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Bird Census News reports developments in census and atlas work in Europe, from the local to the continental scale, and provides a forum for discussion on methodological issues.

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Bird Census News

Volume 20 n°2, March 2008

Preface

In this second issue of the 20th volume, we start with an update of the large-scale generic population monitoring schemes since the review of Vořišek and Marchant in 2003. Updates of these surveys have proved to be useful for the assessment of current status of bird monitoring and also as a source of information for those who seek to establish a new monitoring scheme.
The next contribution gives a comparative analysis of urban breeding avifauna in Italy based on data from 34 urban areas. The third article presents the results of a recent census of heron and cormorant colonies in Bulgaria.

At the end of this issue you find a review of the recently published 'Climatic Atlas of European Breeding Birds' in which distribution data of the EBCC's atlas of European breeding birds have served as a base for the analysis.

Finally, there is the announcement of our next international conference: March 22-26/2010, Extremadura, Spain.
Enjoy this issue!

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Review on large-scale generic population monitoring schemes in Europe 2007

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Introduction

Several attempts to summarise information on bird surveys in Europe have been made in the last few decades; the last one with a focus on large-scale breeding population schemes by Voříšek & Marchant (2003). Updates of these surveys of surveys have proved to be a very useful tool for the assessment of current status of bird monitoring and also as a useful source of information for those who seek to establish a new monitoring scheme, improve a current one, or just to get more information on bird monitoring in a concise form.

The Pan-European Common Bird Monitoring Scheme (PECBMS), a common initiative of EBCC and BirdLife International, decided to update information from the previous review and the results are presented in this paper.
The aims of this review were:
(1) to get up-to date information on existing monitoring schemes in Europe, which are linked to the goals of the PECBMS,
(2) to identify gaps and problems,
(3) to overview what progress has been done and
(4) to enable better planning in development of monitoring schemes for the future.

Our focus is mainly on generic breeding bird monitoring schemes, because these form the core source of data for the PECBMS. For simplicity, we call these schemes Common Bird Monitoring (CBM) schemes.

Methods

Our request was limited to large-scale breeding bird monitoring schemes based on sample surveys. Despite these restrictions, we have received

information on several other schemes not fitting the criteria. These schemes are involved in section “European bird monitoring schemes“ on the EBCC website to give genuine overview of monitoring schemes in particular countries. We prepared a questionnaire and distributed it in an electronical form (MS Word). We tried to make the questionnaire as easy to fill in as possible. Definitions of some terms from Sutherland et al. (2004) were added to prevent misunderstanding. The questionnaires were sent to 40 European countries, usually to several contacts (scheme coordinators, BirdLife International partner organisations and EBCC national delegates). The circulation was made in December 2006 with a request for return of completed questionnaires by February 15 2007. Preliminary results were presented at the EBCC conference Bird Numbers 2007 in Chiavenna, Italy. All information received has been stored in a database (MS Access).

Results

We have received information on 52 schemes from 35 countries. Nine schemes were species-specific surveys. Another seven schemes began in 2007 and so they are called pilot schemes and, as well as one scheme just planned, they are not involved in further analyses. The remaining 35 schemes meet the criteria of this review, but eight of them have ceased to operate. Schemes in Poland and Lithuania are included in further analyses only when the information supplied to us allowed it. Unfortunately the information we received on the Belgian schemes in Brussels and Wallonia, and the new Norwegian scheme lacked sufficient detail to allow them to be included in the analysis. Following results are thus based on 28 ongoing schemes. An overview is given in Table 1.

Table 1. Country overview of Common Bird Monitoring Schemes in Europe, where the questionnaires were sent. Note that some countries have more than one scheme in place. Names of schemes given in *italics* are indicative only, there are no exact titles known to us or established yet.

Country	Scheme Name	status	start	end	N of species
Austria	Monitoring der Brutvögel Österreichs	ongoing	1998		60-65
Belarus	National Scheme of Environmental Monitoring in Belarus	pilot	2007		
Belgium-Flanders	Common Breeding Birds in Flanders	pilot	2007		
Belgium-Wallonia	*Common Bird Monitoring Scheme*	ongoing	1990		
Belgium-Brussels	*Common Bird Monitoring Scheme*	ongoing	1992		
Bulgaria	Common Bird Monitoring Scheme	ongoing	2004		30
Croatia	*Common Bird Monitoring Scheme*	planned			
Cyprus	Cyprus Common Bird Census	pilot	2005		
Cyprus	Western Cyprus	ongoing	2003		
Czech Republic	Breeding Bird Census Programme	ongoing	1981		100
Denmark	Point count census of breeding and wintering birds	ongoing	1976		100
Estonia	Point Count Project	ongoing	1983		45
Finland	Annual monitoring of breeding birds in Finland	ongoing	1981		100
Finland	Summer bird atlas of breeding birds	finished	2000	2005	
France	Temporal Survey of Common Birds	finished	1989	2001	
France	New Temporal Survey of Common Birds	ongoing	2001		150
Germany	DDA monitoring programme for common breeding birds	ongoing	1989		100-150
Germany	DDA Monitoring programme of common breeding birds in the wider countryside	ongoing	2004		100-130
Greece	Hellenic Common Breeding Bird Monitoring Scheme (HCBBMS)	pilot	2006		
Hungary	Monitoring of our common birds (MMM)	ongoing	1999		100
Hungary	Point counts of passerines	finished	1988	1998	
Ireland	Countryside Bird Survey (CBS)	ongoing	1998		55
Italy	MITO2000 (Monitoraggio ITaliano Ornitologico)	ongoing	2000		75
Latvia	Monitoring of birds and habitats in agricultural lands	finished	1995	2006	
Latvia	Breeding Bird Counts	finished	1983	1994	
Latvia	Latvian Breeding Bird Monitoring scheme	ongoing	2005		60
Lithuania	Monitoring of breeding birds	suspended	1991		20
Luxembourg	Common bird monitoring programme	finished	2002	2003	
Macedonia	Common bird Monitoring Scheme - Macedonia	pilot	2007		
Netherlands	BMP - Common breeding species project	ongoing	1984		113
Norway	Norwegian breeding bird census	ongoing	1995		58
Norway	New Norwegian breeding bird census	ongoing	2005		

