smallest of the six Ruddy Shelduck populations presently recognized (Scott & Rose 1996). This particular population has undergone the greatest changes in the numbers and range over the past century, while the status of the populations in the Asian parts of the range seems to remain relatively stable. General trend in the south-eastern Europe is the population decline. In Turkey, which provided breeding grounds for 4 to 8 thousand breeding pairs in the 1980s (Tucker & Heath 1994), the population is evidently declining, though it has still to be confirmed. Anyway, only for Kulu Golu over 10 000 individuals were reported in the post-breeding period in the 1980s (Kasparek 1987, Ertan *et al* 1989) and only about 2000 in 2001–2002 (Richardson 2003). The breeding population in Greece, numbering about 200 pairs in the 1970s (Cramp & Simmons 1977) has declined to 35–60 pairs and almost disappeared in the north-eastern Greece (Hagemeijer & Blair 1997). The Romanian population was also subjected to major decline from 150–160 breeding pairs in the end of the 19th century (Vasiliu 1968) to a few pairs (European Bird Populations… 2000). Considerable declines have been also recorded in the first half of the 20th century in Bulgaria, Ukraine, and the European parts of Russia (Tucker & Heath 1994). However, increases of Ruddy Shelduck populations have been reported in the last decades for Bulgaria and European Russia. In the end of the 20th century breeding birds have been registered north of the presumed northern range of the species in the Ulianovsk region and Volga-Kama interfluve plane, which may indicate northward expansion of the range in the European part of Russia. Noticeable recent increase in Ruddy Shelduck numbers in north-western Europe, where the birds were considered occasional visitors up to the end of the 19th century. An great influx (about 400 individuals in north-western Europe, most of them in Fenno-Scandia) was recorded in 1994. Since then, Ruddy Shelduck numbers have been increasing there. In 2002 and 2003, 252 birds were observed in Switzerland and 271 in the Netherlands (Vinicombe, 2003), suggesting that those birds were wild, while their origin is still under question. Since most of the Ruddy Shelduck populations are not isolated, definition of their borders is uncertain. Taking into account great and intriguing changes in the species' numbers in Europe, the challenging task for now is to determine whether some populations are declining and even driven towards extinction while the other are increasing, or re-distribution of birds occurs among various populations. In addition to ringing, modern methods in population studies such as DNA-analysis would be of great help in solving this problem. *The studies were partly supported by RFBR grant N 02-04-49749*.

PT15
Prioritisation of Species
Stattersfield, A.
Head of Science, Birdlife International, UK - Ali.Stattersfield@birdlife.org

This paper will review how information on birds gathered locally and nationally by BirdLife's Partnership, network and others is being used globally to prioritise species and influence conservation

efforts. It will cover the use of distributional, population, trend and other data in determining the threat (IUCN Red List) status of species and the identification of geographic hotspots. It will illustrate how these data can be analysed and presented in a policy-relevant way, including the identificiation of major threatening processes and the development of bird indices. It will highlight some conservation successes, includinging those resulting from influencing regional and international agreements, and assess whether we are doing enough to save the world's birds.

T16 Birds in Europe 2: lessons learned while reassessing the conservation status of the continent's birds

Burfield, I. J., Van Bommel, F. P. J.
BirdLife International, European Division Office, Droevendaalsesteeg 3a, P.O. Box 127, 6700 AC Wageningen, The Netherlands - ian.burfield@birdlife-europe.nl

In 1994, BirdLife International published *Birds in Europe*. As the first ever review of the conservation status of all European bird species, this book had a large impact on many audiences and proved to be a very useful publication. The aim was to identify species in need of special conservation attention (Species of European Conservation Concern, or SPECs). In collaboration with the EBBC and a network of over 400 ornithologists, national population and trend data were collected for almost all European countries, producing a database of 50,000 records. Assessment of these data against a set of SPEC criteria showed that 195 species (38% of the European avifauna) had an Unfavourable Conservation Status, many of which were associated especially with farmland habitats. This analysis provided a means of prioritising bird conservation efforts in Europe, and has been one of the main foundations of BirdLife's conservation work. However, it is now out of date. The *Birds in Europe 2* project, which began in 2002, is updating the analysis to help ensure that bird conservation efforts across Europe remain well informed and based on sound science. The project is now nearing completion, with a book to be published and a website to be launched before the end of 2004. Numerous issues have been encountered along the way, from how the data should best be provided, through whether an established set of criteria should be changed, to what format the outputs should take. BirdLife's European Partnership is committed to repeating the *Birds in Europe* process every decade, and to collating new population and trend data every five years wherever possible. This contribution will review the lessons learned during *Birds in Europe 2*, and suggest how future updates can be completed as efficiently and effectively as possible.

T17 Numbers and trends of birds in European Russia (by results of the project 'Birds in Europe-II')

Mischenko, A.
Russian Bird Conservation Union, Shosse Entuziastov, 60, bld.1, Moscow 111123, Russia - almos@redro.msk.ru

In 2002-2003 Russian Bird Conservation Union implemented the Russian part of the European project 'Birds in Europe-II', thanks to the financial support of BirdLife International and Vogelbescherming Nederland. It is obvious that the whole giant area of European Russia can't be covered by bird surveys. So the main tasks of the project in Russia were collection of scattered data of bird censuses in different areas from recent publications, scientific reports and databases, non-published information of local ornithologists; analysis and generalization of obtained data. 12 main experts in the different regions and particular bird groups were involving in the up-date of national population estimates and trends, with contributions from 17 people. Collection and analysis of regional data were done separately for 7 economic-and-geographical regions of European Russia. All data were put in the standard database, suggested by the BirdLife. Trends were analyzed for the period since 1990 to 2000. The total number of all breeding birds in European Russia is within the limits 466 - 842 millions pairs. The analysis of the summary database, made by results of the project has shown, that from 405 breeding bird species it is impossible to specify tendencies of change of numbers for 117 species, due to an absence of special monitoring works in the large territories and low accuracy of numbers estimations. Numbers of 131 species were stable in 1990-2000. For the same period 44 species had growth of number (10-50%). For 5 species has been marked strong growth of numbers (>50%): *Tetrax tetrax, Morus bassanus*, *Phalacrocorax pygmeus*, *Porphyrio porphyrio*, *Streptopelia senegalensis*. Behind exception of *Tetrax tetrax*, these species in Russia are only an edge of the ranges and their populations are still small. For 66 species has been marked moderate reduction of numbers (10-50%)

in 1990-2000. 6 species had strong decreasing of numbers (>50%): *Branta canadensis*, *Falco cherrug*, *Vanellus gregarius*, *Glareola nordmanni*, *Melanocorypha yeltoniensis*, *Cercotrichas galactotes*. The reasons of trends directions for many species are discussed in the context of serious economic and social changes in Russia during last decade.

T18 *Monticola saxatilis* or *M. solitarius* - which is more important? A procedure to determine species of national conservation concern

Keller, V., Zbinden, N.
Swiss Ornithological Institute, Switzerland - verena.keller@vogelwarte.ch

Where national Red Lists are prepared according to the criteria and guidelines of the World Conservation Union (IUCN), these lists cannot be used directly to set conservation priorities because they only reflect extinction risk but do not take into account biogeographical information. In particular, the significance of a national population in relation to the global or continent-wide population is not taken into account. On the other hand, species with internationally important populations in a country may not be threatened at national level and may not need particular measures to increase their populations. There is therefore a need to identify species of national conservation concern and species in particular need of recovery programmes. In Switzerland, the Swiss Ornithological Institute and SVS/BirdLife Switzerland developed a procedure to identify species of national conservation concern based on national Red-List status according to IUCN criteria, the international importance of the national population and the species' "historical rarity" status. Five responsibility classes for breeding birds and two for visiting species were distinguished. Species of particular national conservation concern were defined as those that are threatened at global level, or are threatened at national level but have not always been rare, and/or have internationally important populations in the country. This list formed the basis for the identification of species that are in need of a species recovery programme, i.e. species for which general habitat conservation or site protection measures are considered insufficient to preserve and enhance the populations.

PT19
Climate Change and Birds

Huntley, B.
Institute of Ecosystem Science, University of Durham, UK – brian.huntley@durham.ac.uk

T20 Common birds facing climate change: species and community dynamics at range edges
Issue concerned: climate change

Jiguet, F., Delattre, J. C.
Muséum National d'Histoire Naturelle, CRBPO, 55 rue Buffon, 75005 Paris, France - fjiguet@mnhn.fr

Recent work published by Julliard et al. (2003) has shown that northern-breeding and habitat-specialist species showed stronger declines in France in the 1990's. In this study, we looked at latitudinal variations in annual growth rates for a selection of species that might be under pressure of warming climatic parameters. We further separated the species encountered during the BBS survey in three groups, northern-breeders, southern-breeders, and species that breed all across France. This was done using independent data sources (the latest breeding birds Atlas). We estimated extinction and colonisation rates for the period 1989-2001 for each BBS road, using the COMDYN software, and looked for spatial patterns in these community-level dynamic parameters. Species that are at their breeding range edges in France might encounter high turn-over rates if only the edge effect is driving their local dynamics, but we predict higher extinction rates in the north (species at their southern limit of breeding range) and higher colonisation rates in the south (species at their northern limit of breeding range) if climatic factors are also driving these dynamics.

T21 Producing maps of occurrence and relative abundance of bird populations from survey data

Nevson, S., Noble, D.
British Trust for Ornithology, UK - stuart.newson@bto.org & david.noble@bto.org

Maps of occurrence or relative abundance of bird populations are of huge importance, not only for highlighting the strongholds of particular species and through change maps allow areas of significant change to be identified, but they allow information such as this to be made accessible to a much wider audience than would normally be possible. However, whilst the collection of survey data for producing maps of occurrence or relative abundance of bird populations of this type requires a huge effort, it is rarely possible to survey more than a small proportion of a species range. Advances in the application of geostatistics over the past ten years have improved the estimation and precision of predicting occurrence or relative abundance at non-surveyed sites and so allow the potential for producing reliable maps over the area of interest. In this paper we use data from the BTO/JNCC/RSPB Breeding Bird Survey, currently the main tool for monitoring temporal change in breeding populations of common British birds, to explore the application of geostatistics within a GIS framework for producing statistically valid maps of bird distribution and abundance. Using cross-validation and validation methods we compare the reliability of models produced using count data for a range of species covering widespread and abundant to rare and localised. We examine the influence of species-specific traits such as habitat specialism, flocking behaviour and detectability on the reliability of species-specific predictions and the extent to which landscape data (CEH landcover and altitude) or additional survey data can be used to improve our predictions.

T22 Habitat-based distribution modelling of agricultural steppe-birds in South Portugal – a multi-scale approach

Leitão, P. J.
School of Biological and Environmental Sciences, University of Stirling, Scotland, U.K. / Centro de Ecologia Aplicada “Prof. Baeta Neves”, Universidade Técnica de Lisboa, Portugal - pjleitao@iol.pt

The aim of this poster is to present an ongoing PhD project on Steppe-birds in the Baixo Alentejo (South Portugal), as well as some preliminary results. This area, being dominated by cereal steppe landscapes, holds significant numbers of several threatened bird species. The study focuses on the selection of habitat by the Great Bustard (*Otis tarda*), the Little Bustard (*Tetrax tetrax*) and the Calandra Lark (*Melanocorypha calandra*) at various scales (namely regional, landscape and patch scale). This is done by making use of modern statistical approaches (*GLM*'s and *GAM*'s) embedded within a Geographical Information System (*GIS*) environment, combining field data with satellite imagery and map data. Expected results include potential (habitat-based) distribution models of these species in the study area, and a series of scale-dependent management recommendations for the conservation of the species and their habitats. Some preliminary results regarding the regional scale study are presented.

T23 Modeling avian abudance from replicated counts using binomial mixture models

Kéry, M., Royle, J. A., Schmid, H.
Swiss Ornithological Institute, Switzerland - marc.kery@vogelwarte.ch

Abundance estimation in ecology is usually accomplished by capture-recapture, removal, or distance sampling methods. These may be hard to implement at large spatial scales. In contrast, binomial mixture models enable abundance estimation without individual identification just based on temporally and spatially replicated counts. Here, we evaluate them using data from the national breeding bird monitoring program in Switzerland, where some 250 1km^2 quadrats are surveyed using the territory mapping method three times during each breeding season. We chose eight species with contrasting distribution (wide–narrow), abundance (high–low) and detectability (easy–difficult). Abundance was modeled as a random effect with a Poisson or negative binomial distribution with mean affected by forest cover, elevation, and route length. Detectability was a logit-linear function of survey date, survey date-by-elevation, and sampling effort (time per transect unit). Resulting covariate effects and parameter estimates were consistent with expectations. Detectability per territory (for 3 surveys) ranged from 0.66–0.94 (mean 0.84) for easy and from 0.16–0.83 (mean 0.53) for difficult species, depended on survey effort in two easy and all four difficult species, and changed seasonally in three

easy and three difficult species. Abundance was positively related to route length in three high-abundance and one low-abundance (one easy and three difficult) species, and increased with forest cover in five forest species, decreased for two non-forest species and was unaffected in a generalist species. Abundance estimates under the most parsimonious mixture models were between 1.1 and 8.9 (median 1.8) times greater than estimates based on territory mapping; hence, three surveys were insufficient to detect all territories for each species. We conclude that binomial mixture models are an important new approach for estimating abundance corrected for detectability when only repeated count data are available. Future developments envisioned include estimation of trend, occupancy and total regional abundance.

T24: The Catalan comon bird survey (SOCC) a tool for estimating species population numbers

Herrando, S.[1], Brotons, L.[1,2], Estrada, J.[1], Pedrocchi, V.[1]

[1] Institut Català d'Ornitologia, Museu de Zoologia, passeig Picasso s/n 08003 - Barcelona, Catalonia, Spain - ornitologia@ornitologia.org

[2] Centre d'Ecologie Fonctionelle et Evolutive-CNRS, 1919 Route de Mende, 34293 Montpellier Cedex, France - brotons@cefe.cnrs-mop.fr

The SOCC (Seguiment d'Ocells Comuns a Catalunya) is the Catalan common bird survey, a programme promoted by the Catalan Ornithological Institute (ICO) and the Government of Catalonia to identify and quantify temporal trends in the abundance of common birds in Catalonia (NE Spain). The programme uses three-km line transects, which are surveyed twice during the breeding season and twice during the wintering season. Being a young monitoring programme and initiated in 2002, one year later there were as many as 192 transects, covering most of the Catalan biogeographical diversity, from wetlands to alpine areas. The coverage of the programme, nowadays firmly established is, given the size of the territory, perfectly comparable to that of countries with long-running tradition in such kind of monitoring programmes. Although the main aim of the SOCC is to determine population trends for breeding and wintering birds, its integration with distribution maps obtained through habitat suitability models in the context of the Catalan Breeding Bird Atlas (CBBA) has proven an interesting tool to estimate the population of many common species, from which earlier estimates where completely unknown or based on pure speculation. Using SOCC density data, we proceed to calibrate habitat suitability values by means of regression model (Atlas-SOCC models) relating the densities of the SOCC transects (pairs/km^2) with the probability of occurrence (ranging from 0 to 1) for the sample of 1x1 km UTM squares in which transects were located. Model fit was generally highly significant, thus allowing the projection of species densities to un-censused areas from which habitat suitability values had been developed. The Atlas-SOCC models were used to predict densities for each of the c. 32,000 1x1 km UTM squares of Catalonia, and then we summed all these values to obtain population estimates for the whole country. As an example, the population of Sardinian warbler Sylvia melanocephala has been estimated at 376,099-554,903 breeding pairs. Our approach stresses the interest of combining results from different monitoring programmes to obtain data useful for establishing bird conservation strategies.