Country	Scheme Name	status	start	end	N of species
Poland	Monitoring Pospolitych Ptakow Legowych (MPPL)	ongoing	2000		178
Portugal	Censo de Aves Comuns (CAC)	ongoing	2004		60
Romania	Common Bird Monitoring (CBM) in Romania	pilot	2006		
Russia	*Bird population monitoring*	*?*	1973	?	
Slovakia	Monitoring of breeding bird populations in Slovakia	ongoing	1994		
Slovenia	Slovenian monitoring of common birds of agricultural landscape	pilot	2007		
Spain	Common Breeding Bird Monitoring Scheme (SACRE)	ongoing	1996		100
Spain	Catalan Common Bird Survey (SOCC)	ongoing	2002		100
Sweden	Swedish Breeding Bird Survey	ongoing	1975		120
Sweden	Swedish Breeding Bird Census	finished	1969	?	
Sweden	Swedish Breeding Bird Survey	ongoing	1996		80
Switzerland	Monitoring of abundant breeding birds	ongoing	1999		75
Turkey	Common Bird Monitoring (CBM) in Turkey	pilot	2007		
UK	Breeding Bird Survey	ongoing	1994		70
UK	Common Birds Census	finished	1962	2000	
UK	Waterways Bird Survey	ongoing	1974		24
UK	Waterways Breeding Bird Survey	ongoing	1998		70
Ukraine	Counts of birds in Western Ukraine	ongoing	1980		50

Since the previous review in 2003, 14 new CBM schemes have arisen. Seven of these have started to collect data, the rest began in 2007 and so their first data sampling season is under way. Other schemes in Latvia, Finland and France have ceased to operate. However, in each of these countries there is another monitoring programme in their place.

Scheme coordinators were asked for information about the number of species reliably monitored. On average a scheme monitors 82 species; the lowest is 20 species in Lithuania and highest are the French scheme with 150 species and the Polish scheme with 178 species (see Table 1). However the number of monitored species may be affected by the scheme method as well as by the diversity of bird species of different countries or regions. Furthermore, individual countries may have interpreted 'reliable monitoring' in different ways. Accordingly, it is complicated to compare the schemes in this respect, but this information still gives us an overview of the amount of potential data for the PECBMS. Habitat features are recorded as a part of 24 surveys; only four schemes do not record the type of habitat. Regarding the frequency of survey within the year, 11 schemes collect data once a year, the same number of schemes twice a year, 1 scheme three times a year, and 5 schemes were given "other" as the frequency of survey. However, the number

of visits obviously depends on the method used and size of survey plot; territory mapping needs more visits than for example point counts.

The point count method is still the predominant field method used in Europe (see Table 2). Line transects are also used frequently. Only three schemes use territory mapping and the three remaining schemes use combination of methods. This is almost the same representation of field methods as in last review (Vorisek & Marchant, 2003), but the sampling methods has changed remarkably and in a positive fashion. Free choice of sampling plots is still a very common sampling method, especially in the older schemes, but the same number of schemes now uses stratified random or semi-random plot selection. The overview in Table 2 shows that fewer schemes allow free choice of plot selection and more desirable sampling methods have become more widespread since 2003.

Table 2. Field methods and selection of sample plots in ongoing monitoring schemes.

	Number of schemes using				
Method of plot selection	**line transect**	**point counts**	**territory mapping**	**combination of methods**	**Total**
free choice	0	8	2	0	10
systematic	0	0	1	1	2
random	0	1	0	0	1
stratified random/semi-random	6	4	0	0	10
combination of methods	3	0	0	2	5
Total	9	13	3	3	28

One of the new questions since the previous questionnaire was about the use of “distance sampling“. Of 28 schemes, 17 use this method. Each scheme usually discriminates between two or three distance bands, which are less than 25 m or 50 m wide, less than 100 m wide and more than 100 m wide. Widespread use of distance sampling in scheme design is promising from the perspective of spatial modelling in the future, in allowing bird detectability to be addressed, and in allowing estimates of density to be made in a robust fashion.

Regarding the analytical methods used to produce the trends and indices twenty schemes are using TRIM, which is eight more than in 2003, when chaining, which is not generally recommended for this purpose, was the most common method used.

All but one of the ongoing monitoring schemes store their data in database. The most common type of database is still MS Access, as in previous review. The “others“ category includes mainly data stored in ASCII files, or GIS-linked databases. Even though practically all data are computerized, the lack of standardised database structure persists. Data standardisation remains the subject of further effort of the PECBMS.

The question on the production of Farmland Bird Indicator (FBI) was another new one since 2003. Quite surprisingly a high number of schemes (15) reported producing national version of FBI. Ten of them independently on PECBMS and using methods of species classification slightly different from the European version, the remaining five schemes directly from PECBMS and roughly equivalent to the European version. However, FBI was agreed and adopted for use by the government in only ten countries.

Conclusions

Considerable progress has been achieved in establishing new CBM schemes across Europe, as well as in re-organising the “old“ schemes. Since the last review in 2003, the number of schemes analysing the data in TRIM has markedly increased and practically all data are now stored in some kind of database. This is very encouraging and gratifying given the broad aims of the EBCC and the PECBMS. The problems that exist, however, remain very similar to those in 2003 – there is a strong need for training coordinators and for funding to support bird monitoring at a national level. Also gaps remain in geographical coverage that need to be filled, mainly in eastern and southern Europe (Belarus, Russia, Turkey). In several countries, new schemes have arisen concurrently with the older ones too. A considerable attention will be needed in development of methods of combination data from more schemes within a country.

This review must be seen as a snapshot providing an overview of the situation in the winter of 2007. However, we fully intend keeping the section “European bird monitoring schemes“ on the EBCC website (www.ebcc.info/pecbm.html) as a living document, and will update information as it becomes available. We would therefore very much welcome any updated information to be sent to the authors. Many thanks for your cooperation and assistance.

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Urban Ornithological Atlases in Italy

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Introduction

When we take into account the 41 Atlases titles already published or in course of production, and their relevance to 34 urban areas (26 provincial capitals), Italy certainly leads the way in this line of research (see Fig. 1). Over the years the Working Group "Urban Avifauna" has gone from strength to strength and has now set itself the task, among others, of publishing the technical standards it uses, with the aim of making them as consistent as possible, a very important factor in a country like Italy, where urban areas have often followed very different historical paths which, in turn, have led to very different urban and architectural developments (Dinetti *et al.,* 1995; Dinetti *et al.,* 1996; Dinetti & Fraissinet, 1998; Dinetti & Fraissinet, 2001).

At every Italian Ornithological Congress the Working Group "Urban Avifauna" organises a discussion on a theme of urban ornithology and where the current situation is presented, along with the latest publications. On this occasion we want to publish the material with a general evaluation of the larger issues that can be derived from the data.

Methodology

The methodology of the urban Atlases is varied and is influenced by the local urban, geographical, natural and economic situation. Most of the studies, however, follow the guidelines of the Working Group "Urban Avifauna" (see Table 1) and so allow work to be compared in different situations.

Fig. 1: Map with Italian cities where an urban Atlas was organized.

The guidelines, basically, refer to the territorial boundaries within which the teams work so as to be sure of monitoring only an urban environment and not a different one outside. It is advisable to include the whole area when it is more than 50% urbanised or, alternatively, to include the urbanised area along with a surrounding agricultural belt up to a clear geographical, urban or administrative boundary, such as, for example, the Ring-road (G.R.A. - Grande Raccordo Anulare) in Rome. On the other hand, it is not advisable to limit oneself to just the built-up area because it can be appropriate to consider relationships with an agricultural area immediately alongside the city, where changes can be very rapid. For these reasons, modern urban bird studies refer to a concept of the "gradient" that ranges from the city centre to surrounding non-urban areas (Marzluff *et al.*, 2001).

Another important factor is the choice of map grid: it is advisable to use regular squares, if possible based on the UTM system, of 1 kilometre sides for large cities and 500 metre sides for cities of less than 200,000 inhabitants or for areas smaller than 50 square kilometres.

For bird breeding surveys it is suggested that the survey categories adopted by the EBCC are used, so as to standardise the Atlases results.

The Working Group "Urban Avifauna" has also devised a reference list of urban environments:

Built-up

1. historic centre
2. postwar development
3. ruins and archeological zone
4. industrial, commercial and railway station zone

Wooded areas

1. old parks (including cemeteries, botanical gardens, historic villas)
2. recently planted parks
3. wooded gardens
4. boundary woodland
5. tree cultivations (olive-groves, orchards, vineyards, poplars, etc.)

Non-wooded areas (other green areas)

1. cultivated and arable areas
2. meadows, airports
3. uncultivated areas (including bushy escarpments)
4. mediterranean scrub

Wetlands

1. streams and rivers with constructed banks
2. streams and rivers with natural banks
3. lakes and pools with constructed banks
4. lakes and pools with natural banks

Sea coasts

1. built-up coastlines (ports, quays, embankments)
2. natural coastlines (cliffs, beaches)

Rubbish tips

This list differs in places from some lists published in Europe, for example that suggested by Heywood (1996).

Results

Table 1 shows all the ornithological Atlases publications referring to Italian urban areas, with the date when the research was carried out, the area studied, the unit of research and the size, number of inhabitants, number of researchers, number of species, average number of species per research unit, the proportion of non-passerines as a percentage of the total species, the relationship between non-passerines and passerines and the reference bibliography.

The data refer only to breeding species. However Atlases groups in Bergamo, Cremona, San Donà di Piave (Venice) and Naples have also studied over-wintering, while those in Turin and Genova have looked at bird populations during the entire year including those species only present during migration.

The urban areas in bold type are where the Atlases surveys have followed the guidelines of the Working Group “Urban Avifauna”. In connection with that, the Atlases in Cossato (Biella), Asti and Trento covered a very large area, where the urban coverage is less than 50 % but with very valuable wildlife (for the commune of Trento) at some distance from the urban centre, with bird species that do not mix much with those of the completely urban area. The Trento report lists 113 species, a much higher number than almost any other city. In Turin, on the other hand, the area was not divided into squares but into territorial sections (biotopes). This solution was also adopted by Atlas in Warsaw (Luniak et al., 2001; Nowicki, 2001). In Cremona 1 only the built-up area, with a few extra parts, was taken into consideration.

Some cities are designated with a numeral (1, 2 and 3) signifying that surveys have been repeated after several years, with the same methodology, and thus allowing interesting studies of trends in urban species. At present Atlases for Parma, Lucca, Martina Franca (Taranto) and Caltanissetta are in hand with new editions for Milan, Florence and Livorno.

The time taken for a particular survey varies from place to place. It depends on the area of land being studied and the number of researchers. The average number of species per survey point ranges from 10.8 in Asti to 38.4 in Rome. The number of breeding species, for cities in bold type in Table 1, ranges from 42 for the first survey in Milan to 82 for the second survey in Florence. The percentage of non-passerines of the total number of breeding species also varies, from a minimum of 18.6 % at Lido di Ostia (Rome) to 43.2 % at Varese, a decidedly low value when compared with a figure of 54.6 % for the whole of Italy (Brichetti & Massa, 1999). A comparison of non-passerines and passerines in urban centres shows a range from 0.22 at Lido di Ostia (Rome) to 0.71 at San Donà di Piave (Venice). It is 1.2 for the whole of Italy (Brichetti & Massa, 1999).

Table 2 is the list of the most common 10 species, as percentages of the survey units, for those teams that have adopted the cartographic net method, and the Atlas classification of breeding birds in Italy (Meschini & Frugis, 1993). It can be seen that some species recur more than others, such as Blackbird *Turdus merula*, Italian Sparrow *Passer italiæ* (substitute Spanish Sparrow *Passer hispaniolensis* in Cagliari and in Caltanissetta), Blackcap *Sylvia atricapilla*, Great Tit *Parus major*, Starling *Sturnus vulgaris* (substitute Spotless Starling *Sturnus unicolor* in Cagliari and Caltanissetta), Greenfinch *Carduelis chloris*, Swallow *Hirundo rustica*, Serin *Serinus serinus*, Feral Pigeon *Columba livia* var. *domestica*, Goldfinch *Carduelis carduelis*, Collared Dove *Streptopelia decaocto*, House Martin *Delichon urbica*, Magpie *Pica pica*. Species that are to be expected in urban environments.

There are some interesting observations though, such as the absence of Blackbirds in the first 10 species in Grosseto (the species only has a 4 % frequency rate, Giovacchini, 2001), the presence in the first ten of Sparrowhawk *Accipiter nisus*, Great Spotted Woodpecker *Picoides major* and Cuckoo *Cuculus canorus* at Biella, a result of having a distinct woodland area within the commune, Little Ringed Plover *Charadrius dubius* in Genova, a city spread over several rivers, and Kestrel *Falco tinnunculus* in Naples and Cagliari.