T25 Linking habitat changes and weather conditions to population dynamics – a case study of the skylark *Alauda arvensis*

Piha, M.[1], Linden, A.[2], Pakkala, T.[1], Tiainen, J.[3]

[1] Finnish Museum of Natural History, Spatial Bird Ecology Research Group, P.O. Box 17, FIN-00014, University of Helsinki, Finland - markus.piha@helsinki.fi

[2] Department of Biological and Environmental Sciences, Integrative Ecology Unit; P.O. Box 65, FIN-00014 University of Helsinki, Finland

[3] Finnish Game and Fisheries Research Institute, P.O. Box 6, FIN-00721 Helsinki, Finland

Understanding population fluctuations is a central problem in both theoretical and applied ecological studies. However, the inadequate data quality and quantity combined with statistical problems with autocorrelated population data has reduced the amount of relevant studies on migrant birds. We studied the effects of habitat changes and weather conditions on population dynamics of a migrant farmland bird, the Skylark. The data consisted of farmland bird censuses performed annually in an agricultural landscape of 20 km^2 in southern Finland in1984–2003. The time-series modelling put together the autoregressive component, farmland habitat quality and the weather conditions in breeding and wintering areas using Monte Carlo simulations and regression methods. The total

number of breeding skylarks within the study area varied between 121 and 238 pairs. In the early 1990s the population size increased, but diminished again in the late 1990s, and is nowadays quite similar with the 1980s level. Our results show that the general trends of Finnish skylark population development can be understood by changes in agricultural land use while also weather conditions in breeding and wintering areas partly explain the between-year changes. Similar methodology could be a useful tool in many kinds of bird census studies and conservation planning.

T26 The influence of weather conditions on changes in population size of bearded tit (*Panurus biramicus*) in Western Poland

Surmacki, A., Stepniewski, J.
Dept. Of Avian Biology & Ecology, Adam Mickiewicty University, Poland - adrian@main.amu.edu.pl

Bearded Tit is considered as a species very sensitive to severe winters. However, in countries like Poland long term population increase is reported. The main aims of these study was to describe changes in Bearded Tit number between 1986 and 2003 including data from breeding season and Autumn-Winter period and to investigate possible influence of weather conditions on number changes. Data on Autumn and Winter bird numbers came from the Wielkopolska region (W Poland, 39300 km^2). Opportunity observations done by 48 birdwatchers and noted on special cards (n = 181) were used. At the same time large breeding population of Bearded Tits was monitored at Loniewskie Lake (102 ha), in a southern part of the region. Influence of weather was examined using multiple stepwise regression. In consecutive years, number of breeding pairs and the total number of birds seen in Autumn and Winter were significantly correlated. Outside the breeding season the average temperature of September best explained changes in bird numbers. No climatic factor significantly influenced size of breeding population. According to the results, severe winters are not of the major factors limiting Bearded Tit population. Some possible explanations of the effect found are presented and discussed.

T27 Integrated monitoring of Eurasian bitterns in the Camargue

Poulin, B., Lefebvre, G., Mathevet, R., Mauchamp, A.
Station Biologique de la Tour du Valat, France - poulin@tourduvalat.org

The Eurasian bittern Botaurus stellaris is a vulnerable species of high priority concern in Europe. A LIFE-Nature Programme (2001-2005) is being carried out at six reedbed sites in France to improve management and conservation of its habitat. The Etangs Charnier-Scamandre, located in the Camargue, represent the largest site with 3510 ha of reed marsh and brackish ponds. It is divided into several public and private estates where various socio-economic activities are carried out including reed harvesting, waterfowl hunting, grazing, fishing and nature protection. Conflicting seasonal needs for the water resource among users has been partly resolved through embankment, resulting in 38 independent hydrological units managed through a network of dykes and canals. This situation offers a wide gradient of environmental conditions from which to evaluate the ecological requirements of bitterns. Sampling protocols based on call phenology and acoustic triangulation were develop to count and locate booming males accurately within these large reedbeds, leading to a threefold increase in population estimates relative to previous surveys. Water management, land use, habitat structure and food availability have all been measured in areas with and without bitterns to identify the factors involved in booming site selection and to explain population fluctuations over space and time. The habitat spectrum exploited by bitterns in the Camargue differs from what is typically reported in the literature: booming males and nesting females concentrate in areas with shallow waters (10-15 cm) and relatively sparse green and dry reeds, where they feed primarily on crayfish and aquatic insect larvae. Reed cutting is relatively compatible with bittern needs (60% of booming sites are located in areas cut the preceding winter), and slight modifications in management practices are encouraged through the elaboration of agro-environmental measures. Reed cutting also interacts with other land uses, potentially affecting wetland health and biodiversity in the long term. These impacts are simulated through a multi-agent model integrating physical, biological and socio-economic data. Integrated monitoring has allowed us to re-evaluate population size estimates, to quantify bittern ecological needs, and to construct a simulation model integrating both human and biological processes that will ultimately be used as a tool to support collective decision making and negotiation among users.

T28 Integrated monitoring of the woodcock populations wintering and breeding in France
Ferrand, Y.
Office National de la Chasse et de la Faune Sauvage, Saint-Benoist, France - y.ferrand@oncfs.gouv.fr

France is an important wintering area for the Woodcock (Scolopax rusticola) populations in Europe. It is also a marginal breeding area for this species where spatial variations of the distribution can be detected. In order to tend to a wise use for this game species we developed a monitoring method of the French breeding population and of the European population wintering in France. The first one is based on the census of roding males at randomly chosen listening points (LP). The second one is based in one hand on the census of woodcocks flushed and/or shot during hunting trips and in the other hand on the census of woodcocks during ringing trips. The results are expressed in relative abundance indices: % of LP with roding observation, number of woodcocks seen and/or shot per hunting trip (HIA), and number of woodcocks seen per ringing trip (NIA).Their monitoring is possible thanks to a network of 1.500 professional and voluntary people. The results show that the Woodcock numbers which are found in France have been rather stable for the last 12 years. In order to explain the demographic trends, additional information is gathered. An estimation of the hunting bags is given as often as possible. The survival rates of the Woodcock wintering population (adults and first-year olds) were estimated from the ringing results and from radio-telemetry data as well. Ringing results also allow us to improve our knowledge of the relation between breeding sites (Scandinavia, Russia) and the French wintering sites in terms of population. Finally, a rough estimation of the annual breeding success is obtained through hunting bags by a wing collection. This should be improved because of biases in the interpretation of age-ratio which can greatly be affected by variations in hunting pressure.

T29 Estimating contribution of survival and recruitment to large scale population dynamic
Julliard, R.
Muséum National d'Histoire Naturelle, CRBPO, 55 rue Buffon, 75005 Paris, France - julliard@mnhn.fr

At large spatial scale, variation of population abundance results from variation of survival of reproducing adults and variation of recruitment of new individuals. Which of these two parameters vary the most and how these parameters are correlated are fundamental questions if we want to understand large-scale dynamic of such population. I explore how Pradel's seniority (complement of the proportion of new individuals in the population) may help to answer such questions. I show that the sign of the correlation between temporal variation of seniority and of an independent measure of population growth rate should indicate whether population growth rate is more influenced by variation of survival or variation of recruitment. Various predictions are proposed for evaluating the degree of regulation in the population (i.e., existence of negative correlation between survival and recruitment). Data from the French integrated breeding bird monitoring combining point counts survey, from which population growth rate is estimated, and standardized capture-recapture allowing to estimate survival and seniority variation, were used to evaluate the applicability of the method. The pattern of variation was examined for the 4 most captured species, including data from 32 trapping sites covering 13 years (1989-2001). For the Blackcap and the Chiffchaff, the pattern is compatible with population growth rate being under the additive influence of survival and recruitment variation. For the Reed warbler, the population appears strongly regulated, but with recruitment unable to compensate entirely for survival variation. For the Blackbird, the pattern is more confused, which may indicate complex population dynamic with non-linear relationship between survival, recruitment and population growth rate. Altogether, the method appears extremely promising and it particularly suitable for large scale monitoring of breeding birds by mean of ringing.

T30 The Greater Flamingo (*Phoenicopterus ruber roseus*) monitoring and conservation in Turkey

Balkiz, Ö.[1], Özesmi, U.[2], Béchet, A.[3]

[1] Doga Dernegi, Mesrutiyet Cad. Bayindir 2 Sok. No: 48/7 Kizilay, Ankara, Turkey - ozge@kustr.org

[2] Erciyes Üniversitesi, Müh. Fak. Çevre Müh. Böl., Çevre Bilimleri Ana Bilim Dali, 38039, Kayseri Turkey - uygar@erciyes.edu.tr

[3] Station Biologique de la Tour du Valat, Le Sambuc, 13200 Arles, France - bechet@tourduvalat.org

Long-term study of Greater Flamingos (*Phoenicopterus ruber roseus*) has started in 1977 in France, 1986 in Spain and 1994 in Italy through a multi-site capture-recapture scheme. Birds ringed in these countries have been resighted breeding elsewhere in the Mediterranean, West Africa and Asia Minor, which proved the metapopulation structure of flamingos. Although the importance of the wetlands of Turkey for flamingos was well known, their role in the metapopulation dynamics could not be clearly established. In 2003, Turkey joined France, Spain, and Italy in "The Greater Flamingo Network" in order to better understand the links between western and eastern Mediterranean Flamingos. Our aim is to; (i) improve the understanding of the Greater Flamingo metapopulation via the information collected in Turkey, (ii) determine the threats acting upon the major flamingo sites in Turkey and provide useful guidelines for the conservation projects carried out in those areas, (iii) increase the number of birdwatchers in Turkey. For those purposes, each year different activities are being carried out: (i) winter field surveys to make population estimates and ring resightings, (ii) flamingo ringing operation accompanied by a workshop at the end of the breeding season in Ýzmir – Gediz Delta. Until now, two successful ringing operations were carried out in 2003 and 2004 by which 447 flamingo chicks were ringed with PVC rings unique to Turkey (T/…). Until now, by the resightings carried out, 14 different individuals born in Turkey in 2003 have been observed in 7 different countries; namely in Greece, Cyprus, Spain, Italy, France, Tunisia and Israel. With the accumulation of the data by the help of observers, we will be able to gain more information about the behavior of the species and assign the important sites for the sustainance and incorporate that information to conservation projects.

T31 The first three years of Turkish bird ringing scheme: a synopsis

Can Kesapli, Ö.[1], Didrickson Kesapli, Ö.[1], Gürsoy, A.[2], Bilgin, C. C.[3], Baris, S.[4], Biricik, M.[5], Vohwinkel, R. [6], Nowakowsky, J.[7], Busse, P.[8]

[1] Kus Arastirmalari Dernegi, Atatürk Bulvari 143/38 Bakanliklar, Ankara, Turkey – ringing@kad.org.tr

[2] Ondokuz Mayis Üniversitesi, Fen-Edebiyat Fakültesi Biyoloji Bölümü, Kurupelit, Samsun, Turkey

[3] Ortadogu Teknik Üniversitesi, Fen Edebiyat Fakültesi Biyoloji Bölümü, Ankara, Turkey

[4] Ondokuz Mayis Üniversitesi Ornitolojik Arastirma Merkezi, Samsun, Turkey

[5] Dicle Üniversitesi, Fen Edebiyat Fakültesi Biyoloji Bölümü, Diyarbakir, Turkey

[6] Avifaunistische Unterschungen, Meiberger Weg 26 D-42553 Velbert, Germany

[7] Insttytut Biologii AP Zaklad Zoologii Prusa 12 08-110 SIEDLCE, Poland

[8] Bird Migration Research Station, University of Gdansk, Przebendowo 84-210 Choczewo, Poland

The Turkish National Ringing Scheme (NRS) was jointly launched by Turkish Bird Research Society (KAD), Middle East Technical University (ODTÜ) and the General Directorate of Nature Conservation and National Parks in March 2002 in order to study bird migration over Turkey with an emphasis on passerines. In spring 2002, 15,487 birds of 107 species, and in autumn 2002, 12,340 birds of 99 species were ringed. In addition, 26 birds of 10 species from 13 countries were recovered while 8 *Acrocephalus scirpaceus* ringed in Turkey were reported from 4 countries. Ringing was carried out at Manyas Kuscenneti (run by KAD-MPG), Cernek (Kizilirmak Delta, run by Ondokuz Mayis University), Titreyengöl (Antalya, run by R. Vohwinkel and W. Prünte) and ODTÜ stations (Ankara, run by KAD). In 2003, Akyatan (Çukurova Delta, run by KAD-MPG) and Dicle stations (Diyarbakir, run by Dicle University) became part of the scheme at the pilot scale. Totally, around 28,000 birds were ringed in 2003 at six stations. In addition, 18 birds of 11 species from 9 countries were recovered while 7 birds of 5 species ringed in Turkey were reported from four countries. In 2004, a further 15,000 birds have been ringed in spring so far. This brings the total to 70,000 birds within this short period, which is four times the number (17,000 birds) ringed between 1955 and 2000 before NRS. Several internationally coordinated colour ringing work have also started under the national scheme by various parties. Two years of ringing also yielded the first Turkish record of *Phylloscopus borealis,* the third and fourth Turkish records of *Acrocephalus dumetorum,* and the fourth Turkish record of *Phylloscopus inornatus* and quite a lot of new site records like *Otus brucei* in Diyarbakir. These results showed that even with a little effort spent, mistnetting is a very effective in increasing records of rare species.

PT32
Citizen Science Projects for Bird Monitoring
Green, P.
Director of Citizen Science, National Audubon Society, USA - pgreen@audubon.org

Conservation can become an activity in which citizens around the world can make informed choices based on information they themselves gather. Examples from the Makushi in Guyana and Kalahari Bushmen in South Africa are evidence of that. Citizen Science, namely the partnering of citizens with scientists to collect information that attains value through subsequent analysis and integration, is part of Audubon's people-focused approach to conservation. It has been a primary force behind the growth of the modern conservation movements in North America and Europe. With state offices, 500 chapters, and over 500,000 members Audubon is in a unique position to engage the public in large-scale citizen science activities that have direct relevance to conservation. By way of example, the Christmas Bird Count (CBC) of the Americas is preparing for its 105th season, and in 2003, a scientific review of the CBC reaffirmed the scientific value of the CBC and asserted the need for a thorough analysis of the data. The data represent a great challenge to analysis due to the variable nature of the way data are collected. The recently developed hierarchical modeling approaches are more sophisticated than what went before for assessing population trends, and are the same analytic techniques used to evaluate Breeding Bird Survey (BBS) data – the U.S. Geological Survey's breeding season counterpart to the CBC. This will give us comparable assessments of bird population trends in both winter and summer. Moreover, for species whose breeding range is outside of the area covered by the BBS, the CBC analysis will provide us with the first continental assessment of population trends. Results from the new analyses have detected population declines of which we were previously unaware, for example Northern Shrike *Lanius excubitor* and Harris's Sparrow *Zonotrichia querula*. We shall use the new results from this work to help determine Important Bird Areas (IBAs), the new Audubon WatchList, and Audubon's next *The State of the Birds* report in 2005. Together these results help prioritize bird conservation action in the United States. Trend analysis of Christmas Bird Count (CBC) data, conducted with professional biologists, greatly enhances the value of each citizen scientist's CBC participation by helping their efforts to effectively contribute to bird conservation. The CBC has fostered the founding and growth of over a thousand bird clubs and Audubon chapters throughout the U.S. and Canada and so has increased our capacity to do more Citizen Science, and CBCs are active in 19 countries or administrative areas. The CBC and the BBS are just two of many bird-focused Citizen Science activities in North America. Audubon has collaborated with the Cornell Lab of Ornithology on Citizen Science programs, which include the Great Backyard Bird Count, which collects checklist information over a four-day period each year, and eBird, which collects checklist information year-round in a freeform manner, and allows for monitoring spring and fall movements, seasonal movements, and species distributions. CLO has its own suite of Citizen Science surveys including Project Feeder Watch, Birds in Forested Landscapes, Golden-winged Warbler Atlas, and the House Finch Disease Survey. New opportunities for citizen-science monitoring programs in the United States are linked by Audubon's focus on bird conservation action, especially through habitat restoration and improvement. Habitat enhancement activities are being encouraged through the Audubon At Home program, at IBAs, on farmland, and at Audubon centres. We aim to monitor bird population response to habitat changes at home through a new garden birds survey (much as the Tucson Birds Project already does on a small geographic scale), through state-based IBA monitoring programs that offer opportunities for monitoring throughout the Americas, and through new agricultural monitoring programs. In addition, many states have their own Citizen Science programs, including more than 40 states that have breeding bird atlas programs. Citizen Science programs in the United States face many challenges that relate to geographic scale, skill levels, motivation of volunteers, data collection and technology, and subsequent data analysis. The vision for Citizen Science in the Americas is one that integrates citizens from Canada through to Argentina. BirdLife International's IBA program offers good opportunities, linked by the new possibilities offered by web-based software. The Internet provides a window of opportunity to globalize the citizen science movement. Already the CBC takes place in 18 countries or regions, and IBA programs in 24 countries in the Americas. Our ultimate goal is to make conservation through citizen science a reality worldwide, and we aim to link with and learn from other organizations around the world that share that vision. Perhaps an Internet-based World BirdWatch that has global participation and instant feedback of each participant's contribution to the world total could initiate a global network for monitoring Threatened Birds on IBAs throughout the world.