city	year	area (km^2)	units	unit dimension (sq km)	inhabitants x 10^6	n° research.	n° BS	average n° BS/unit	NP/Tot%	NP/P	bibliography
Biella	**1998**	**30.7**	**123**	**0.25**	**0.05**	**1**	**59**	**14.97**	**28.8**	**0.4**	**Bordignon, 1999**
Cossato (Biella)	1989 - '95	27.74	139	0.25	0.01	15	73	12	38.3	0.62	Bordignon, 1997
Asti	2005 - 2007	51.82	204	1	0.07	13	120	10.8	57	1.3	Caprio, *in prep.*
Torino	1989 - '99	130	61*		1	44	90		40	0.66	Maffei *et al.*, 2001
Varese	**1993 - '96**	**43.69**	**136**	**0.36**	**0.08**	**5**	**74**		**43.2**	**0.41**	**Viganò, 1996; Viganò, com. pers.**
Milano 1	**1986 - '88**	**105**	**58**	**1.35**	**1.49**		**42**	**14.7**	**30.9**	**0.44**	**Nova, 2002**
Milano 2	**1994**			**2**	**1.49**	**12**	**59**		**37.2**	**0.59**	**Nova, 2002**
Milano 3	**2004 -**	**181.75**	**208**	**1**	**1.49**						**Bonazzi *et al.*, 2005**
Brescia	**1994 - '98**	**15.5**	**65**	**0.25**	**0.19**	**7**	**52**	**12.1**	**28.8**	**0.4**	**Ballerio & Brichetti, 2003**
Bergamo	**2001 - '04**	**39**	**188**	**0.25**	**0.11**	**35**	**76**	**17.9**	**35.5**	**0.55**	**Cairo & Facoetti, 2006**
Pavia	**1997 - '98**	**33.5**	**157**	**0.25**	**0.08**	**31**	**61**		**34**	**0.56**	**Bernini *et al.*, 1998**
Cremona 1	1990 - '93	10.28	61	0.25	0.07	16	48		29.1	0.33	Groppali, 1994
Cremona 2	2001 - '04	13.43	75	0.25	0.07	10	55		36.4	0.57	Groppali, 2004
Crema (Cremona)	**2000 - '01**	**22.75**	**91**	**0.25**	**0.03**		**49**		**40.8**	**0.68**	**Mastrorilli, 2002**
Trento	1991 - '94	158	187	1	0.1	17	113	19.7	34.5	0.52	LIPU, 1998
San Donà di Piave (Venezia)	**1998 - '99**	**12.1**	**55**	**0.25**	**0.03**	**10**	**60**	**18.9**	**42**	**0.71**	**Nardo, 2003**
Portogruaro (Venezia)	1997 - '99	9.3		0.25	0.02	13	58				Nardo, com. pers.
San Donà e Musile di Piave (Venezia)	1997 - '98	16.3	30	0.54	0.04	15	54	21	38.9	0.39	Marcolin & Zanetti, 1999
Marcon (Venezia)	1988 - '90	25.39	42	1	0.008	1	53	15.6	35.8	0.56	Stival, 1990
Padova	**2001 - '04**	**92.8**	**77**	**1**	**0.23**	**20**	**57**	**20.3**	**33.3**	**0.5**	**Giacomini & Bottazzo, *com. pers.***
Genova	**1996 - '00**	**57**	**89**	**1**	**0.77**	**51**	**51**				**Borgo *et al.*, 2005**
La Spezia	**1994 - '95**	**20**	**99**	**0.25**	**0.1**	**7**	**67**	**16.2**	**38**	**0.63**	**Dinetti, 1996**
Parma	**2006 - '07**		**159**	**0.25**	**0.16**						**Dinetti e Gustin, *in prep.***
Reggio Emilia	**1999 - '00**	**21.5**	**119**	**0.25**	**0.14**	**1**	**45**	**9.1**	**31.1**	**0.45**	**Gustin, 2002**
Forlì	**2004 - '06**	**44.25**	**177**	**0.25**	**0.11**	**13**	**62**	**12.97**	**37**	**0.58**	**Ceccarelli *et al.*, 2006**
Firenze 1	**1986 - '88**	**102.4**	**119**	**1.09**	**0.4**	**20**	**74**	**24.7**	**35.1**	**0.54**	**Dinetti & Ascani, 1990**
Firenze 2	**1997 - '98**	**102.4**	**119**	**1.09**	**0.37**	**22**	**82**	**27.5**	**41.4**	**0.71**	**Dinetti & Romano, 2002**

city	year	area (km^2)	units	unit dimension (sq km)	inhabitants x 10^6	n° research.	n° BS	average n° BS/unit	NP/Tot%	NP/P	bibliography
Firenze 3	**2007 - '08**	**102.4**	**124**	**1**	**0.42**						**Dinetti & Romano, *in prep.***
Lucca	**2007 -**			**0.25**	**0.08**						**Dinetti & Chines, *in prep.***
Pisa	**1997 - '98**	**27.39**	**116**	**0.25**	**0.1**	**11**	**64**	**18.7**	**39**	**0.64**	**Dinetti, 1998**
Livorno 1	**1992 -' 93**	**38.1**	**177**	**0.25**	**0.16**	**31**	**58**	**14.0**	**34.4**	**0.52**	**Dinetti, 1994**
Livorno 2	**2006 -**	**38.1**	**177**	**0.25**	**0.16**	**4**	**52**		**34.6**	**0.53**	**Dinetti, *in prep.***
Grosseto	**1998 - '99**	**14.7**	**75**	**0.25**	**0.07**	**12**	**52**	**17.7**	**32.6**	**0.48**	**Giovacchini, 2001**
Viterbo	**1991 - '93**	**10**	**41**	**0.25**	**0.05**	**12**	**44**		**27.2**	**0.37**	**Cignini *et al.*, 1994**
Roma	**1989 - '93**	**385**	**360**	**1**	**2.81**	**67**	**74**	**38.4**	**26**	**0.59**	**Cignini & Zapparoli, 1996**
Lido di Ostia (Roma)	**2005**	**7**	**41**	**0.25**	**0.1**	**5**	**43**		**18.6**	**0.22**	**Demartini *et al.*, 2006**
Napoli 1	**1990 - '94**	**117.2**	**144**	**1**	**1.2**	**43**	**62**	**12.3**	**27.4**	**0.37**	**Fraissinet, 1995**
Napoli 2	**2001 - '05**	**117.2**	**142**	**1**	**1.2**	**33**	**64**	**14.6**	**39**	**0.64**	**Fraissinet, 2006**
Martina Franca (Taranto)	**2006 - '07**		**127**	**0.25**	**0.04**		**49**				**Chiatante, *in prep.***
Cagliari	**1991**		**50**	**1**	**0.22**	**15**	**47**		**34**	**0.51**	**ICNUSA, 1992**
Caltanissetta	**2000 - '06**	**15.25**	**61**	**0.25**	**0.06**		**52**		**34.6**	**0.52**	**Falci, *in prep.***

Table 1: Data on urban ornithological Atlases published or in course of realization in Italy. In bold those following standards of the Working Group "Urban Avifauna". P= passerines, NP= non-passerines, *= units non geometrical, BS=breeding species, inhab=inhabitants,

Biella Bordignon, 1999	**Brescia** Ballerio & Brichetti,2003	**Bergamo** Cairo & Facoetti, 2006	**Milano 1** Nova, 2002
Corvus cornix – 88.6%	Passer italiae – 98.4%	Turdus merula – 95.7%	Columba livia f. domestica – 100%
Turdus merula – 83.7%	Turdus merula – 96.9%	Sylvia atricapila – 90.9%	Turdus merula - 100%
Fringilla coelebs – 68.3	Sturnus vulgaris – 84.6%	Passer italiae – 90.4%	Passer italiae - 100%
Sylvia atricapilla – 59.3%	Serinus serinus – 83.0%	Serinus serinus – 88.2%	Fringilla coelebs – 96.5%
Passer italiae – 57.7%	Fringilla coelebs – 80.0%	Carduelis chloris – 84.5%	Sturnus vulgaris – 91.3%
Accipiter nisus – 56.9%	Carduelis chloris – 70.7%	Sturnus vulgaris – 75.0%	Carduelis chloris – 89.6%
Parus major – 55.3%	Sylvia atricapilla – 69.2%	Fringilla coelebs – 73.9%	Carduelis carduelis – 82.7%
Carduelis carduelis – 55.3%	Hirundo rustica – 67.6%	Corvus cornix – 71.2%	Delichon urbica – 81.0%
Picoides major – 51.2%	Carduellis carduelis – 66.1%	Parus major – 71.2%	Corvus cornix – 77.5%
Cuculus canorus – 46.3%	Columba livia f. do – 64.6%	Hirundo rustica – 68.6%	Parus major – 75.8%

Milano 2 Nova, 2002	**Pavia** Bernini et al., 1998	**Cremona 1** Groppali, 1994	**San Donà di Piave (Venice)** Nardo, 2003
Turdus merula – 95.8%	Turdus merula – 86.6%	Turdus merula – 100%	Streptopelia decaocto – 94.5%
Passer iItaliae – 95.8%	Passer italiae – 82.2%	Passer italiae – 100%	Carduelis carduelis – 92.7%
Columba livia f. do – 89.7%	Corvus cornix – 77.7%	Delichon urbica – 98.3%	Turdus merula – 90.1%
Sturnus vulgaris – 89.6%	Sturnus vulgaris – 72.6%	Apus apus – 96.7%	Sturnus vulgaris – 89.1%
Fringilla coelebs – 87.5%	Carduelis chloris – 62.4%	Streptopelia decaocto – 95.0%	Passer italiae – 87.3%
Carduelis chloris – 87.5%	Carduelis carduelis – 61.1%	Sturnus vulgaris – 95.0%	Carduelis chloris – 87.3%
Sylvia atricapilla – 85.4%	Streptopelia dec. – 58.6%	Carduelis carduelis – 93.4%	Pica pica – 83.6%
Corvus cornix – 81.3%	Parus major – 58.6%	Columba livia f. do – 91.8%	Serinus serinus – 81.8%
Hirundo rustica – 72.9%	Passer montanus – 55.4%	Hirundo rustica – 88.5%	Hirundo rustica – 80.0%
Carduelis carduelis – 68.8%	Luscinia megar. – 52.2%	Sylvia atricapilla – 85.2%	Passer montanus – 80.0%

Table 2a: List of the most common 10 species in some urban areas and in Italian territory (Biella to San Donà di Piave).

Genova
Borgo et al., 2005
Turdus merula – 38.2%
Apus apus – 33.7%
Passer italiae – 31.4%
Charadrius dubius – 29.6%
Sylvia atricapilla – 24.7%
Streptopelia deca. – 23.5%
Delichon urbica – 22.4%
Hirundo rustica – 20.2%
Parus major – 20.2%
Fringilla coelebs – 20.2%

La Spezia
Dinetti, 1996
Passer italiae – 100%
Turdus merula – 97.9%
Apus apus – 86.8%
Sylvia atricapilla – 81.8%
Streptopelia deca. – 76.7%
Parus major – 76.7%
Carduelis chloris – 76.7%
Fringilla coelebs – 74.7%
Carduelis carduelis – 71.7%
Delichon urbica – 70.7%

Reggio Emilia
Gustin, 2002
Passer italiae – 85.7%
Turdus merula – 83.2%
Streptopelia decaocto – 80.6%
Sturnus vulgaris – 68.9%
Sylvia atricapilla – 68.1%
Parus major – 62.2%
Carduelis carduelis – 61.3%
Carduelis chloris – 59.7%
Pica pica – 56.2%
Apus apus – 44.5%

Forlì
Ceccarelli et al., 2006
Turdus merula – 97.7 %
Serinus serinus – 97.7%
Carduelis chloris – 97.2%
Passer italiane – 96.6%
Sylvia atricapilla – 94.9%
Sturnus vulgaris – 90.7%
Streptopelia decaocto – 68.4%
Carduelis carduelis – 63,3%
Parus major – 63.3%
Apus apus – 54.8%

Firenze 1
Dinetti & Ascani, 1990
Turdus merula – 99.2%
Passer iItaliae – 98.3%
Serinus serinus – 97.5%
Sylvia atricapilla – 94.1%
Carduelis carduelis – 93.3%
Hirundo rustica – 88.2%
Apus apus – 86.5%
Parus major – 86.5%
Carduelis chloris – 86.5%
Sylvia melano. – 83.2%

Firenze 2
Dinetti & Romano, 2002
Passer iItaliae – 100%
Turdus merula – 100%
Serinus serinus – 99.1%
Carduelis chloris – 98.3%
Carduelis crduelis – 96.6%
Sturnus vulgaris – 95.7%
Hirundo rustica – 87.3%
Sylvia atricapilla – 86.5%
Apus apus – 79.8%
Sylvia melano. – 78.9%

Pisa
Dinetti, 2003
Passer italiae – 98.3%
Serinus serinus – 97.4%
Sylvia atricapilla – 95.7%
Carduelis carduelis – 94.8%
Turdus merula – 94.0%
Carduelis chloris – 90.5%
Hirundo rustica – 86.2%
Motacilla alba – 82.7%
Cisticola juncidis – 81.0%
Apus apus – 77.6%

Livorno 1
Dinetti, 1994
Passer italiae – 98.9%
Streptopelia decaocto – 89.8%
Carduelis carduelis – 87.6%
Serinus serinus – 80.2%
Sylvia atricapilla – 75.7%
Apus apus – 68.4%
Turdus merula – 67.2%
Carduelis chloris – 63.3%
Hirundo rustica – 62.7%
Motacilla alba – 62.7%

Table 2b: List of the most common 10 species in some urban areas and in Italian territory. (Genova to Livorno).

Grosseto *Giovacchini, 2001*
Passer italiae – 97.3%
Carduelis carduelis – 94.6%
Pica pica – 93.3%
Serinus serinus – 82.6%
Carduelis chloris – 80.0%
Columba livia f. do –77.3%
Corvus monedula – 70.6%
Streptopelia deca– 69.3%
Hirundo rustica – 68.0%
Delichon urbica – 66.6%

Viterbo *Cignini et al., 1994*
Passer italiae – 85.4%
Apus apus – 83.0%
Serinus serinus – 78.0%
Turdus merula – 75.6%
Delichon urbica – 61.0%
Carduelis chloris – 61.0%
Sylvia atricapilla – 53.6%
Carduelis carduelis – 53.6%
Columba livia f. do – 51.2%
Hirundo rustica – 48.8%

Roma *Cignini & Zapparoli, 1996*
Turdus merula – 100.
Passer italiae – 100%
Serinus serinus – 100%
Carduelis carduelis – 99.7%
Carduelis chloris – 98.6
Apus apus – 98.1%
Sylvia atricapilla – 95.8%
Corvus cornix – 94.7%
Delichon urbica – 90.6%
Parus major – 90.6%