T33 The use of large scale citizen science projects in monitoring birds in the UK
Eaton, M.
Research Biologist, Conservation Science, The RSPB, UK - Mark.Eaton@rspb.org.uk

Involving the public in surveys and monitoring of birds is now an important part of the RSPB's work, with the principal aim being the promotion of the society and conservation issues, although always with a research 'core'. Such projects were targeted at young RSPB members initially, but in recent years have been expanded to include adult members and non-members. This paper reviews the results of some major 'citizen science' surveys led by the RSPB, with emphasis on the scientific outputs of these projects. These include the annual 'Big Garden Birdwatch', which has attracted 400,000 participants, and other large-scale public participation surveys based on observations of garden birds. I will demonstrate how although data from such schemes may be basic and often subject to high levels of 'noise' due to poor observer reliability, this is compensated for by the exceptionally large sample sizes such surveys collect. Valuable results are presented on trends in the abundance and distribution of common garden birds in the UK, the impact on housing age and renovation on declining species such as House Sparrow Passer domesticus and Starling Sturnus vulgaris, the use of bird feeders by declining woodland species and on the nesting habitat preferences of a suite of garden bird species. A number of important considerations regarding the design and analysis of citizen science projects are discussed.

T34 Using bird-watchers' checklists for bird monitoring through the internet
Donald, P.
Royal Society for the Protection of Birds, UK - paul.donald@rspb.org.uk

Monitoring is becoming an increasingly important tool in conservation. However monitoring schemes are expensive in terms both of financial cost and human resources, and most dedicated schemes rely on specialist methods. For this reason, the great majority of the planet's species are not monitored. We describe the development of a new internet-based scheme, provisionally called Kagu, designed to capture data in the form of simple species lists that would otherwise be to lost to conservationists. To assess whether simple field lists can be used to monitor long-term trends in abundance, we analyse data from a 30-year ringing scheme at a nature reserve in southern England. For a majority of species, population trends could be accurately tracked even when effort-corrected measures of abundance were degraded into simple species lists. In fact, trends in list reporting rates at this single atypical sites were strongly correlated with UK national population trends measured over the same period by an expensive and intensive dedicated monitoring scheme. We suggest that simple field lists have considerable potential in the development of a global bird monitoring system.

T35 Can we monitor bird populations through garden bird recording?
Chamberlain, D., Cannon, A.
British Trust for Ornithology, UK - dan.chamberlain@bto.org

Private gardens can hold important populations of birds, yet they are typically poorly covered in national monitoring schemes. Garden bird recording schemes operate in several countries, sometimes involving very large numbers of participants. Such schemes may offer an opportunity to add to our knowledge of bird populations in gardens and the wider urban environment. Using two large-scale surveys from the UK, Garden BirdWatch (GBW) and the Garden Birds Feeder Survey (GBFS), we compare changes in garden recording rate with regional and national breeding population changes. We show that for several species, GBW recording rate in gardens in both summer and winter is closely positively correlated with population trends in the wider countryside in the breeding season. However, there were relatively few positive correlations with GBFS data and indeed several species showed a negative correlation which may suggest increasing reliance on garden bird food as populations decrease. Differences in the temporal matching between bird reporting rate and national population trends can be explained by differences in bird recording methodology between GBW and GBFS. We suggest that mass-participation garden bird recording schemes have some potential to contribute to knowledge of population fluctuations in private gardens, but their value will depend on the precise methods employed.

T36 The Danish IBA Caretaker Project

Vikström, T.
Danish Ornithological Society, Vesterbrogade 138-140, 1620 Copenhagen V, Denmark - Thomas.vikstroem@dof.dk

In 2003, DOF (BirdLife Denmark) has launched its so far most ambitious monitoring project, directed at our 200 most important bird sites. We call it our Caretaker Project, as in the next 5 years groups of volunteers all over the country will take care of updated knowledge, optimal conservation, and broad external information about the important sites being covered by the project. All due to a million grant from the private Aage V. Jensen Charity Foundation. Two times three legs: The IBA Caretaker Project fits as the third leg in the so-called three-legged monitoring strategy of DOF, which already encompasses projects about common birds and endangered and rare breeding species. These projects have been running since 1976 and 1998, respectively. Another set of legs of the IBA Caretaker project is the inner foundation of the project: 1) Monitoring selected bird populations of Important Bird Areas (IBA's), 2) Improved conservation of the IBA's in cooperation with landowners and authorities, 3) Public information about the birds of the IBA's through websites, excursions etc. The base of the project is made of 127 Danish IBA's already designated by BirdLife International. Among other sites will be e.g. some areas situated near towns, especially amenable to public information. During the project, the participants will be offered training in bird monitoring, maintenance of websites, PR and other relevant subjects. IT elements: Each IBA will get its own website from DOF with an obligate layout and information about area size, threats, conservation etc. Hence, the caretakers themselves will administer and maintain their websites. Among much other information, the IBA websites will show recent bird observations from the IBA's. Already now, many Danish ornithologists upload all their observations to DOF's web-based database. Automatically, relevant observations from an IBA will be downloaded from this database and presented on the IBA website in question. Assisting the authorities: The most important birds in the projects are: 1) Roosting water birds, when 1 % or more of the Danish population regularly is using the IBA, 2) Roosting water birds, when 20,000 or more of any species are roosting at a site, 3) Breeding bird populations of European significance following the criteria of BirdLife International, 4) Migrating raptors and cranes where they pass "bottleneck" sites in numbers exceeding 3,000 per season. By monitoring these birds, DOF at the same time will be lending a hand to the Danish nature conservation authorities, who in 2004 introduce a new monitoring program in order to fulfil the obligations of the EU Bird Directive. Time scale: By May 2004, already 361 ornithologists have offered themselves for covering about 158 IBA's totally or partly in the project. For the present, the project is planned to run until 2008. The project will be concluded by a publication summarizing the main development trends of the Danish IBA's.

PT37

Migratory birds: a challenge for monitoring and conservation

Bairlein, F.
Institute of Avian Research, 26386 Wilhelmshaven, Germany - franz.bairlein@ifv.terramare.de

Migratory birds are, by definition, not stationary year-round. Rather they life in various worlds, passing huge distances, crossing borders and spending considerable parts of their annual life cycle outside the breeding areas in various environments. It has been shown in a number of migratory species that not only annual survival but even breeding success of such species depend on the ecological conditions at the non-breeding grounds. Thus, understanding population changes needs to consider monitoring migrants and factors affecting populations outside the breeding range. At the same time, many migrants from distant and remote areas congregate at a few particular stopover sites along their migration routes where they can be monitored at a population level. However, this requires knowing which migratory routes are taken by populations and where they winter. Ringing of birds unveiled notably general routes and destinations. However, there is still much to be explored at the population level, by the use of ringing and other marks. Satellite tracking, geolocation and global positioning systems may enable much more detailed insights in migration patterns of individual birds and populations. But also a more elaborated colour marking approach is recommended. Moreover, particular chemical and molecular markers appear to be very useful in the study of bird migration by delineating origin of birds and connectivity between breeding and non-breeding grounds at the population level. Co-ordinated, collaborative, standardized and large-scale migration networks provide another elaborated tool to study differential migration and patterns of migratory timing and fuelling in more detail. We still lack knowledge about external factors controlling migration, such as food

availability, weather, competitors, parasites or diseases. Such data are required to develop effective conservation means. Future migration research must aim much more comparative research and a more integrative approach at various spatial and temporal scales. It must also consider that migration is only one part of the life-style of a migrating species. Thus, linking migration and breeding is another future challenge, both for basic science and for effective protection of migratory birds.

T38 Migration watch – an Internet survey to monitor spring migration in Britain and Ireland
Baillie, S., Balmer, D., Downie, I., Wright, K.
British Trust for Ornithology, Thetford, UK - stephen.baillie@bto.org

Migration Watch aims to document arrival patterns of summer migrants and departure patterns of winter visitors throughout Britain and Ireland. Observers are asked to record bird lists for specific dates and locations. Ideally records come from regular coverage of the same sites but any lists collected during bird watching trips can contribute. These lists together with casual records are collected using a specially designed website (http://www.bto.org/migwatch). The website also allows registered observers to view their observations and to display summaries of their own data. Migration Watch started in 2002 and to-date has involved some 3500 observers submitting over 50,000 lists. Quality of data may be of concern in such mass participation surveys where national or regional organizers do not have direct contact with all of the observers. Enforced user registration and automated validation checks help to address these issues within Migration Watch. The main Migration Watch results are updated each night and presented on the website. Graphs of numbers of observations and frequency of occurrence are presented for Britain and Ireland as a whole and also for individual countries and regions. Animated species maps showing the progress of migration on a weekly basis are a key feature of these results. We present further results from the project in this paper, based particularly of the frequency of occurrence data and we discuss the benefits and limitations of this approach. The techniques and software developed for Migration Watch can readily be extended to monitor movements at other times of year and at larger geographical scales. BirdTrack is a new project that will monitor bird movements in Britain and Ireland throughout the year, and will also provide data for species and site monitoring. This new collaborative project between BTO, RSPB and BirdWatch Ireland is being launched in August this year. A number of other countries have developed or are developing such Internet based recording projects. There will soon be the potential to combine the results from such national projects to provide a continental or flyway overview of the progress of migration in close to real time.

T39 Research on soaring bird migration at the Belen pass and Hatay province
Can, O.
Kus Arastirmalari Dernegi, Atatürk Bulvari 143/38, Bakanliklar, Ankara, Turkey - okancan@kad.org.tr

Turkey is a land bridge between Europe,Asia and Africa, that support suitable ‘thermal pathway’ for soaring birds. Turkey has three important bottlenecks: the Bosphorus in the northwest,Arhavi/Borçka in the northeast, and the Belen Pass in southern Turkey. Hatay is the southeasternmost extension of Turkey on the Mediterrenean coast, and is an important corridor for bird migration from Europe and Anatolia to Africa and the Middle East. The importance of the Belen Pass for thermal dependent birds has been known since 1965 but there has been no systematic survey covering both spring and autumn migration at the Belen Pass. In this study, soaring migratory birds were counted and identified by ground based observations during spring and autumn migration period, 2000. The observation data enable to figure out the magnitude, timing and duration of spring and autumn migration as well as migration routes of some species. During autumn and spring, a total of 148,938 soaring migratory birds were observed and this number has been the highest recorded for Belen Pass so far. Since the study didn’t cover whole migration period, the real passage number is estimated around 500,000. White Stork (*Ciconia ciconia*), is the most abundant bird comprimising % 91,5 and %53,6 of spring and autumn totals respectively. Lesser Spotted Eagle (*Aquila pomarina*), Honey Buzzard (*Pernis apivorus*), Black Stork (*Ciconia nigra*), Levant Sparrowhawk (*Accipiter brevipes*), Short-toed Eagle (*Circaetus gallicus*), and Buzzard (*Buteo buteo*) figures follows that of White Stork. Although this study cleary shows the importance of the Belen Pass for soaring birds, it is only a preliminary survey that indicates the necessity for further migration research.

T40 Indicators for the State of the Nature

Van Strien, A.
Statistics Netherlands, Netherlands - asin@cbs.nl

Indicators are tools to summarise the state and changes in parts of biodiversity. Although the need of these indicators is growing rapidly, there is still limited experience of the construction of indicators. For the Netherlands, we have currently developed indicators for (1) several species groups, like birds, butterflies, bats and reptiles, (2) several ecosystems, like heathland, marshlands and agricultural area, (3) groups of target and non-target species with respect to nature policy. We will demonstrate the use of these indicators to assess the state of the nature at different spatial scale levels.

T41 Multi-species, habitat-specific biodiversity indicators: the importance of species selection procedure

Julliard, R.[1], Levrel, H.[1], Jiguet, F.[1], Couvet, D.[1], Loïs, G.[2]
[1] Muséum National d'Histoire Naturelle, CRBPO, 55 rue Buffon, 75005 Paris, France - fjiguet@mnhn.fr
[2] CTE/PNB, Paris, France

Biodiversity indicators are tools that simplify the complexity of biodiversity allowing stakeholders to exchange between each others and to take decisions. The role of biologists is to warrant the robustness of the indicator, that is, that its variations reflect actual variations of biodiversity. Such achievement should be done keeping in mind that indicators has to be relevant to stakeholders. Hence, the objectives of biodiversity indicators (the way they will be used) have to be clearly identified before their construction. Most of the debate regarding biodiversity indicators has focused on indicator species: the presence of such species (usually one or a few ones) is taken as synonymous of a particular state of the habitat considered. Clearly such indicators have been selected to evaluate spatial variation of biodiversity and may be of little value to retrieve the temporal dynamics of biodiversity. Indeed, using indicator species to evaluate temporal dynamics of biodiversity request (1) that such species dynamics are representative of the system dynamics; (2) that species dynamics should be dependent on the same driving forces than biodiversity of these specific habitats. The first assumption is rather difficult to accept and would take a long time to be validated. One way to get round it is to rely on a larger sample of species, which would clearly be more likely to retrieve the complexity of temporal biodiversity fluctuations. The second assumption becomes testable if indicators can be compared between the habitat of interest and other habitats. With the multiplication of national breeding bird monitoring schemes and the accumulation of such data over long period, effort have been devoted to built indicators from common bird species abundance variation. One of these is a general indicator combining population variation for all species available. Because birds occupied most terrestrial niches and are usually found at the top end of food chain, it is well accepted that such indicator may indeed reflect the state of biodiversity as a whole. Moreover, birds populations variation gather a large set of representations what explains the acceptance of birds indicator by stakeholders at various spatial scales. Because of this success, it is now tempting to built indicators from the same data source for more diversified purposes. One direction is to re-examine the 'indicator species' approach, with the double strengths that the indicator may now be based on many species and that the indicator may be based on abundance instead of presence/absence. In particular, there is much anticipation in developing indicators for farmland habitats from bird data since a rather large bird community occupies such habitat which appears to be sensible to changes in agricultural practices. At first, developing a farmland bird indicator from the full data set may appear straightforward. It is only a matter of selecting farmland species. At that stage, it may be useful to remind that such farmland indicator may be used to evaluate subject as sensible as agricultural policy. Hence, the way such indicators is built has to be particularly transparent. Another point is that one needs to assess whether farmland birds have a particular dynamic attributable to diving forces specific to farmland habitat. This requests a comparable indicator retrieving global driving forces (e.g., climate change). We propose a procedure for selecting species using assessable, widely available, quantitative data, statistically independent from the data used to construct the indicator per se. In particular, the procedure allows to construct indicators for various habitats and a reference indicator to evaluate the specificity of habitat indicators. Because an issue for indicators is the possibility to split them between different areas (e.g., countries), this will also be examined. The method will be illustrated using the French Breeding Bird survey. We will take advantage that France covers different biogeographical regions (Atlantic, continental, Mediterranean) to apply the proposed species selection procedure to contrasted situations.

T42 Developing biodiversity indicators using population trends of European breeding birds

Gregory, R. D., Van Strien, A., Vorisek, P.
Royal Society for the Protection of Birds, UK - richard.gregory@rspb.org.uk

The World Summit of Sustainable Development in 2002 pledged 'a significant reduction in the rate of biodiversity loss by 2010' and similar commitments have been made at regional and national levels. There is broad consensus that in the absence of conservation action biodiversity will continue to be lost at an unprecedented rate. Remarkably, we lack a basic system to measure progress towards targets, although many initiatives are developing indicator frameworks and methods. What are missing, however, are standard procedures to construct and assess biodiversity indicators for different aims. Here, we develop a simple theoretical framework to assist the development of indicators that are fit for purpose. We use European birds as an example to show how indicators can be constructed and how they can then be interpreted. We have developed statistical methods to calculate multi-species, supranational indices and indicators using data from national annual breeding bird surveys in Europe. Skilled volunteers using standardised field methods carry out the surveys, although the precise methods used differ between countries. Survey plots are widely distributed covering many bird species and habitats with good representation. National species indices are calculated using log-linear regression, which allows for plot turnover. Supranational species indices and multi-species indices are constructed by combining the national species indices weighted by national population sizes. The resulting indicators show that common farmland birds have declined steeply over the last two decades; evidence from elsewhere suggests a link to increased agricultural intensification. We argue that the farmland bird indicator is a useful surrogate for other elements of biodiversity in this habitat.