Lido di Ostia (Rome) *Demartini et al., 2006*
Passer iItaliae – 100%
Corvus cornix – 97.6%
Sturnus vulgaris – 97.6%
Carduelis chloris – 92.7%
Apus apus – 90.2%
Turdus merula – 85.4%
Carduelis carduelis – 85.4%
Serinus serinus – 82.9%
Columba livia f. do – 73.1%
Streptopelia decaocto – 68.3%
Motacilla alba – 68.3%

Napoli 1 *Fraissinet, 1995*
Passer italiae – 96.5%
Turdus merula – 86.8%
Serinus serinus – 85.4%
Columba livia f. domestica – 79.8%
Sylvia atricapilla – 72.2%
Carduelis chloris – 65.2%
Parus major – 59.0%
Passer montanus – 54.8%
Fringilla coelebs – 49.3%
Carduelis carduelis – 49.3%

Napoli 2 *Fraissinet, 2006*
Passer iItaliae – 99.2%
Columba livia f. domestica – 94.3%
Serinus serinus – 94.3%
Turdus merula – 93.6%
Sylvia atricapilla – 83.0%
Carduelis chloris – 80.9%
Passer montanus – 54.9%
Parus major – 52.1%
Carduelis carduelis – 48.5%
Falco tinnunculus – 45.7%

Cagliari *Mocci Demartis & ICNUSA, 1994*
Passer hispaniolensis – 33.3%
Serinus serinus – 33.3%
Apus apus – 31.4%
Delichon urbica – 29.6%
Streptopelia decaocto – 27.7%
Sturnus unicolor – 27.7%
Falco tinnunculus – 25.9%
Passer montanus – 25.9%
Columba livia f. domestica – 24.7%
Hirundo rustica – 24.7%

Caltanissetta *Falci, in prep.*
Passer hispaniolensis – 100%
Columba livia f. domestica – 93.4%
Delichon urbica – 90.1%
Turdus merula – 81.9%
Apus apus – 67.2%
Sturnus unicolor – 63.9%
Streptopelia decaocto – 57.3%
Parus major – 44.2%
Corvus monedula – 40.9%
Pica pica – 34.3%

Table 2b: List of the most common 10 species in some urban areas and in Italian territory. (Grosseto to Caltanissetta).

Italia Meschini & Frugis, 1993
Carduellis carduelis – 98.0%
Apus apus – 97.2%
Parus major – 95.9%
Sylvia atricapilla – 94.6%
Delichon urbica – 94.0%
Fringilla coelebs – 93.8%
Turdus merula – 93.7%
Carduelis chloris – 91.7%
Serinus serinus – 91.6%
Hirundo rustica – 89.5%

Table 3: List of the most common 10 species in some urban areas for the Italian territory.

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A new census of heron and cormorant colonies in Bulgaria (2006).

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Introduction

During the last 15-20 years breeding numbers of herons and cormorants have not been counted in a standardized way but were rather incomplete and rough breeding population estimations. The last overall census of Grey Heron (*Ardea cinerea*) took place in 1984 (Michev and Petrov, 1984). It did not include quantitative data on other colonial breeding heron species. Hitherto, a major part of the data on the group was obtained by random inventories. Estimations of national heron and cormorant populations have been published in the Red Data Book of Bulgaria (1985), Simeonov et al. (1990), Kostadinova (ed) (1997), Hagemeijer and Blair (1997), Nankinov et al. (2004), Birdlife International (2004).

In 2006 we tried to make an as complete as possible national survey of heron and cormorant colonies. Shags (*Phalacrocorax aristotelis*) breeding on the cliffs of the Northern Black sea coast were not included into the inventory. We hope that such counts will become part of a long-time monitoring scheme, organized on a 3 or 5 year base.

Methods

We counted heron and cormorant colonies known to us in Bulgaria and on the Bulgarian Danube border, including an important part of colonies described in the ornithological bibliography of the last 30 years. For one known colony (Simeonovgrad), we used data from 2004. We did not search for new colonies.
We visited the breeding sites between April and July. Two expeditions were organized along the Danube River. The first (4-7 April) aimed at counting the breeding Great Cormorants (*Phalacrocorax carbo*) and Grey Herons. During a

second expedition (16-24 June) all other species breeding in the colonies were counted. We included data from three colonies on islands at the Romanian side of the Danube. These birds frequently cross the border during foraging visits. The colonies along the Black Sea and inland were counted during one or two visits in the period May-June.
For most of the colonies we give the name, location, coordinates (although not always) and we describe the species composition, numbers, nesting substrata, and threats. Counts of disperse breeding pairs or very small colonies of Purple Heron (*Ardea purpurea*) in reed beds were not included in this study. As only breeding pairs within mixed colonies were taken into account, population numbers presented here are an underestimation.

Results and discussion

A total of 27 colonies were included in the present census. Results are presented in Table 1. Although a major part of the known colonies have been counted, our census is most probably an underestimation of the Bulgarian heron and cormorant breeding populations, with the most important bias occurring for the Grey Heron. The year 2006 was optimal for herons and cormorants as there were very high water levels of the rivers, especially in the Danube, with many flooding, thus providing enough shallow water and fish for feeding. Most of the studied colonies (23) were situated on trees – most often willows, poplars, oaks and others. Much smaller numbers of colonies (4) were situated partially or fully in large reed beds but among these were some of the biggest colonies: Srebarna, Poda and Vaya.

Colonies: species numbers and composition and local trends

Kutovo (island Golya) 44°00'51.93" N 22°59'31.14" E
The colony is situated in the central part of Danube island Golya close to the village of Kutovo, Vidin district. The birds nest on Black Poplars (*Populus nigra)* and hybrid poplars. The feeding places lie in Romania. The colony is not protected. It was discovered in 1977 (Michev and Petrov, 1984). Two species breeding in the past- Little Egret (*Egrett garzetta*) and Night Heron (*Nycticorax nycticorax) (*Michev and Petrov, 1984) are extinct and the numbers of the others have decreased.

Malak Bliznak 43°51'51.76" N 22°50'23.87" E
The colony is situated on the Danube island Malak Bliznak close to the village of Simeonovo, Vidin district. Birds nest on Willows and Black Poplars, part of them dry. They forage on the Romanian side of Danube. The colony is not protected. We have no former data on population numbers. In

comparison with 2005 numbers of *A. cinerea* and *Ph. carbo* showed considerable increase. Numbers of the other species were stable.