T43 Population trends of 48 common terrestrial bird species in Europe: first outputs of the Pan-European Common Bird Monitoring Scheme

Vorisek, P.[1], Gregory, R. D.[2], Van Strien, A. J.[3], Meyling, A. G.[3]
[1] Czech Society for Ornithology, V Olsinach 449/41, CZ-100 00, Prague 10, Czech Republic – EuroMonitoring@birdlife.cz
[2] The Royal Society for Protection of Birds, The Lodge, Sandy, Bedfordshire SG19 2DL, UK
[3] Statistics Netherlands, P.O. Box 4000, 2270 JM Voorburg, The Netherlands

A first larger set of nearly Pan-European indices for common bird species was produced in 2003, when large-scale generic breeding monitoring schemes from 18 European countries have supplied data for Pan-European Common Bird Monitoring Scheme. Species characteristic of woodland, parks and gardens, or agricultural habitats in Europe have been selected for analysis, 48 in total (24 woodland, 24 farmland). The indices were calculated per each country using the program TRIM, which estimates missing counts using Poisson regression. The national indices were combined to produce regional indices in a way equivalent to imputing missing counts for particular sites within countries. Missing year totals of particular country sites were estimated from other countries of the same European region (Central & East, North, South and West Europe), then regions were combined to produce European indices. Estimated size of breeding population in each country has been used as a weighting factor. Most of the farmland species (17) have declined in Europe (multiplicative trend, period 1966-2002), while no species trend was classified as stable, five species have increased and two species' trends were classified as poorly known. Trends of the species characteristic of woodland, parks and gardens show different picture: 11 species have declined, 8 remained stable and 5 increased. Trends and indices of individual species will be discussed.

T44 The effects of agricultural intensification on European farmland bird populations

Sanderson, F. J., Donald, P. F., Pain, D. J.
RSPB, UK - Fiona.Sanderson@rspb.org.uk

Decreases in abundance and range have been observed in a suite of European farmland bird species over the past 30 years. These declines are correlated both spatially and temporally with agricultural intensification. Earlier research shows that between 1970 and 1990, population declines and range contractions were more severe in countries with more intensive agriculture, and in "old" European Union countries (members prior to 1 May 2004) than in former communist states. More than 30% of the variation in population trends was explained by cereal yield ha^{-1}. We repeated these analyses in order to examine changes in farmland bird abundance and range across Europe from 1990 to 2000 in

relation to various measures of agricultural intensity in both arable and pastoral systems. Such research is vital in order to help predict changes in bird populations in accession countries under current and future EU agricultural policy.

T45 Monitoring rare birds: 30 years of the UK's rare breeding birds panel
Stroud, D. A.
Joint Nature Conservation Committee, Monkstone House, City Road, Petersborough, UK - david.stroud@jncc.gov.uk

Monitoring rare breeding birds poses particular problems because of sensitivity over reporting results and the fact that widespread schemes such as atlases or general breeding bird surveys insufficiently sample them. But they are important to conservation in their own right, many being red listed, as well as being indicators of important sites. The UK has run a scheme, the Rare Breeding Bird Panel, for thirty years opportunistically to collect records of rare breeding birds. This paper reviews the strengths and weakness of the approach and makes methodological recommendations. For some species, trends have been well measured. The work has helped point up gaps in knowledge and encouraged targeted surveys for the less well-known species. The design of such surveys has been helped by previous collection of non-systematic records that can be used to stratify sampling effort. Missing data are a problem. Retention of records was once significant but now much less so and for a reduced list of species. There is ongoing difficulty in confounding gaps in coverage with zero counts, which are rarely reported. The biggest failure has been poor spatial location of records, which may be summed over large areas (such as the administrative regions into which local societies are divided or the whim by which specialists like to summarise their findings). Conservation increasingly needs detailed and precise data to support the protection of key sites and the archive has proved deficient for this need. A key reason for failure is observer concern about use of their records, particularly when they are computerised. This concern needs to be acknowledged and constantly managed to balance the urgency of the conservation need with the legitimacy of individuals' feelings. The collection of records of rare breeding bird records has been valuable and is cheap compared with more systematic monitoring programmes for other species. For improving the UK scheme and for advising others interested in a similar idea, we would make three recommendations. Records need to be located as precisely as possible. For dispersed species, coordinates of particular records are appropriate. For clumped and more numerous species, this would be a burden to fieldworkers and counts by site are sufficient provided the sites have names and boundaries standardised in a gazetteer. It is important to collect negative records where a visit to a previous or likely site did not find the species. Ideally over time, key sites would be targeted for a specific programme of annual or less frequent counting by design. It is important to specify a counting method and move towards a standard of recording of counting method and returning records within EBCC guidelines on proof of breeding. A key descriptor of counting method is the extent to which the observer believes the record represents a full or partial count for the site.

T46 Monitoring gamebird abundance and productivity in the UK: the GCT long-term datasets
Aebischer, N. J., Baines, D. B.
The Game Conservancy Trust, Fordingbridge, Hampshire, SP6 1EF, UK - naebischer@gct.org.uk

Because of the economic importance of gamebirds, land owners, game managers and shooters have been interested in monitoring local abundance and productivity since at least the 19th century through bag statistics and counts of birds on the ground. Probably the first systematic use of such records was made for red grouse by Lord Lovat in 1911. Subsequently, Middleton at the Oxford University Bureau of Animal Population made the first attempt to build a national picture of game abundance in 1933-37. After the Second World War, the work was revived by ICI Game Services, and in 1961 the National Gamebag Census and Partridge Count Schemes were formally established by the Game Research Association, the precursor of The Game Conservancy Trust. The National Gamebag Census currently collects bag statistics on all game species from over 600 estates annually, and by incorporating historical records, holds data extending back to at least the 19th century. The Partridge Count Scheme collects information on annual abundance and productivity of grey and red-legged partridges from around 100 lowland estates, and is currently being expanded as part of the GCT's commitment to the UK grey partridge biodiversity action plan. Since 1979, the monitoring programme has been extended to red grouse abundance and productivity, followed by black grouse in 1994. We present some of the

trends in abundance and productivity of these species, several of which are poorly covered by other national schemes.

T47 The countryside stewardship scheme benefits cirl buntings
Wotton, S.
Royal Society for the Protection of Birds, The Lodge, Sandy, Beds SG19 2DL Beds, UK - simon.wotton@rspb.org.uk

The cirl bunting *Emberiza cirlus* is a scarce and localised breeding bird in the UK and is now confined to a small area of southern England. There were as few as 118 pairs in 1989, but by 2003 the population had increased to nearly 700 pairs. This population increase has been achieved through effective implementation of an agri-environment scheme, the Countryside Stewardship Scheme. This was launched in 1992 and provides prescriptions aimed specifically at cirl buntings. Research between 1989 and 1992 has shown that two key foraging habitats for cirl buntings are rough or semi-improved grassland as a source of invertebrate prey in the summer and weedy cereal stubbles as a source of seed in winter. From 1992 to 1998, the population was monitored annually, with further surveys in 2002 and 2003. Data were also collected during the 2003 breeding survey to investigate the influence of Countryside Stewardship Scheme (CSS) measures and other habitats on the fine-scale breeding distributions of cirl buntings, and in the 2003/04 winter to attempt to investigate the influence of Countryside Stewardship stubble prescriptions on the winter distribution of cirl buntings relative to 2003 breeding territories. Results show that much of the population increase since 1992 has been within land under Countryside Stewardship agreements.

T48 Decomposing species richness patterns in central European forest birds
Reif, J., Storch, D., Zajícek, S., Šizling, A. L.
Centre for Theoretical Study, Charles University, Prague, Jilská 1, CZ-110 00, Praha 1, Czech Republic - jirireif@yahoo.com

We explored main factors affecting spatial diversity patterns in two temperate forest bird communities. We posed three main questions: 1) which habitat types are connected with the highest bird species richness, 2) which groups of bird species contribute most substantially to the species richness patterns, and 3) whether the patterns we found are common to both studied communities. We mapped bird territories and vegetation structure along two 25 km long linear transects in heterogeneous forest areas in the Czech Republic (central Europe) and decomposed the species-environment relationships using multivariate RDA. We found that the diversity of birds positively correlated with amout of shrub layer, and that species abundances whose habitat preferences are associated with forests with the shrub undergrowth correlated well with total species richness. Moreover, abundances of relatively common species correlated better with the total species richness, the highest correlation being in the second abundance quartile, when ordered species from the most numerous to the most rare. These results were similar in both studied bird communities. The diversity of birds in central European temperate forest bird communities is therefore associated with forests with well developed shrub layer and is formed mostly by relatively common species inhabiting this type of vegetation (blackcap, chiffchaff, nuthatch, blue tit, great tit, marsh tit etc.). This finding have important conservation implications – protecting areas of high species richness do not assure conservation of rare species.

PT49
Use of large quantitative distribution databases in macroecology and conservation research
Rahbek, C.
Zoological Museum, University of Copenhagen, Universitetsparken 15, DK-2100 Copenhagen 0, Denmark - crahbek@zmuc.ku.dk

Most large-scale conservation planning for biodiversity today is still not science- and data driven, but based on dogmatic, often pragmatic subjective reasoning. If we are to manage biodiversity globally and nationally there is broad consensus that we must embark on the challenging enterprise of describing patterns, revealing mechanisms, and mapping these processes to achieve effective identification and management of areas of importance to biodiversity. However, identification and description of an orderedness in distribution- and richness patterns, and determination of the

underlying processes, have challenged biogeographers and ecologists for more than a century. More than 120 different hypotheses have been suggested to explain richness patterns alone. The primary obstacle to discovering unifying principles has been the lack of large quantities of high-quality data. However, in the last decade, we have seen a dramatic increase in large distributional databases, primarily in the form of various national atlas-projects or at continental scale through international projects such as the mapping of the Sub-Saharan distribution of all African birds, mammals, snakes and amphibians (~4000 species) coordinated by the Zoological Museum, University of Copenhagen. New and significant, empirically supported insights can be gained by combining such large distributional data sets with rigorous statistical analyses. Such studies can contribute conceptual advantages to biogeography, macroecology and not least conservation. Illustrated through an overview of a suite of recently published studies that utilized the above African databases, Danish atlases with some illustration using the EBCC Atlas of European Breeding Birds, the talk will center around two main themes: A) What is the pattern of large-scale species richness patterns and what determines these patterns: climate, history or just chance)? B) How do we make cost-efficient large-scale priorities for selecting sites for preservation of biodiversity: reserve-selection based on hotspots of richness, endemism or complementarity AND which taxa are good indicators …birds?

T50 The evolution and monitoring of English agri-environment schemes
Bradbury, R. B., Evans, A. D.
Royal Society for the Protection of Birds, UK - richard.bradbury@rspb.org.uk

There have been widespread and dramatic declines in farmland birds in Europe in recent decades and the accession of 10 countries to the EU in 2004 could exacerbate this continent-scale problem still further. Among their other objectives, agri-environment schemes should be crucial in the reversal of past and prevention of future declines of widespread biodiversity, such as farmland birds. However, while some agri-environment schemes have succeeded in reversing the declines of range-restricted species, there have also been notable failures of schemes to deliver the expected wildlife benefits. Moreover, a recent review highlighted the consistent lack of monitoring, across Europe, of the success of schemes in delivering their biodiversity objectives. Monitoring should be an essential part of agri-environment schemes and has been adopted within the evolution of a 'smart' agri-environment strategy within England. Here, we report on the continued close monitoring of schemes designed to benefit range-restricted species. We document briefly the evolution of agri-environment schemes in England, based on an iteritive approach of scientific diagnosis of biological requirements and design and testing of prescriptions which lead to the deployment of the Pilot Arable Stewardship Scheme. We describe the design and results of the monitoring project that was used to evaluate the success of this pilot scheme in delivering birds and other biodiversity. Finally, we discuss how this robust scientific evidence base has been used to inform roll-out of agri-environment prescriptions to new country-wide AESs and appraise their chances of success in reversing farmland bird declines.

T51 Reversing declines in farmland birds in the UK
Noble, D.
British Trust for Ornithology, Thetford, Norfolk, UK - david.noble@bto.org

In the UK, long-term annual bird monitoring schemes have been instrumental in focusing attention on declining species. The timing and geographical patterns of declines provide valuable clues about the underlying causes, many of which can be tested by carrying out intensive investigations in a much small number of sites. Reversing declines, however, requires specialised conservation action delivered at the appropriate spatial scale. In this talk, I review how this evidence-based approach has been applied to the conservation of farmland birds in the UK, the use of wild bird multi-species indicators to assess progress towards biodiversity targets, and research on providing the appropriate scale of resources for farmland birds. These issues are discussed in relation to trends in farmland birds elsewhere in Europe.

T52 10 years of farmland bird monitoring in Latvia: population changes 1995-2004

Auninš, A., Priednieks, J.
Latvian Fund for Nature, Kronvalda bulv. 4, Riga, LV-1010, Latvia - dubults@lanet.lv
Dept. of Zoology and Animal Ecology, University of Latvia, Kronvalda bulv. 4, Riga, LV-1586, Latvia - jpriedn@lanet.lv

Bird counts were performed annually twice per season since 1995 in 160 permanent count points located in 4 study areas representing different regions, landscapes and agricultural practices. Two more study areas with additional 80 count points were established in 2003 to ensure better spatial coverage and to cover landscapes that were underrepresented before. Habitats and landscape elements of a circular zone with a radius of 200m around the bird count points were annually described while general landscape metrics were obtained from CORINE Landcover GIS layers and Landsat satellite imagery. Species richness (measured as a number of species recorded per point) differed significantly between the regions, as did the landscape structure, farming intensity and the dominating habitat types. Although both landuse and farming intensity changed considerably during the study period, significant changes in species richness occurred only in one study area where it increased as a result of low farming intensity and continuous abandoning of crop fields. Breeding densities differed for most of the farmland bird species between the study areas and were related both to habitat variables measured in the count points as well as the parameters of the general landscape. Trends and indices of 36 most frequently recorded species show that there is a general increase tendency for most of shrub and forest generalist species due to overgrowing of farmland with bushes. However, regional changes in landuse and farming intensity were more important for the true farmland species where trends between the study areas differed considerably.

T53 The Finnish farmland bird indicator before and after joining EU: Does the agri-environmental program help the birds?

Tiainen, J.
Finnish Game and Fisheries Research Institute, P. O. Box 6, FI-00721, Helsinki, Finland - juha.tiainen@rktl.fi

Farmland bird populations were annually monitored for two decades in Finland; in 1995 Finland joined the EU. During this time efficient conventional farming experienced the following major changes: (1) during 1991–94 the farmers were obliged to have 15 % of their fields as green set-asides in order to reduce overproduction; (2) the first agri-environmental support scheme in 1995–99; and (3) the second agri-environmental support scheme in 2000–06. At the same time the number of farms declined, holding size increased and the proportion of dairy farms continued to decrease. The agri-environmental programs were primarily designed for protecting waters against nutrient leaching and erosion, but some of the measures can be expected to be beneficial for biodiversity as well, like shelter zones around ditches and waters, and organic farming. The total abundance of birds had declined in earlier decades before the monitoring scheme, but the number of breeding species had increased. During the past two decades the total abundance did not decrease any more or it turned even to a slight increase whilst the number of species was no more increasing. For the indicator, four ecological groups were formed: (1) True field species both breeding and feeding on fields, these decreased; (2) Edge species breeding and feeding on bushy verges and around ditches, these decreased; (3) forest species feeding on fields but breeding in forest woodlots or edges around fields, these increased; (4) farmyard species breeding in farmyards and feeding there or in field, these decreased. Most of the decreasing species had been decreasing already before and their densities were low. Increasing species tended to be abundant. Some increasing species were probably benefitted by some of the measures of the agri-environmental schemes (e.g. *Alauda arvensis*, *Anthus pratensis*, *Vanellus vanellus*, *Crex crex*).

T54 BBS in protected areas: comparing predicted and measured values as a tool to assess general protection efficiency for common species

Jiguet, F., Godet, L.
Muséum National d'Histoire Naturelle, CRBPO, 55 rue Buffon, 75005 Paris, France - fjiguet@mnhn.fr

Since 2002, a special Breeding Bird Survey network has been developed by RNF, the federation of French nature reserves. The sampling design has been adapted as there is no random selection of points to be surveyed, but the counting method is exactly the same as that of the national BBS. We

used data from the national BBS network, as the national reference for the wider countryside, to predict species abundances and estimated species richness (obtained with capture-recapture models) in nature reserves, using kriging models. We further compared values predicted by the wider countryside and values effectively measured in the nature reserves. The aim is to assess the eventual efficiency of nature reserves to act as protection areas not only for rare but also for common species.

T55 Population changes in forest birds in Germany

Flade, M., Schwarz, J.
Dachverband Deutscher Avifaunisten, Germany - martin.flade@lags.brandenburg.de

Since 1989, the Dachverband Deutscher Avifaunisten (DDA) as the umbrella organisation of German field-ornithological societies is running a common birds census scheme. The programme is based on point counts and territory mappings. Although there are some gaps especially in southern and central Germany, the scheme covers all regions and habitats of Germany. The census is mostly performed by volunteers, the choice of counting routes and mapping plots was free until 2003. In 2004, a new scheme has started with stratified random samples and a new field method (1 km² plots with line transect mappings). Nevertheless, the old scheme will be continued for at least 5 years, to get a sufficient period of overlap. Actually, a data analysis was done for about 45 more or less common forest bird species. The population changes of forest birds are interpreted according to weather conditions in Germany (especially severity of winters) and in the Sahel region as well as data on the annual fructification intensity of forest trees (beech, oaks, pine, spruce). There are pronounced examples of species showing short-term population changes closely correlated to tree fructification intensity as well as severity of winters. The majority of species shows increasing or stable/fluctuation long-term population trends, but the increases occur mostly outside the forests (that means: in parks, cemeteries, human settlements). Among the increasing species, residents and hole-breeders are predominant. On the other hand, most of the declining species are long-distance migrants and ground-nesting birds. Altogether, the habitat conditions for the more common forest birds obviously have improved in Germany since 1989, but threats are emerging from worsening conditions in the passage and wintering areas.

T56 Meadow bird research in the Netherlands, the role of monitoring data

Foppen, R.[1], Teunissen, W.[1], Schekkerman, H.[2]
[1] SOVON Dutch Centre for Field Ornithology, Netherlands - ruud.foppen@sovon.nl
[2] Alterra Green World Research

Meadow birds, like Black-tailed Godwit, Lapwing, Redshank and Oystercatcher play an important role in nature conservation policy in The Netherlands. This is understandable given the international responsibility that The Netherlands have for a species like the Black-tailed Godwit: more than 90% of the Western European population breeds in the country. However, the populations of most species decline and conservation measures need to be taken to safeguard sustainable populations. This involves, among other measures, the development of agri-environment schemes that guarantee a sufficient reproductive success. The national meadow bird census scheme, coordinated by SOVON, delivers important data to (1) signalise trends in meadow bird numbers and (2) to evaluate conservation measures, e.g. agri-environment schemes. We will show examples of a study that describes the evaluation of conservation measures in the first agri-environment scheme. Furthermore we will show the results of an optimisation study for the scheme in one of the provinces by combining the census scheme data with distribution data from the Dutch breeding bird atlas. The studies indicate the use but also the limitations of the national scheme for scientific analyses.

T57 Characteristics of the breeding and wintering populations of common bird species in Hungary before the membership of the EU on the base of the 5 years of the MMM program

Szép, T.[1], Nagy, K.[2], Nagy, Z.[2]
[1] College of Nyíregyháza, Nyíregyháza, Sóstói út 31/b, H-4400, Hungary - szept@zeus.nyf.hu
[2] MME/BirdLife Hungary, Budapest, Költo út 21, H-1121, Hungary

Country-wide monitoring of common bird species, using semi random sampling design, has started in Hungary in 1999 (Mindennapi Madaraink Monitoringja, MMM) in the frame of the cooperation among

MME/BirdLife Hungary, EBCC and RSPB. The new monitoring scheme provided the first unbiased information about the frequency, relative density and trends of the common birds with participation of more than 800 observers. The results of the first 5 years of the project provide proper coverage for the country, for the regions and for the main habitats both in the breeding and both in the wintering season. Behind the observed high frequency, relative density and stable population size or increasing trends of many bird species, which species shows dramatic decline in Western Europe, we can expect the positive influence of the less intense farming practice during the last 15 years, above the specific biogeographical status of Hungary. More than 70 % of the territory of Hungary is agricultural landscape with different level of farming. After the political change in 1988, the former intense farming practice decreased because of the structural and financial changes and problems. The MMM can provide a unique opportunity to monitor the influence of the EU membership on the condition of the main habitats both on regional and both on country level.

T58 The debate over detection probability

Dunn, E.
Canadian Wildlife Service, Ottawa, Canada - erica.Dunn@ec.gc.ca

The North American bird population community is in the midst of intense debate on the value of 'index' counts. These consist of raw numbers of birds detected, without any adjustment for variation in the probability of detecting individual birds. However, detection probability is known to vary with observer, distance from observer, species, habitat, stage of breeding and many other factors. Several field methods allow statistical modelling of detection probability when sample sizes are large; in particular: double-observer counting (adjusts for differences in observer skill), distance sampling (adjusts for decrease in detection at increasing distances from the observer, which also helps adjust for habitat effects), double sampling (using results of intensive surveys at a sub-set of sample locations to adjust the index counts from other samples), and removal sampling (dividing counts into timed sub-sets to allow estimation of the probability that a bird will give a cue to its presence, such as moving or singing). The effectiveness of these approaches remains controversial, and there have been few high quality direct comparisons of results from multiple techniques. Monitoring personnel currently feel compelled to use one or more of these techniques to avoid professional criticism. However, feasibility is an important consideration, especially for surveys which collect data using volunteers. Because index counting is certain to continue, further evaluation of the reliability of index counting is urgently needed.

T59 Does a stratification and weighting procedure of the Dutch common breeding bird census data result in different population indices?

Willems, F.[1], Van Strien, A.[2], Plate, C.[2], Van Turnhout, C.[1], Teunissen, W.[1], Van Dijk, A.[1], Foppen, R.[1]
[1] SOVON Dutch Centre for Field Ornithology, Netherlands - frank.willems@sovon.nl
[2] Statistics Netherlands

In the Netherlands a common breeding bird census was started 20 years ago. Volunteers count breeding pairs in a certain plot with a territory mapping method (6-10 visits a year). Observers can freely choose a plot. Yearly >1000 plots are counted, varying in size from 10-250 ha. An additional scheme, partly overlapping and specifically for meadow birds, involves also more than 1000 plots. The monitoring scheme produces a population index for more than 100 species. Caused by the unstratified and non-randomized approach the distribution of the plots over the habitats is biased for many species. There are cases of oversampling, e.g. more plots in relatively 'rich' habitats, either nature areas or areas with high population densities of target species like the black-tailed godwit in grassland habitats, but also some undersampling, e.g. less plots in arable land. A few years ago SOVON and Statistics Netherlands started a project to retrospectively stratify and weight the indices in order to remove potential bias. In this talk we will show the most important results. For some categories of species stratification and weighting resulted in important changes of the indices.

T60 Monitoring common breeding birds in Switzerland. Trends and indices from the first five years

Schmid, H., Zbinden, N.
Swiss Ornithological Institute, Switzerland - niklaus.zbinden@vogelwarte.ch

In 1999, a new monitoring programme for common breeding birds was launched in Switzerland. Breeding birds are recorded on c. 250 1x1-km squares distributed systematically over the whole of Switzerland (0.6% of the surface area of the country). The sample is therefore representative for the whole of the country in terms of altitude distribution and main land cover types. The method is based on simplified territory mapping with three surveys per year (two above the tree-line). After five years results indicate that for about 70 species sufficient data are available to calculate population trends. A first analysis indicated increasing short-term trends for 11 species. A moderate significantly decreasing trend was found for 3 species. A comparison of trends for the regions north and south of the main Alpine chain indicated differing trends for a number of species.

T61 A Pilot Project for monitoring of common and widespread breeding birds in Bulgaria

Spasov, S.
Bulgarian Society for the Protection of Birds / BirdLife Bulgaria - svetoslav.spasov@bspb.org

Until recently schemes only for the monitoring of some rare and threatened birds and important bird areas existed in Bulgaria but there weren't any monitoring schemes covering the wider countryside and common species. In March 2004 the Bulgarian Society for the Protection of Birds / BirdLife Bulgaria (BSPB), together with the financial support of the Royal Society for the Protection of Birds / BirdLife UK, started a pilot project for the monitoring of common and widespread breeding bird species in Bulgaria. The aim of the pilot project is to establish a network of observers throughout the country and to test the sampling and counting methods. Basically the methodology is almost the same as the Breeding Bird Survey in United Kingdom. The sampling design is semi-random, each volunteer chooses one 10x10 km UTM square in which he/she will be able to count, and a 1x1 km square is randomly selected within these 100 sq. km. The participants make two 1km line transects into 1x1 km square. These transects are covered twice per year, once early and once late in the breeding season. Observers count all seen and heard birds in three distance bands (0-25 m, 25-100 m and beyond 100 m). There is one preliminary visit for recording habitat data and finding and marking the route. Initially the number of people interested in the scheme was 148, but not all of them visited their squares due to various reasons. Preliminary results from 2004 suggest that around 80 participants from 24 towns and villages took part in the field survey. This number of observers is higher then the expected 30-50 for the first pilot year. However, the distribution of volunteers is uneven and vast areas in NW Bulgaria remain without any sample plots. BSPB activities for the next years will be focused on recruiting new observers in the regions without BSPB branches and training inexperienced volunteers.

T62 New methods for monitoring breeding birds along UK waterways

Marchant, J.
British Trust for Ornithology, Thetford, UK - john.marchant@bto.org

Specially developed transect methods, based on those of the Breeding Bird Survey (BBS), have been used to survey breeding birds along UK rivers and canals since 1998. The Waterways Breeding Bird Survey (WBBS) runs alongside linear mapping surveys in the same habitat (WBS, operated since 1974), and also BBS, which surveys routes across random grid squares of any habitat type. WBBS has both random stretches and stretches linked directly to WBS sites, which are chosen by the observers. There are now enough years of WBBS data to consider how the bird population trends derived from WBBS compare with those from other schemes. Potentially, WBBS adds wetlands to the range of habitat types for which BBS can already produce habitat-specific trends that are representative of the UK or its regions. Comparisons of trends between habitats may help to target conservation measures for declining species (such as Yellow Wagtail) more effectively. Cross-species habitat indicators also play an important role in determining conservation priorities more generally. During the development of WBBS, we must also consider the future role of WBS sites. WBBS surveys at these non-random sites could usefully boost sample sizes, but not if the results differ from those obtained at randomly selected sites.

Poster Presentations

P01 Measuring abundance and diversity in a waterbird community: number or biomass?
Boldreghini, P., Dall'Alpi, A.
DiSA, University of Bologna, Via S. Giacomo, 9, I 40126 Bologna, Italy - boldreg@alma.unibo.it

The study has been carried out in the Comacchio Lagoon (44°36'N, 12°10'E), which belongs to the delta of the Po River and has been exploited during the last centuries for extensive fish-culture and salt extraction. Largely reduced by land reclamation, it covers now some 120 km2. In the framework of a research dealing with the use of the foraging space by birds, depending on the available food resources, and the composition and structure of the waterbird community (for conservation and wise use purposes), we faced the problem of the most effective measure of the bird abundance. The huge difference among the species (the biggest held a weight 350 times higher then the smallest one) suggested us to measure the bird abundance as brute biomass and consuming biomass, besides as number of individuals. The studied area covered little less than half of the total surface of the lagoon and all types of habitat and human management. It was subdivided into 33 sectors belonging to four major districts, depending on the main ecological features and management practices. Censuses were carried out 2-4 times every month during three years; average numbers of the overall sampling period were used in the analysis. The species were arranged into the following 15 guilds, depending on their main food and foraging strategy: Swimming ichthyophagous, Wading ichthyophagous, Flying ichthyophagous, Omnivores, Swimming invertebratophagous, Flying invertebratophagous, Probers, Peckers, Scythers, Malacophagous, Predators of ground animals, Raptors, Dabbling phytophagous, Diving poliphagous, Dabbling poliphagous. We computed all the parametres taken into account employing every measure of abundance above mentioned and checked for correlation between them. The three measures of the spatial distribution of each guild were highly correlated. At the community level, the spatial distribution of the cumulated densities of all species pooled together were highly correlated anyhow measured. The diversity index H' has been computed employing either species or guilds abundances, measured in each way; all the pairs of the spatial distribution of diversity were highly correlated. Besides the great difference in the body mass of the species belonging to this waterbird community, the three ways of measuring abundance seem to yield equivalent figures.

P02 Breeding Numbers and Distribution of Some Water Birds in Bulgaria
Petkov, N.
Bulgarian Society for the Protection of Birds, Bulgaria - nicky.petkov@bspb.org

The data has been collected in the period 1997 – 2002. In 1997 and 2002 nation wide census of wetlands has been initiated as part of waterfowl census work focused on rare species and conducted under projects of the Bulgarian Society for the Protection of Birds. In total 164 out of 1240 in Bulgaria 10km UTM squares have been visited covering all possible breeding sites. The current distribution on 10km UTM Grid Maps and status are presented of the Red-necked Grebe (10 – 15 pairs), Black-necked Grebe (10 – 20 pairs), Greylag Goose (10 – 20 pairs), Pochard (100 – 125 pairs), Ferruginous Duck (150 – 230 pairs), Red-crested Pochard (extinct), Gadwall (50 – 80 pairs), Garganey (200 – 250), Shoveler (5 – 15), Common Teal (0 - 5). All species in review show signs of population decline or high fluctuations of the breeding pairs. The two Grebe species are extremely localized and in low numbers. The trends in the populations in the recent years is presented and condition and threats to breeding habitats. Breeding waterbirds are generally rare due to habitat loss and degradation. The different types of wetlands used by the species are presented. Due to the drainage campaigns in the 50 and 60s of the 20th century many of the waterfowl species have declined and continue their negative trend. The problems caused by human activity have deteriorated natural wetlands and many of them are in urgent need of restoration, while artificial ones rely on the type of management applied. So far the national breeding population of the waterbirds have not been subject of more detailed study and this is the first field research based evaluation of the national breeding populations as part of the BSPB/BirdLife Bulgaria Breeding Birds Atlas project.

P03 Welcome to the world? Breeding alien species in Flanders (Belgium)
Anselin, A., Vermeersch, G.
Institute of Nature Conservation, Kliniekstraat 25, B-1070, Brussels, Belgium - anny.anselin@instnat.be

Alien (exotic) species that breed originally in the Americas, Asia, Africa and Australia are becoming increasingly common in larger areas of Flanders (Belgium). During the most recent breeding bird atlas project (2000-2002) no less than 12 such species have been recorded as comfirmed breeders. Population numbers of waterbirds as Canada Goose, Egyptian Goose and Barnacle Goose reach several hundreds to more than 1000 breeding pairs. The species are distributed over the whole of the region. Australian Black Swan, Magelanic Goose, Bar headed Goose, Wood Duck and Mandarin Duck are still present in low numbers but populations are increasing slowly and their breeding area is extending. Ring-necked Parakeets have been mainly concentrated around Brussels but are now also extending their breeding range. Distribution maps and species trends are presented. The possible impact on nature and the need for management are discussed.

P04 Ups and downs: some results of ten year monitoring breeding birds in Flanders (Belgium)
Anselin, A., Devos, K., Vermeersch, G.
Institute of Nature Conservation, Kliniekstraat 25, B-1070, Brussels, Belgium - anny.anselin@instnat.be

In 1994 a monitoring project on rare, colonial and alien species was launched in Flanders (Belgium). Breeding populations of about 60 species were yearly counted in the whole region (absolute numbers). In the period 2000-2002 population numbers were obtained from a breeding bird atlas project. Trends of a selected number of species are presented and discussed.

P05 Breeding meadow birds in Flanders (Belgium) in 2000-2002: Numbers, trends and conservation
Devos, K., Vermeersch, G., Anselin, A.
Institute of Nature Conservation, Kliniekstraat 25, B-1070, Brussels, Belgium - anny.anselin@instnat.be

Flanders - the northern, low laying part of Belgium – is situated at the edge of the important meadow bird areas along the southern North Sea. In most countries, a lot of meadow bird species are declining as a result of agricultural intensification, despite the large financial injection in protection of grassland areas and management agreements with farmers. In Flanders, several meadow bird species show increasing trends, including “critical” species as Black-tailed Godwit and Redshank. The driving mechanism behind the observed trends remains largely unclear because important data on breeding succes and other population parameters are not available. These data are however of crucial importance to guarantee a good conservation status of meadow birds in Flanders. In this context, an overview is given of the current nature conservation policy in Flanders concerning the protection of (wet) grasslands and their bird communities.