Dolni Tsibar 43°49'34.07" N 23°31'11.47" E
The colony is situated in the upper part of the Danube Ibisha Island, as seen from the Bulgarian (southern) shore of the island. The closest settlement is the village of Dolni Tsibar, Montana district. Nesting substrata consist mostly of hybrid poplars and partially of willows. Spoonbill, (*Platalea leucorodia*), Pygmy cormorant (*Phalacrocorax pygmaeus*) and Squacco Heron (*Ardeola ralloides*) nest only on the willows. The feeding places are mostly in Romania but part of the birds forage in Bulgaria in a shallow flooded area (>100 ha) between the village of Gorni Tsibar, the Tsibritsa river and the Danube dike. Although the colony is a nature reserve, disturbance by fishermen was reported by local people. In the vicinity there were tree felling activities. The colony is known since 1972 (Michev and Petrov, 1984) and consisted first only of Grey Herons. Compared with the numbers counted by Antonio (1997) in 2006 we registered considerable increase in *Ph. carbo* (from 180-200 pairs to 450-500 pairs) and *Ph. pygmaeus* (from 12 to 55-60 pairs). The other species showed strong or moderate decrease in the period 1997-2006: *N. nycticorax* from 250 to 120-140 pairs, *E. garzetta* –from 300 to 110-130 pairs, *P. leucorodia*- from 10 to 6 pairs, *A. ralloides* – from 50 to 3 pairs.

Kalona's 43°42'12.35" N 24°46'57.91" E
The colony is situated in the lower part of the Romanian Danube island of Kalnovats. The closest Bulgarian settlement is Somovit, Pleven district. Nests are built on hybrid poplars. The birds feed in Romania – mostly at the Olt river mouth. In the vicinity there were tree felling activities. The colony was formed in 2003 by Great Cormorants -200-300 pairs (Shurulinkov *et al.,* 2005). During the following years the other species started to breed on the site.

Persina 43°41'51.81" N 25°09'08.63" E
The colony is situated on two small Danube islands of the Persina (Belene) island complex. The islands lie on the Bulgarian-Romanian border, in the NW part of the island complex, close to Bulgarian island Golyama Burzina. Great Cormorants nest mostly on hybrid poplars on the eastern island. The other birds nest on willows, on the western island. Feeding areas lie both in Romania and Bulgaria (marshes on the Island Persina and some flooded areas west of Belene, at "Kamenitsata" and HTK). As a threat we registered the disturbance by tourists on boats and small ships. In the past the colony was situated close to the marshes on Persina islands (Red Data Book of PR Bulgaria, 1985). During the last years a moderate increase of the breeding numbers of birds in the colony is recorded**,** although some species have

decreased (*A. cinerea, A. ralloides*). Data on trends of the breeding colonial birds at this site are given by Shurulinkov *et al.* (2005).

Vardim 43°37'33.85" N 25°29'06.12" E
The colony is situated on Vardim Island, in an area called "Runtava bara". Nests are on hybrid poplars**.** Feeding places are in Bulgaria -downstream the Danube to the south-east of Vardim Island, around the mouth of Jantra River, in flooded areas between the villages of Vardim and Novgrad, and upstream Jantra River reaching Julyunitsa village. The colony lies within a nature reserve but disturbance by fishermen (poachers) is not uncommon. The colony is known since the middle of 20th-century (Denev, 1966). In the past the colony was in the south-eastern part of the island. During the last 7-8 years a sharp decline in numbers of all breeding species except *A. cinerea* is recorded. Two two species have ceased to nest here – *Plegadis falcinellus* (extinct before 1999) and *A. ralloides* (Red data Book of Bulgaria 1985; Shurulinkov *et al.*, 2005). A dramatic decline in the Great Cormorants from over 300 pairs in 1999 to 17 pairs in 2006 was observed. The reasons for this trend are not known but most probably the food supply has decreased because of water management activities in both Bulgaria and Romania.

Mechka (Paserika) 43°42'28.52" N 25°46'05.99" E
The colony is situated on the small Romanian Danube island Paserika in the vicinity of Bulgarian Mechka fishponds (Russe district). Birds nest on willows. They feed in Mechka fishponds and part of them in Romania. Compared to 2001 (own data) the numbers of all breeding bird species in the colony have increased (examples: *E. garzetta* – from 10 pairs to 32-34 pairs, *N. nycticorax* –from 8 pairs to 25-30 pairs) and Pygmy Cormorant has started nesting.

Mishka 44°00'47.52" N 26°17'23.57" E
The colony is situated on the Bulgarian Danube island of Mishka in the vicinity of Ryahovo village, Russe district. Birds nest on willows. Feeding places are mostly the abandoned Kalimok fishponds and the Brushlen marsh. A small part of the birds flies also to Romania. Part of the trees with nests has fallen during the big flood of Danube in 2006. The colony lies in the "Kalimok-Brushlen" protected area. During some dry summer seasons, when the level of the river is too low, local people disturb the birds. Compared to 2001 (own data) *Ph. carbo* has increased in numbers and the *E. garzetta* population is stable. The other species have moderately decreased. In 2005 some Glossy Ibises bred in the colony, possibly 2-4 pairs (own data).

Malak Kosuj 44°04'36.58" N 26°42'47.90" E
The colony lies on the small Bulgarian Danube island of Malak Kosuj, on the northern side of the island. The closest settlement is Pojarevo, Silistra

district. Nests are built on willows. Feeding places are in Romania. The colony is known since 1977 (Michev and Petrov, 1984). In the past also *A. ralloides* bred here. Compared to 2001 the numbers of breeding birds have increased. Great Cormorants *(Ph. carbo*) didn't breed in 2001 but now they have started again after a long period of absence. They last bred here in the 1980-ties (Lalev, 1988).

Srebarna 44°06'55.47" N 27°03'53.67" E and 44°07'55.82" N 27°04'31.28" E Birds breed in two separated colonies. Herons, spoonbills, ibises and Pigmy Cormorants nest in the northern part of Srebarna Lake (Srebarna nature reserve). Great Cormorants nest on the lower part of Danube Island "Komluka", close to the lake. In Srebarna the colony is built on low willows, bushes and in the reed. On the island nest substrata are Black Poplars. Feeding places are mostly in Romania. Part of the birds feeds around the lake Srebarna. Colonies are strictly protected in the biosphere reserve "Srebarna". The extremely high water levels of Danube entered the lake in spring of 2006 and destroyed partly the colony. The birds reoccupied new nesting places afterwards. Srebarna is known as the locality with the most numerous heron-cormorant colonies along the lower Danube since the 19th century (Simeonov *et al.,* 1990). During the last years, numbers of breeding birds in the colony in the lake fluctuated but generally increased compared to 1990ties. Also the Great Cormorants breeding on the island increased substantially.

Gorni Dabnik
The colony is situated in a small abandoned fishpond along the shore of Gorni Dabnik Dam, Pleven district. The birds nest on willows and old poplars, growing on small islands in one of the ponds. They feed in the fishponds, Gorni Dabnik and Telish Dam Lakes and in the neighbouring fields. The colony is not protected and is highly vulnerable as the village Telish is very close. Part of the trees was already cut during the last years. The numbers of breeding pairs in the period 1996 -2004 are published by Shurulinkov *et al.* (2005). During that period strong fluctuations in heron numbers have been observed. In 2006 we counted much higher numbers of Grey Herons, but the those of Night Heron and Little Egret decreased dramatically (about three times compared to 2004).The reasons for decrease of these two species are not clear. Great Cormorants bred on dry trees in Gorni Dabnik Dam until 2000. From 2003 on they started breeding in the heron colony but in reduced numbers (Shurulinkov *et al.,* 2005).