P06 Government support for bird surveillance and monitoring in The UK
Baker, H., Stroud, D. A.
Joint Nature Conservation Committee, Monkstone House, City Road, Peterborough, UK - helen.baker@jncc.gov.uk

The UK Government is obligated to take conservation measures for birds in accordance with a number of MEAs. To implement them effectively, an understanding of species’ population status and ecology is required. In the UK, approaches to bird surveillance and monitoring have been developed by the conservation sector – these are summarised in this paper. National schemes provide much of the status information needed, while other projects provide information on ecology. UK Government funding of bird surveillance and monitoring amounted to more than €5,000,000 in 2003. However, many schemes and projects are co-funded in partnership with conservation NGOs. Crucial to their success is the large voluntary input. The principal costs in most schemes are administration, analysis of data, interpretation and publication. Professional field work adds substantial cost and, where this is a main source of data, may limit surveys. All schemes involving volunteer participation include costs related to volunteer network support and development; these costs are more than compensated by the contribution of volunteers and are crucial to the success of such schemes.

P07 The Countryside Bird Survey: Monitoring the Success of Breeding Birds in the Republic of Ireland, 1998 – 2003

Crowe, O., Coombes, R.
BirdWatch Ireland, Ireland - ocrowe@birdwatchireland.org

The Countryside Bird Survey (CBS) was established in 1998, and is the first national programme for monitoring terrestrial breeding bird populations in the Republic of Ireland. It is a joint project of BirdWatch Ireland, the National Parks and Wildlife Service and the Heritage Council. The survey design is largely based on that used in the UK Breeding Bird Survey. The Republic has been stratified into eight regions, and one-kilometre squares were randomly selected within each. Bird data were collected in each square by two parallel north-south or east-west transects (each 1km long and approximately 500m apart). The same transect routes were covered each season. Field observers recorded birds seen or heard on two separate occasions, during the early (April to mid-May) and late (mid-May to end-June) season. In total, 322 observers have taken part (including 250 BirdWatch Ireland volunteers and staff and 72 National Parks and Wildlife Service staff). Overall, 386 squares have been covered up to and including the 2003 breeding season, while coverage in a given season has ranged between 259 (1998) and 323 squares (2000). A total of 362 squares was covered during at least two seasons and used for trend analyses. Overall, 142 species have been recorded, with Wren, Robin, Blackbird and Chaffinch the most widespread, all occurring in greater than 85% of squares, and Rook, Wren, Starling and Blackbird the most abundant. Summaries of the population trends of several species are presented.

P08 Changes in numbers of some breeding birds in the farmland of central-eastern Poland

Golawski, A.
Department of Zoology, University of Podlasie, Prusa 12, 08-110 Siedlce, Poland - artgo1@ap.siedlce.pl

The study on two plots (M – 343ha and K - 430ha) in the fragmented agricultural landscape of eastern part of the Mazovian province in 1999-2003 was conducted. The contribution of habitats (woods, orchards, settlements, arable fields, meadows and set-asides) was almost constant on the study area during the research. Twenty species of farmland birds used mapping method were counting (7 counts per season). The data from both plots jointly showed the increase in number of serin, and the decrease in numbers of corn bunting, whinchat i lapwing. There was not noticed the change in numbers of other 16 species (Spearman`s coefficient of rank correlation). However, the analysis both plots separately showed the increase in numbers of serin and collared dove and the decrease in numbers of lapwing on the plot M. On the plot K there was recorded the increase in number of ortolan bunting and the decrease in numbers of yellowhammer, corn bunting, whinchat and lapwing.

P09 Dynamics of breeding population of the Rook *Corvus frugilegus* in the agricultural landscape of eastern Poland

Kasprzykowski, Z.
Department of Ecology and Nature Protection, University of Podlasie, Poland - zbykas@ap.siedlce.pl

Monitoring of rookeries was carried out in the fragmented agricultural landscape of eastern Poland (51^{o} 59'-52^{o} 19' N; 21^{o} 52'-22^{o} 40' E) in the years 1998-2003. Numbers of breeding pairs changed from 4479 to 3271 (overall decline by 27% and mean annual - 5,4 %). Density of breeding population decreased from 3.17 to 2.31 pair/km^2. Number of colonies declined from 24 to 15 and its positive dependence with the numbers of breeding pairs was very close (Spearman`s coefficient of rank correlation). Size of mean colony increased from 187.1 to 224.6 nests (by 17 %) and significantly correlated with the number of nests in the whole population. In four large colonies (400-1200 nests) nested 73% of Rooks and the number of nests in this group changed by only 4% in the study period. Simultaneously in medium-size colonies (40-400 nests) the number of breeding pairs declined by 66%. The number of these colonies decreased from 13 to 6. The number of nests in group of small colonies (1-40 nests), which comprised 2.8% of the whole population, fluctuated and negatively correlated with the number of nests in large colonies.

P10 Changes in land use, agricultural habitats and Corncrake *Crex crex* habitat selection in Latvia 1984–2003

Keiss, O.
University of Latvia, Latvia - grieze@yahoo.com

Area of agricultural habitats and number of Corncrakes were monitored in 52 survey routes in Latvia between 1984 and 2003. Only four of the survey routes were monitored through all of the given time period. Analyzed habitat composition in the monitored routes changed significantly due to major changes in agriculture in Latvia at the end of the Soviet occupation. Area of grasslands (pastures, meadows) and arable land decreased until 2000 and is increasing recently, while abandoned agricultural lands (grasslands and arable lands) increased since 1994. Area of shrub-land has rapidly increased on abandoned agricultural lands since 1995. About 70 % of Corncrake population in Latvia are concentrated on used grasslands and abandoned agricultural lands. Area of low intensity grasslands has decreased recently due to intensive agriculture in south central regions of Latvia, while abandoned grasslands are rapidly replaced by bush-lands in the northern and eastern Latvia. While Corncrake numbers have been stationary since 1998, observed lower numbers in 2003 might be an indicator of start of a decrease.

P11 Population of Great Snipe in Latvia: distribution, numbers and trends

Ainars, A.
Latvian Fund for Nature, Kronvalda bulv. 4, Riga, LV-1010, Latvia - dubults@lanet.lv

An inventory of Great Snipe leks was started in 1999 surveying all recent and historical sites where the species has been recorded as well as the areas throughout the country corresponding to species habitat described in relevant literature. Twenty-seven different active leks with 200 to 240 lekking males were recorded in the period 1999 - 2003. Distribution of the Great Snipe in Latvia is determined by presence of large floodplain meadows being more frequent in northern and eastern parts of the country while almost lacking in western and southern parts. Monitoring data for the known leks (counts of lekking males) show that there is a general tendency for the species to decline during the period of 1999-2003, however, due to the large confidence limits this trend is not statistically significant. As not all of the leks were active every year and the surveyed areas have covered all largest floodplain areas, the total population estimate of 200 - 300 males is given for the country.

P12 Decline of Roller *Coracias garrulus* population in the Baltic states

Racinskis, E., Kalamees, A., Raudonikis, L.
Latvian Ornithological Society, Latvia - edmunds@lob.lv

This paper aims at documenting evidence for historical and current trends in range and population size of Roller *Coracias garrulus* in three Baltic States: Estonia, Latvia and Lithuania. As in most parts of their European range, Rollers have suffered a long and steady decline in the Baltic region. Over the last 50 years, their numbers have plummeted from thousands of pairs to critically low national populations at present. These trends, however, remain poorly documented, let alone understood. This paper draws together all available published and unpublished data on the Roller, including national breeding bird atlases, bird ringing reports and recent survey data gathered by field-work and public inquiries. Breeding distribution maps and population estimates are reviewed or reconstructed for separate time periods up to 2004. Additional data are presented on local breeding densities, brood size and habitat characteristics.

P13 Number of waterfowl wintering in Moscow in 1985-2004 and their dependence on climate fluctuations

Avilova, K. V.
Moscow State University, Russia - kavilova@mtu-net.ru

Over nineteen years (1985-2004) wintering waterfowl were censused with the participance of volunteers at all Moscow waterbodies during the day in the middle of January. The whole number of species gradually significanly increased. Trends of numbers of five main wintering anseriform species were revealed. Among them only mallards display dependence on climate fluctuations, but it is rather

complicated. Two subpopulations display different dependence on air temperatures from 1 November of the previous year to 15 January of the given one. Birds wintering on the Moscow-river in the suburbs of the city depend on weather conditions at all stages of their number dynamics: raising (r=0,74; p=0,05), decline (r=0,88, p=0,01) and stabilization (r= – 0,80, p=0,05). Birds wintering at small rivers and ponds of inner town depend on weather only in the period of population decline (r=0,83; p=0,01). Dependence on air temperature in mallards seems to be the most strong in the period of population decline both in the whole urban population (r=0,89, p=0,01) and in the each of its two components. The project was supported by Russian Foundation for Basic Research, grant N 02-04-49749.

P14 Monitoring of Bird's Population of the Pinega River Meadows (Arkhangelsk Region)

Rykova, S.[1], Rykova, D.[2]

[1] Pinega Nature Reserve, Arkhangelsk region, Pinega, Kudrin str., 116, Russia

[2] Pomor State University, Arkhangelsk, Lomonosov str., 4. Russia - pinzap@atnet.ru

Large part of the Arkhangelsk region which is situated in European North of Russia is covered with forests (about 70%). Agricultural habitats take about 1.5% of all area and they are situated predominantly in large river valleys. The greatest part of these habitats is shown by meadows which are used as hay meadows and pastures. Investigation has been carried out in middle stream of the Pinega river. Monitoring of the birds fauna and population on meadows was conducted since 1977 (migration, phenology). Main method of field studying was route counting (Ravkin, 1967) in June from 1998 till 2003. Total length of routes – 75.5 km. There were founded 45 species from 8 group during were: Charadriiform birds (10 species) and Passerine birds (9 species). It is connected with the specific situation of floodplains near numerous water objects and they are also surrounded by forests massifs. Population structure of birds of this area has a number of special features. Absolute dominant was *Larus canus* during all 6 years. And its part was at the average - 41% from the population of meadow birds. On the second place was – *Emberica aureola* with 9%. Three species of waders: *Numenius arquata*, *Numenius phaeopus* and *Haematopus ostralegus* preserved the density of the population on high number and together with two previous dominants they formed the base of the population of breed species of meadows. Weather conditions of May the period of arrival and beginning nesting influenced greatly the formation of the population. The way of using habitats by birds has annual changes which are determined by the level of spring flood and the degree of economic mastering of the territory. The preservation of this habitats has a great value, as a place for resting of birds during massive migration and also as a unique habitat of rare wader species – *Numenius arquata* and *Limosa limosa*.

P15 Bird fauna and population in the Upper Pechora area

Kochanov, S.[1], Van Rijn, S.[2], Roos, M.[2]

[1] Institute of Biology, Syktyvkar, Russia - kochanov@ib.komisc.ru

[2] Institute of RIZA, Netherlands, Lelystad

The work got the financial support from Russian-Dutch projects "Pechora river basin integrated system management (PRISM)", "Pechora river integrated study (PRIST)" and international project "Sustainable development of the Pechora region in changing society and environment (SPICE)". Field research on the fauna and population of birds were performed on 25.06-17.07 2003 in the Velyu river, near Yaksha village and on the main riverbed of the Pechora upstream of Kurja village. The research aimed at definition of man impact upon bird fauna and population. We distinguished two sites differing in the level of human impact. The first is the Velyu river basin and the second is the upper reaches of the Pechora. 47 variants of bird population are studied in 20 different habitats. We established the inhabitance of 105 bird species from 12 modern divisions. Passeriformes the bulk of bird population of the terrestrial ecosystems and ?haradriiformes in the riverbank areas. The highest number of bird species was registered in the upper Pechora (77 species), 67 species were registered in the Velyu basin. The higher diversity of birds in the Upper Pechora is explained by the prevalence of Siberian species (33) and species under conservation (5). In the Velyu basin theses indices made correspondingly 28 and 2. The ratio of non-passerines in bird communities, and the number of game birds were also higher in the Upper Pechora basin than in the Velyu basin (56% and 49%, 18 and 16 accordingly). This fact testifies to great anthropogenic transformation of landscapes in the Velyu basin and increased disturbance factor resulting from industrial activities and recreational load. It was

registered that the number of many common bird species was lower than the average multi-year values. This phenomenon is determined by bad weather in spring 2002 when birds died abundantly. Distribution of synanthropic species displays changes if compared to previous years. In the studied small localities we have not find house sparrow, filed sparrow, rock pigeon and starling which were earlier common in all the localities. This fact is explained by social factors (bad feeding in wintertime). Quantitative indices of bird population show that the highest species diversity and number of birds is registered in the specially protected areas (the Pechora-Ilych Nature Reserve).

P16 Bird monitoring in the Middle Volga

Vodolajskaia, T.
Kazan State University, Dept Vertebrate Zoology, Kremlevskaya str., 18, 420008, Kazan, Russia - Tatvod@rambler.ru

Antropogenic factors influence on the birds. Observation of the birds in antropogenic ecosystems allow us looking for the changing of their population. The material was collected during 1974-2004 by transect methods in the 13 cities of the Middle Volga urbanization territory birds. The following transect methods were used: - routing accounts of birds, -birds accounts on the permanent areas by standard method. Sampled habitats included both large and small parks, cemeteries, squares, street-side lawns and industrial areas. The mathematic analysis includes the following method: the indexes of species diversity and species range of abundance are counted using Shennon's and Pielow's formula. In the 13 cities of the Middle Volga 268 species of birds 18 ordes were recorded (187 breeding species), 114 species of Passeriformes.The bird fauna in the urbanized territories of Tatarstan is characterized by the highest diversity and comprises 176 species, breeding was confirmed for 99 bird species, which makes up 56,2% of the total city fauna. The species fall mostly to the European (34,3%), Sibirian (15,2%) types, 35% belong to the widely distributed group of species. The highest number of species of the birds of passage were detected in Kazan - 28 species (16,8% of the city fauna). The main factor affecting both the diversity of species and density of aviafauna was: abundance of sources of food antropogenic, presence of regules and absence of birds of prey.

P17 Acolgy, avifauna and ornithologycal significance of lagoons of Daghestan

Vilkov, E. V.
Russian Academy of Sciences, Daghestan Scientific Centre, Pr.Gamidova, 61-A. k\'. 45, 367030 Makhachkala, Russia - evberkut@mail.ru

Along with a sharp raising of the level of the Caspian sea (from 1978 to 1996) in the central arid part of its coast, there formed an ecologycally new stable complex with sporadically dispersed lagoons. The aquacomplex includes four big lagoons the total length of which is 52 km. The total aria of the lagoons 2650-3250 ha. Their age varies within 10-25 years. The lagoons stretching meridionally along the sea coast are located just on the intersection of main fly lines of migrating birds flying along the western coast of the Caspian sea. One of lagoons is located in the "bottleneck". In this connection not only hydrophil, but also land migrants (the number of some species runs up to 100-150 thousand individuals per migration season) fly over these lagoons. At the peak of migration activity, the overfly intensity is 19,6 thousand individuals for four hours of observation. Under the research period (1995/04) within the lagoon complex, 275 species of birds were registered, comprising 20 orders and 51 families that is 75,3 % of the total ornithofauna variety of the republic. Out of them: 26 species - sedentary, 5 - supposedly nesting, 51 - coming by chance, 49 - kinds the visitors, 243 -overflying, 79 - wintering, 17 - aestivating. 45 species among them are entered in the endangered-species list (Red Book) of Russia. The ranging showed belonging two most ornithologycally-intensive areas of the lagoon complex to territories meeting the criteria of the IBA's and Ramsar wetlands of international importance. The project developed by the author regarding the organization of two severely guarded natural territories in the lagoons of Daghestan are pending by the Russian representation of WETLANDS INT'L.

P18 Bird densities and structures within the agricultural high productivity areas of Central Germany between 1961 and 1998

Oelke, H.
Department of Zoology, University Göttingen, Berliner, Germany - hans.oelke@t-online.de

The highway improvement programme “German unity” led to a 6 lane-Autobahn between Hannover and Berlin between 1990 and 2004. In the area Hannover-Peine-Braunschweig, Lower Saxony, Germany large agricultural areas have been affected. Field order and inner road systems have been restructured modelled for improved production and economic output. For losses of natural habitats, the nature conservancy agencies ordered compensation, mainly reforestation plans. No inventories of the birdfauna or other faunal elements were done at or during the constructing procedure. By private inltiative the author carried out intensive bird census using the int. recommendations for bird censuses in 1998 and compared these results with the previous census in 1961. The censuses on Apr. 6 square km mainly include high productive agricultural areas, two forests, two gravel pits and an IBA nature reserve (Wendesser Moor). Islands of high Bird diversity now contrast with extreme poor (desertlike) fields, probably the future in large parts of the EU.

P19 Winter census of house sparrow (*Passer domesticus*) in Berlin

Witt, K.
Berliner Ornithologische Arbeitsgemeinschaft (BOA), Germany - Klaus.Witt@gmx.de

The House Sparrow (*Passer domesticus*) is distributed over large areas of the world, in part after introductions, very successfully following man and its habitations since hundreds of years. However, this success story seems to come to some end as at least in parts of the world, especially well documented in Western Europe, serious decreases have been reported. Unknowing reasons data collection for every aspect of House Sparrow’s life is essential. In Berlin since more than ten years (1993—2004) a winter census project was started which asks for total numbers of individuals of every bird species seen or heard during four one hour visits between start of December and end of February on 5 ha plots selected from different habitat types of the city. Analysis of about 100 plots shows House Sparrow to be the most dominant species during winter in Berlin. Data are discussed as follows: mean densities (individuals/5 ha) for different habitat types, correlation of numbers with area of housing, dependency on human feeding action, dynamics of selected plots controlled over several years, comparison with results on breeding birds. Main results are: type of block buildings provides for highest densities of House Sparrow (and of humans as well), feeding is essential, variation from year to year is large, however, no central trend is obvious up to now, winter numbers are well related to breeding numbers, hence winter census may be an alternative method to monitor House Sparrow, House Sparrow’s perspective in Berlin is good, which seems to be true for other areas of Eastern Central Europe in contrast to findings in Western Germany and adjacent areas of Western Europe.

P20 Birds in European cities

Rheinwald, G.
Dachverband Deutscher Avifaunisten Germany - goetz.rheinwald@t-online.de

John G. Kelcey 10 years ago had the idea to look for authors in Europe who can describe the avifauna of larger cities in the different regions of Europe. He found 17 contributors in West, Central, Eastern und Southern Europe. The contributions of Berlin, Bonn, Bratislawa, Brussels, Florence, Hamburg, Lisboa, Lublin, Sofia, Valencia, Vienna and Warzaw are ready and type-setted. Chapters on Moscow, Naples, Rome, St. Petersburg and Praha are in progress. The book promises to become an extremely interesting contribution about the knowledge of European ornithology. Each chapter presents a short overview on the history of the town, describes the typical habitats, presents results on studies on populations sizes and changes during the last decades. There is a paragraph “Where to watch birds” and a final table on all breeding species of that town. The different chapters demonstrate trends from West to East and from South to North. One may be mentioned: whereas in Valencia/Spain in the Southwest alien species (especially parrots) comprise a high percentage of the avifauna, in Lublin/Poland besides Mute Swan and Pheasant there is no alien species at all. The book will be published by Kelcey & Rheinwald foreseeable in this year in an edition of 1500 copies. Since the negociations with a Scientific Publisher with International reputation are not satisfying, we discuss

meanwhile whether it is better to publish the book in own responsibility. Then we need assistance by EBCC and colleagues for an international distribution of the book.

P21 Citizen science: KAD's experience

Didrickson Kesapli, Ö., Can Kesapli, Ö., Can, O., Bostan, B., Ýkis, D., Özbahar, Ý
Kus Arastirmalari Dernegi, Atatürk Bulvari 143/38 Bakanliklar, Ankara, Turkey - ozgur@kad.org.tr

Turkish Bird Research Society (KAD) realizes the utmost importance of the involvement of volunteers mostly in form of locals within the projects for sustainable results.Thus almost in all KAD projects volunteership plays a crucial role. Here, KAD's experience with citizen science will be discussed through focus on Eastern Mediterranean Bird Migration Education Project and White Stork Project. In years 1998 and 1999 KAD conducted migration research at Belen Pass, an important bottleneck for soaring migratory birds. The hunting pressure was observed to be threatening while the immense interest of locals, especially of children was encouraging for conservation. "Soaring Migratory Birds Festival"s, organized in collaboration with General Directorate of Nature Conservation and National Parks and Ýskenderun Nature Protection Society- a local NGO-, further enhanced public awareness. A festival of this nature was being organized in Turkey for the first time and it also strenghtened the collaboration of KAD with locals eventually yielding "East Mediterrenan Bird Migration Education Project" in 2001. Local NGOs run the project under KAD consultancy with the support from UNDP GEF SGP. Workshops were organized enlightening local NGOs on importance of the region for bird migration who then passed these information on to students and teachers of selected pilot schools with use of interactive educational materials produced and provided by KAD. These educational efforts, in which initially 300 teachers and 2000 students of 8 pilot schools were involved constitute the first sustainable bird conservation education study in the country. There are various cultural values attached to White Storks in Turkey. As large birds living and nesting close to humans, they are good candidates for use in educational activities. These values make storks one of the best flagship species for raising public awareness and for integrating volunteer contributions to their research and conservation. A lack of information on the exact size of White stork population in Turkey coupled with the potential volunteership KAD initiated a pilot White Stork project in 2003 in Kizilcahamam, a forested town of Ankara. Kizilcahamam population was observed through frequent visits enhancing interaction with the locals who readily embraced and supported the study. Human disturbance to nests were observed to be minumum, some artificial nests observed in a village suggesting a friendly coliving. In 2004, in order to enhance the contribution of volunteers to the project, a stork questionnare was prepared and distributed to bird watching clubs, national conservation authorities and to general public through media (national newspapers, one of the most popular scientific maganize and CNN-Turkish channel). A stork web site was also launched. The questionnare immediately attracted the attention of public.

P22 How accurate are data from birdwatchers' notepads? An example for the occurrence of bearded tit (*Panurus biarmicus*) in Western Poland outside the breeding season

Surmacki, A.
Dept. of Avian Biology & Ecology, Adam Mickiewicty University, Poland - adrian@main.amu.edu.pl

Many of ornithological field studies coordinated by professional ornithologists is based on birdwatchers and volunteers help. Birdwatcher however, make significant amount of opportunistic observations in the field. The questions appears, how accurate are this date and how it may be used? In this study seasonal aspects of occurrence of Barded Tits between September and February were analyzed using data from two sources: birdwatchers observations (BO), made by 48 persons in years 1985–2003 and regular studies (RS) on the species occurrence done between 2000-2001 by the author. In case of RS, study areas were selected randomly and playback methods were used to maximize efficiency of species searching. Data from both source didn't differ with respect to sex ratio which was slightly male biased. Comparing to RS data, Bearded Tits recorded during BO occupied larger lakes and wider river valleys. Small reed patches which were fairly common habitat according to RS data, were completely lacking in BO. Bird numbers recorded between September and February were significantly correlated between BO and RS. However, the peak, which in BS occurred in the first part of November, in RS appeared a month earlier. The total bird number was significantly correlated with number of sites their occurrence in BO, whereas in RS, the strong correlation with the mean flock size was found. Flocks found during BS were significantly smaller than in RS. Possible causes of observer

biases were presented and their implications on conservation practices were discussed. The research was partially financed by grant No. PBWB 207/2000 from Adam Mickiewicz University.

P23 Diversity patterns derived from individual species distributions: fractal approach
Šizling, A. L., Storch, D.
Center for Theoretical Study Charles University Jilska1 11000-Cz Prague, Czech Republic - sizling@cts.cuni.cz

Patterns in species diversity are inevitably linked to the patterns of distribution of individual species, as local diversity is given by the number of species ranges that overlap there. However, there have been only a few attempts to explain diversity patterns directly from species distributions. We show that the most prominent diversity pattern, the species-area relationship (SAR), can be derived from fractal (i.e. self-similar) spatial distribution of individual species, and that the properties of the SAR can be predicted from the number of locations on which each species occur. Using extensive quadrat-based data sets on the distribution of birds from several spatial scales we tested to which extent the spatial distribution of species is actually self-similar, and how this self-similarity depends on spatial scale and the taxa involved. We show that within sufficiently large scales individual species can be treated as self-similarly distributed and effectively independent to each other, and the species-richness patterns emerge without the necessity to consider interspecific interactions or interdependence. We discuss limits of this approach and its potential application to other diversity patterns, namely the relationship between species richness and environmental productivity.

P24 The Mugla wetlands monitoring and active protection project
Thol-Schmitz, H.
Friends of Gokova-Akyaka (Gökova-Akyaka'yi Sevenler Dernegi), Mugla, Turkey - heike@akyaka.org

Initially ignited by DHKD/WWF to participate in Turkey's IBA Monitoring Project, the Gök- Kus- Agi Birding Network has been founded in March 2001 as part of an already existing environmentally orientated local NGO ("Friends of Gökova- Akyaka"). This has closed a gap in the IBA Monitoring Project concerning the monitoring of wetlands and participating in Bird Counts in the South- West Aegean. The network's members have been schooled for bird counting and the group started immediately to build capacity, exchange knowledge and teach practical work by regular monthly meetings, including seminars, birding trips and small scale networking. By autumn 2001 the group had been able to participate in the Balkan Monitoring Project, counting the Güllük Delta and Lake Tuzla near Bodrum. They also regularly participate in the International Midwinter Waterfowl Counts. The group has started local Atlas work this year. Team efforts with state stakeholders towards implementing hunting and environmental laws, vehemently fighting poaching, monitoring and regularly counting three major wetlands, raising awareness and offering the media to participate in activities, made GKA' s "Mugla Wetlands Monitoring and Active Protection Project" an important factor for the protection of wetlands, the development of new IBA's and awareness in the region.

P25 Migration patterns at Kulu Gölü, Turkey
Richardson, I. M.
Faculty Academic English, Bilkent University, Ankara, Turkey - ianr@bilkent.edu.tr

This paper reports the results of a long-term survey of the birds of a Turkish lake. In spite of some lengthy intervals, the writer has been observing the region on the Central Plateau for almost every weekend for the past three years (2001-2004). The lake is Kulu Gölü, about 100 miles to the south of Ankara and one of best-known places for bird watching in Turkey. Although the general results of this survey have already been published (Richardson 2004), there has been no analysis of the distribution of particular species throughout the year. This presentation looks at the results of these observations and, based on the available sample, tries to determine if there any obvious trends and patterns. The particular groups of birds to be studied will include the following: ducks; geese; flamingos; waders, and some passerine birds. Since Kulu Gölü is a steppe lake, and it is mainly a transit place during migration, there is likely to be considerable differences in distribution of species from one year to the next. At least so far as this lake is concerned, different species are identified with different types of migration pattern.

P26 Habitat requirement and the breeding ecology of kruper's nuthatch (*Sitta Krueperi*) in Antalya, Turkey

Albayrak, T., Erdogan, A.
Akdeniz Üniversitesi Fen-Edebiyat Fakültesi Biyoloji Bölümü 07058, Antalya, Turkey - tameralbayrak@akdeniz.edu.tr

Habitat requirement on the nest preference and breeding ecology of Sitta krueperi has been investigated in their nest boxes and natural nest holes in Antalya. Krueper's nuthatch uses hollowed-out nest hole by woodpeckers or making itself in a died tree, died thick branch or wooden power pole. We have found totally 18 nest holes, which were 9 nest holes in Redpine, 5 nest holes in Blackpine, 3 nest holes in Cedar, and one nest hole in power pole, in Antalya between 2000 and 2003. Nest areas have been calculated in average 974,44±125,33m altitude, and 26.94^0±$4,68^0$ slope, 4 of them in flat area and 13 of them northwest, north and east face of the hillside. Nest holes determined on average 11,84±1,62m from the ground and it looks south, southeast and east direction in usually middle old aged trees. Distribution of Kruper's nuthatch is found in natural forests, non-planted, middle or old aged conifer forests, red pine, black pine, cedar, and juniper, and nearly these trees maquis (especially Querqus sp.), and broad-leaved trees like maple,(Acer sp.), poplar (Populus sp.), and plane tree (Platanus sp.). It has been found that the incubation period starts by late March and lasts until late June. 15 of 250 nest boxes have been occupied by Sitta krueperi. The nest materials were composed of very thin bands of tree cortex (66.3%), pine seeds (21.3%), bristles (5.5%), feathers (2.8%), lichens (2.5%), and nylon and cotton threads (1.3%). Inside the nest boxes, eighty-three eggs were found, among which 84.3 per cent (70 eggs) has yielded offspring. Fifty-four chicks (65%) have succeeded to fly. The average number of juveniles which managed to fly was about 3.6 per pair. The most important factors against the success of incubation are the cutting of dry-old trees and occupation of nest boxes by Dryomys nitedula, bats, insects and bees. The food supplies for the chicks in their nests were found to be Coleoptera (33.3%), Lepidoptera (13.8%), ants (4.6%) and other Hymenoptera (1.2%), Homoptera (4.6%), Dermoptera (3.4%), Diptera (3.4%), Arachnida (3.3%) and unidentified small insect larvas (20.7%), worms (6.9%) and seeds (5.8%).

P27 A monitoring of nocturnal bird migration in the Balkan area by simultaneous moon watching observations

Zehtindjiev, P.[1], Liechti, F.[2]
[1] Institute of Zoology, Bulgarian Academy of Sciences, Sofia 1000, Bulgaria - kalimok@einet.bg
[2] Swiss Ornithological Institute, CH-6204 Sempach, Switzerland

A monitoring of the spatial and temporal distribution of nocturnal migration in the Balkan region was carried out during the spring and autumn of 1999 - 2002. By means of moon watching technique, the passage of 21625 nocturnal migrants was recorded during 1613 observation hours at 45 sites spread over Bulgaria, SE Romania, Northern Greece and Black Sea coast of Turkey. Mean migratory traffic rate remains relatively constant year by year. It was 1500 birds*$km^{-1}h^{-1}$ in autumn and 1000 birds*$km^{-1}h^{-1}$ in spring. Migration intensity was similar between E – W and N – S gradient. Specific sites with extraordinary high density of migration were registered in the beginning of autumn migration at the Black Sea coast. In the same period, the proportion of the seasonal unappropriate directions is highest. It could indicate nocturnal dispersion of juvenile birds in the region recently discovered in many night migrants. The proportion of the reversed flights decreased during the autumn from 30% to 20% and 10% (average per different years) in August, September and October, respectively. On a large-scale view, an influence of the topography of the Balkan Peninsula and adjacent territories on the diversity of flight directions could be revealed. A strong flow of migrants passing between the Carpathian Mountains and the Black Sea could be followed down to Southern Bulgaria and Northern Greece. Another flow of migration might enter the study area from NNW across the westernmost Southern Carpathian Mountains following the West Balkan mountain ranges. Flight directions were virtually opposite between seasons, with a slight shift from SSW to S during the autumn and from NNE to N during the spring. The results indicate that a high proportion of nocturnal migrants along the eastern flyway does not circumvent the Eastern Mediterranean Sea but crosses the sea on a broad front. Based on these figures a rough estimate provides a number of about 900 million birds passing through the study area during autumn season and almost 600 millions in spring, respectively (average width of 900 km, 8h of flight per night, 90 nights). According to the ringing results from the, area we assume that about 80% of these are trans-Saharan migrants. The majority of night migrating species are present in the ringing results from the Kalimok Station (Bulgaria) both in spring and autumn. The

only exceptions are *Ficedula albicollis*, *F. parva* and *F. hypoleuca*, which are known to have loop migration. The diametrically opposite directions in autumn and spring registered in the course of this study also reject the possibility of a loop migration through the Balkan Peninsula. Therefore, the present quantitative estimate of the night migration in autumn and spring reflects the proportion of birds, which have survived after the migration and wintering. This proportion varied from 60% to 80%, in average during 1999 - 2002. Therefore the selection during the periods of migration and wintering of nocturnal migrants does not seem to be the main natural tool for regulation of their numbers compared to the selection during the breeding periods of these species.

P28 Orientation experiments with two Sylviid species during autumn migration in NE Bulgaria
Ilieva, M., Zehtindjiev, P.
Institute of Zoology in Bulgarian Academy of Sciences, Sofia 1000, Bulgaria - michaela_ilieva@yahoo.com & Kalimok@einet.bg

Orientation experiments, a part of complex investigation and monitoring of passerine migration, in the Balkan region were carried out. In autumn of 2001, 2002 and 2003, 253 Sedge Warblers (*Acrocephalus shoenobaenus*) and 194 Willow Warblers (*Phylloscopus trochilus*) were tested in orientation cages in NE Bulgaria. The birds were tested in registration cages of two types: Emlen funnels for night experiments and Busse's flat cages at daytime. The directional preferences of the two studied species correspond with results of the direct registration of the night migration. They show that the majority of nocturnal trans-Saharan migrants intend to cross the eastern Mediterranean Sea between Greece and Egypt/Libya. A shape of the distributions of both species suggests that it is really bimodal with SW and SE components. Mean directions of the two studied species are: for Sedge warbler in Emlen funnel, night-time tests 135^{o} and 233^{o} in 2001 and in Busse's cage, daytime tests 124^{o} and 234^{o} in 2002 and 139^{o} and 230^{o} in 2003 and for Willow Warbler in night experiments 130^{o} and 234^{o} in 2001 and in daytime tests 129^{o} and 233^{o} in 2002 and 137^{o} and 229^{o} in 2003. According to orientation data, at least two populations of the Sedge Warbler migrate in NE Bulgaria: one in SW direction via Greece, crossing the Mediterranean Sea to Libya, and then Central Africa and second one through Turkey, (Cyprus?) and the Middle East to the eastern parts of winter-quarters (SE direction). This pattern is clear when a calculation method assuming reverse and axial behaviour of birds (i.e. reversing vectors from northern sectors) is applied. Nature of "reverse migration" is still not well studied and seems to be very interesting for further studies. We can conclude that Willow warblers migrating through Kalimok also comprise two migrating groups that choose different directions and that this pattern is observed in both types of orientation cages. The main differences between the two studed species occur in the wider angle of directional pattern of Sedge Warblers in the night experiments, in contrast, to the narrow-angle of directional pattern of Willow Warblers. We suggest that many factors can influence daytime experiments with Willow Warblers resulting in wider angle of registered directions. Wider angle of preferable directions in tested Sedge warblers consists of SSE-SE component, which is missing in the more precise results of night experiments with Willow warblers.

P29 Influence of spruce forest dying due to bark beattle calamity on bird communities in the National Park Sumava
Stastny, K., Bejcek, V.
Forestry Faculty, Czech University of Agriculture, Kamycka 129, 16521 Prague, Czech Republic - stastny@lf.czu.cz & bejcek@lf.czu.cz

Large-scale dying of mature spruce forests in the National Park Sumava (NPS) in consequence of bark beattle calamity is the great problem of the last decade. Dying spruce stands and their subsequent felling change completely the charakter of abiotic factors and communities of organisms of disturbed areas. Birds and their communities are sensitive bioindicators of such ecosystem changes. The utilisation of birds for such reasons was repeatedly demonstrated in spruce forests dying due to high concentrations of industrial emissions. Birds were counted by the mapping method in three ten hectares sampling plots chosen in mature sound spruce forest aged 100 years (A), in stand with dead spruce trees of the same age (B) and in large freshly-felled area (C). 17 species were found in plot A - 5 of them with breeding territories, 16 species in plot B - 13 of them with breeding territories and 10 species in plot C - 4 of them with territorial behaviour. Forest bird species dominate in plot A (e.g. Fringilla coelebs, Erithacus rubecula, Parus ater) and towards plot C bird species increase, which are

typical for open landscape and young successional stages (e.g. Anthus trivialis, A. pratensis, Prunella modularis). Number of species, density and species diversity are low in sound mature spruce forest (A), their values increase in dead forest (B) and after the creation of large clearcuts they decrease again. In the other part of the NPS birds were counted by the point sampling method (807 points, area 8 x 13 km). In total, 56 species of breeding birds were found. The occurence of some species (e.g. Sylvia atricapilla, Prunella modularis, Turdus merula, T. philomelos) was limited according to the level of forest dying (e.g. S. atricapilla 69 % of occupied points in sound forest, 49 % in damaged forest and only 15 % in dead forest). In the process of defoliation, bird species with trophic relations to spruce needles (Parus sp., *Regulus regulus*) decreased in numbers. Numbers of some species depending on insect living under tree bark increased - Certhia familiaris, Picoides tridactylus. Numbers increased also in species of open habitats (e.g. *Anthus trivialis*) and young spruce plantations (e.g. *Phylloscopus collybita*, *P. trochilus*).

P30 Catastrophic death of birds in the European North-East of Russia in the beginning of nesting period 2002

Estafjev, A., Selivanova, N.
Russian Academy of Science Ural Division Komi Science Center Institute of Biology, Russia - estafjev@ib.komisc.ru & selivanova@ib.komisc.ru

This report was excited by the ornithological observations made in abnormal climate conditions in the middle and north taiga subzones of the Republic of Komi (European North-East of Russia, NL 61-65. For a first time in whole history of ornithological observations since XIX century, mass death of breeding birds and their egg layings was fixed for the period from May, 17 to June, 6 2002 because of returned winter conditions (snowstorms, 0.5 m snow cover, night temperatures to -16C). Catastrophic death of birds-insect-eaters from the order Passeriformes with their laid eggs was revealed. It practically did not affect migratory water birds. As indicated by the bird numbers and visual observations, the death rate of sparrow birds at control sites comprised 96% in the Vychegda river basin (middle taiga subzone) and 60% in the interfluve between the Izhma and the Pechora rivers. Out of strength, hungry and frozen birds largely occupied open bogs, river banks, places attached to hunting log huts, and fire places. Going 100 m along the river, 84 dead birds (residual fragments included) belonging to 16 species, 7 families and 2 orders were collected. Most of them were representatives of the families Motacillidae, Muscicapidae, Corvidae (19-58%). Female birds of Pluvialis apricaria, Gallinago stenura, Phoenicurus phoenicurus, Transiger cyanurus were found dead in their nests. Reproduction efficiency of Grus grus was only 7%. Dead Turdus pilaris, Turdus iliacus, Turdus philomelos and even Turdus atrogularis in the number from 10 to 30 specimens were found in transitional bogs. The next year was marked by decreased numbers of birds insect-eaters and, consequently, increased insect numbers. Rich crop of rowan-tree and other berries remained almost uneaten by birds in the years of 2003-2004. The north taiga subzone of the northern Ural did not see analogous anomalies and bird deaths because the difference in spring time and, consequently, breeding time of birds comprise 3-4 weeks, compared to the above mentioned territories. In general, the tragic death of birds in the middle and north taiga of the European North-East of Russia resulted in sharply reduced numbers of migratory birds-insect-eaters. In fact, the bird fauna till mid June was represented by winter species.

P31 Meadow bird nest predation: a problem due to fox increase?

Teunissen, W.[1], Schekkerman, H.[2]
[1] SOVON Dutch Centre for Field Ornithology, Netherlands - wolf.teunissen@sovon.nl
[2] Alterra Green World Research

In The Netherlands there is an increasing discussion about predators affecting the size of meadowbird breeding populations. Especially fox and black crow are held responsible. In order to find out whether this is the case a research project was started in 2001. First of all a country-wide overview of predation losses was made based on the results of c. 90,000 nests protected by volunteers. A more detailed research has been carried out since 2002 in a number of areas spread over the country. In these areas the relation between predation losses, meadowbird abundance, predator abundance and landscape characteristics is the main topic. In a subset of these areas an even more detailed study focuses on the identity of the predators. Predation on clutches is investigated using temperature loggers (distinguishing diurnal and nocturnal predators) and videocameras. Radiotransmitters are

used to monitor survival and causes of death of chicks. Based on the finding circumstances one can determine if chicks were killed by predators and, if so, what kind of predator. Results so far indicate that predation is a common cause of meadowbird reproductive failure, but that a wide range of predators is involved in both egg and chick predation. Some of these predators are valued components of the fauna which are recovering from man-induced population crashes. Solutions are thus likely to be less straightforward than the current discussions would suggest.

P32 Monitoring of ducks populations in key wetlands of Moscow Region during last two decades

Sukhanova, O.
Russian Bird Conservation Union, Shosse Entuziastov, 60, bld.1, Moscow 111123, Russia - almos@redro.msk.ru

The ornithological studies in Moscow Region (total area 47,000 sq. km) in the past showed that only lakes and oxbow lakes in flood plains played the most important role for breeding ducks. Such lakes usually have suitable conditions for breeding and staging waterfowl: belt of sedge tussocks along the coasts, strong thickets of floating and submerged water plants on the water surface. But Moscow Region is one of the most populated and economically developed regions in Russia, and by 1980s more than 80% of river valleys were agriculturally improved, just those areas that had the most important and valuable wetlands. The only one floodplain "island" (Vinogradovo) and very restricted amount of lakes have remained important for breeding ducks in the recent time. Other natural lakes, by the reason of their types of plant succession, absence of meadow islands and due to increased pressure of recreation, could not support breeding ducks populations. In the same time active construction of different artificial wetlands (fishponds, storage reservoirs etc.) took place. The habitat conditions on many fishponds (non-afforested islets, floating plant mats and isolated groups of helophytes) are very rare on natural water bodies in the region. Characteristic feature of artificial wetlands and Vinogradovo floodplain in 1980s was high numbers of breeding diving ducks. So on fishponds as a whole in first half of 1980s the share of Tufted Duck Aythya fuligula broods from all recorded broods of ducks was more than 50%, and Pochard A. ferina – approximately 30%. In Vinogradovo floodplain these shares were accordingly 10-13% and 15-17%; the share of breeding Pintail Anas acuta was 8-10%; broods of Gadwall A. strepera were sporadic. The situation for breeding ducks in the region had sharply worsened in the beginning of 1990s. Colonies of the Black-headed Gull practically have disappeared in the most part of wetlands. Recreational pressure and intensity of spring hunting everywhere in the region have sharply increased. In Vinogradovo floodplain the excessive water plants owergrowing progressed. The amount of feed-stuff, brought in for carps feeding, had strongly decreased. It has resulted in the declining of invertebrates' productivity and strong deterioration of feeding condition for the waterfowl. On some ponds began to practice paid sportfishing. Many ponds have appeared closely surrounded by big groups of dachas and cottages. The total numbers of ducks on two pilot fishponds reduced in 1.6 and 2.1 times since the middle 1980s to the end of 1990s. Number ducks' broods in Vinogradovo for the same period has decreased more than in 4 times. By the end of 1990s there was a catastrophic decrease in number of Aythya fuligula and A. ferina. In 2001-2003 broods of these species were not observed in fishponds (except for one) and in Vinogradovo. Anas acuta has completely ceased to breed in the floodplain and in the region as a whole. At the same time in Vinogradovo was an appreciable growth of an Anas strepera: about 15% from all broods in 2001. Ways of optimization of ducks' habitats in the region are discussed.

P33 KusBank: An Internet Based Citizen Science Project for Bird Conservation - www.kusbank.org

Per, E.[1], Özesmi, U.[2], Erdogan, S.[1]
[1] Doga Dernegi, Mesrutiyet Cad. Bayindir 2 Sokak No: 48/7 Kizilay, PK: 06640, Ankara, Turkey - esra@kustr.org & sezgin@kustr.org
[2] Erciyes Üniversitesi Çevre Mühendisligi Bölümü, Çevre Bilimleri Anabilim Dali, 38039, Kayseri, Turkey - uozesmi@erciyes.edu.tr

KusBank is a database on the internet where bird-watchers store their observations. The project is executed by Erciyes University and Doga Dernegi and is supported by RSPB. KusBank is member of the World Birds (Kagu) project of BirdLife. We plan on using KusBank to monitor changes in bird numbers and distributions and produce trends in the long-term. Bird-watchers have started using

KusBank effectively and records formerly kept in notebooks are now entered into KusBank via the internet and share their observations with other bird-watchers. KusBank is open to all bird-watchers and is a participatory system which can be used by all that are members. Data entry into KusBank consists of date, time, observer names, observer number, observation area, species observed, their number and breeding code, habitat and notes. Currently KusBank has 140 users which is increasing every day. All observations from 2004 have been entered into the database and records going back to 1995 have started to be entered as well. As of July there are 19605 bird records in KusBank totaling 370 species. The most number of records per species that have been entered so far in rank are: *Pica pica, Passer domesticus, Hirundo rustica, Sturnus vulgaris, Parus major, Buteo rufinus, Miliaria calandra, Fulica atra, Turdus merula, Galerida cristata*. Average number of species entered per visit is 6.4. The first product of KusBank will be the "Birds in Turkey 2004" report published at the start of 2005. As data accumulates trends of certain bird species and the Turkish Breeding Bird Atlas will be published in the future using KusBank.

P34 Is parallel breeding density in boxes and natural holes; case of the Collared Flycatcher

Mitrus, S.
Department of Zoology, University of Podlasie, Prusa 12, O8-110 Siedlce, Poland - ficedula@ap.siedlce.pl

Artificial nest sites, nest boxes are often use in ecological and population studies on cavity nesters. I compared fluctuation during eight years (1994-2001) of the Collared Flycatcher *Ficedula albicollis* population size breeding in boxes and natural holes in Bialowieza National Park (NE Poland). Number of pairs breeding in holes was estimated using mapping method. Study plots were in the same type of forest (oak-lime-hornbeam). No correlation was observed between density pairs breeding in different nest sites. Yet high relation was found between densities pairs breeding in natural holes on other study plots. Reproductive success pairs breeding in boxes were not related to population size in next year. Nests boxes seem to be more attractive and they suck birds from vicinity. Different predation level in two types of breeding places can influence density too. This indicates that results from nest-box studies should be use with caution.

P35 Using population indices as biodiversity indicators – the importance of choosing the right species

Heldbjerg, H.
Danish Ornithological Society, Vesterbrogade 138-140, DK-1620 Copenhagen V, Denmark - henning.heldbjerg@dof.dk

Bird monitoring by Point Census Counts were introduced in Denmark in 1976. Danish Ornithological Society (DOF/BirdLife Denmark) runs the project that produces national population indices for breeding birds and wintering birds. From 2002 all governmental financing was withdrawn and the project could only be continued due to a five years grant by a private foundation. In order to secure the continuation of the project by some kind of public financing, DOF hopes to convince authorities and politicians that our monitoring results are important and indispensable. It is therefore important to maximize the use of the monitoring data, e.g. by producing high quality biodiversity-indicators based on the monitoring indices. When EBCC at the same time launched the idea of producing a Pan-European Index, it was therefore - and still is - highly supported by DOF. After nearly 30 years of monitoring DOF have all possibilities to let our national indices enter the Pan-European Index. Using multi-species habitat-specific indices is an obvious way of using the indices as indicators for the biodiversity and besides interesting on both a European and a national scale. It is a difficult task to choose the right species that should enter the habitat-specific indices and much debate has been on this issue. The species chosen for the Pan-European woodland and farmland indices have turned out to be inappropriate for producing the same type of indices on a national scale in Denmark. This is due to mainly two reasons. First most of the species are not at all or only in very small numbers occurring in Denmark. Secondly and more important, many species are categorised to a wrong habitat seen from a Danish perspective. Many species categorised as farmland birds are known as garden or even woodland birds in Denmark. Choosing the right species seen from a Danish perspective gives very different indices compared with the corresponding Pan-European indices on a national scale. After using the species we assess as the right species, we see trends for both woodland and farmland birds in Denmark being almost identical to the Pan European indices in Europe, i.e. the selection of species are partly different but the habitat specific trends the same. When producing a biodiversity indicator

based on the multi-species index, it is crucial to be careful with the selection of the species, in order to produce an indicator that reflects the actual changes in the biodiversity. If we do not present biodiversity indicators based on the right species on a national scale, we might produce indicators inapplicable to the decision makers. The trends and indices for selected species and the different multi species indices will be presented and debated.

P36 The New Dutch breeding bird atlas: not just maps but a wealth of underlying data
Hustings, F., Saris, F., Vogel, R., Vergeer, J.-W., Foppen, R.
SOVON Dutch Centre for Field Ornithology, Netherlands - Ruud.Foppen@sovon.nl

In 2002 the New Dutch Breeding bird atlas was published, 25 years after the first atlas. A comparison of the two books clearly shows the advance that has been made in underlying methodology, map processing and presentation. This 'new generation' atlas, like the ones in Switzerland, Belgian and UK, produces not only absence-presence distribution maps but also information on (relative) density of breeding birds. The method used was a interpolation (kriging) procedure based on standardized counts in 1x1 km squares. A comparison of the presence-absence data between the two atlases elaborates the changes in distribution of the Dutch breeding birds. For many species quite dramatic changes could be shown, but the amount of declining and increasing species was equal. About 40% of the regular breeding species showed no or only a slight change in occurrence. On average, farmland, marshland and heathland species are more declining, forest and open water species are increasing. The basic counts as well as the interpolation data provide a powerful source of information for research questions. Some examples will be shown of applications.

AUTHOR INDEX

V

W

Z