Bivolare
The colony is situated in a small lake called "Coridorite" along the Vit River, to the north of Bivolare, Pleven district. The birds nest on willows on four small islands in the lake. They visit the Vit River and the shores of the lake for feeding. The lake is in procedure to be designated as protected territory.

The main threat is the disturbance by fishermen during the breeding period. The colony was formed in 1998 with 38 breeding pairs of *Ph. carbo* (Shurulinkov *et al.,* 2005). According to the same authors in 2000 Little Egrets and Night Herons joined the colony but after 2001 Great Cormorant ceased breeding here.

Dreneto.
The colony of Grey Herons is situated to the south of Litakovo village, Sofia district on a group of old oak trees, in a field. In 2006 colony was counted by Ina Inkyova. The colony is protected ("Dreneto" protected area) and was reported also by Michev and Petrov (1984) with similar number of occupied Grey Heron's nests. In 2006 one occupied nest of White Stork observed.

Dolni Bogrov
The colony is situated in the southern part of a small lake to the west of Dolni Bogrov village, Sofia district. Nests are built on a small island on willows. The herons feed on the shores of the lake and some neighbouring fish ponds and lakes. The lake is designated as a protected territory. Disturbance by the fishermen is the major threat. The colony is known from the 1980ties of 20th century (V. Delov - unpublished data). For a long time the colony was at the northern shore of the lake. The number of breeding pairs in the period 1997-2004 varied between 20 and 40 pairs (own unpublished data).

Konush
The colony is situated on flooded willows in the southern part of a small reservoir very close to Konush, Plovdiv district. Most of the birds fly for food to the Maritsa River. The colony was designated as protected territory. It was formed in 1995 probably by birds from the destroyed colony at Popovitsa, Plovdiv district (Nikolov *et al.,* 1999). In 1997 about 100-160 pairs of *N. nycticorax* and 100 pairs of *E. garzetta* have been counted (Ivanov, 1997). In 2001 the number of *E. garzetta* decreased to 60-70 pairs, but *N. nycticorax* population remained stable with 150-160 pairs (own data). In 2004 population of *E. garzetta* decreased further to 55 pairs and *N. nycticorax* remained stable with about 130-150 pairs (D. Plachiyski, D. Demerdzhiev - unpublished data). Compared to 2001 in the present census we detected considerable increase (approx. 50 %) in numbers of *N. nyctocorax* but the decrease of *E. garzetta* numbers continued to only 49 pairs. In 1995-1998 also Pygmy Cormorants (4-9 pairs) have bred at Konush colony (Nikolov *et al.,* 1999).

Dolna Topchia
The colony is situated in the southeastern part of "Dolna Topchia" forest, at 1.5 km from the town of Elhovo, very close to Tunja River. The birds nest on old Black Poplars. They fly for feeding along the Tunja River basin and

towards a reservoir situated to the west of Trunkovo. Most of the birds fly upstream the river to search for food. The colony lies in "Dolna Topchia" nature reserve**.** Future plans for clear-cutting of a part of the forest in the reserve threaten the existence of the colony. The colony was discovered in 1975 by Michev and Petrov (1984). At that time there were also *E. garzetta* and *A. ralloides* breeding pairs. A total of 36 pairs of *A. cinerea* were counted by these authors in 1976.

Zlatopole
The colony is situated in an old river branch, within the "Martvitsata" protected area, close to Zlatopole, Haskovo district. Nests are built on flooded willow forest. In summer the colony is easily accessible because of the low water level. The colony is new – it didn't exist before 2004. In 2004 only a pair of Squacco herons nested in an old magpie nest in that locality. A small heronry with 5 pairs of Grey Herons was discovered in 2005. The count in 2005 and 2006 was conducted by Borislav Borisov.

Panicheri
The colony is situated at Panicheri reservoir, to the southwest of Panicheri, Plovdiv district. In March, 2006 the colony was situated on two old oak trees (*Querqus pedunculiflora)* in a pasture. One of the trees was cut by poachers and subsequently most of the birds built their nests and successfully bred on nearby hybrid poplars. The herons feed on Panicheri reservoir, Pyasuchnik reservoir and the surrounding fields. A major threat is the cutting the old oak trees by local people. Despite its location within a protected area, the nesting tree was cut. In recent years, this colony shows a positive population trend. The site is known since 1943, and by 1980 there were 46 occupied nests (Michev and Petrov, 1984). In 2002 population numbers reached 66 pairs, in 2004, 62 pairs and in 2006, 120-140 pairs.

Nikolaevo
The heron colony is situated on five walnut (*Juglans regia*) trees in arable land southeast of Nikolaevo fishponds, Stara Zagora district, a feeding site for the Grey herons. The colony is not protected. Nikolov *et al.* (1999) mentioned that a heronry at Nikolaevo was destroyed in the period 1983-1997. Our results showed the restoration of this colony.

Kurdjali
The colony is situated on the willows on a small island in the Arda River in the city of Kurdjali, Eastern Rhodopes.The birds fly for feeding along the river and to the shores of Studen kladenets reservoir. A possible threat to this colony are future development plans of the city. Disturbance by the local people also occurred. The colony is not protected.

Studen kladenets
The colony lies in the eastern part of Studen kladenets reservoir, Kurdjali district. It is located in an oak forest on the southern shore of the reservoir, below Boynik. One pair of Grey Heron nested on a high rock in the "Sredna Arda" protected area, on the northern shore of the reservoir. The birds feed on Studen kladenets reservoir and along the Arda River**.** The colony is not protected. The presence of breeding Grey Herons on that locality in 1984 was reported by Jankov and Nyagolov (1987). Until 2004 only Grey herons formed the colony and they nested at three sites on the rocks of the northern shore. In 2004 a colony of 22 pairs of Grey Herons and 11 pairs of Great Cormorants started breeding at the present location on the southern shore (Demerdzhiev *et al.,* in press). In 2005 the number of the Grey Herons increased to 43 pairs, but dropped again to 25-30 in 2006.

Krumovo
The colony is situated on hybrid poplars in a fishpond close to Krumovo, in the vicinity of Manastirski hills, Jambol district. The colony is not protected. It is a new colony - it was not registered before 2006, despite the regular visits on the site.

Simeonovgrad
Located on old White Poplars on the northern shore of the Maritsa River between Simeonovgrad and Harmanli, close to Simeonovgrad. Data on the colony and its status in 2004 was supplied by Borislav Borisov. In 2006 the colony still existed. It was discovered in 1984 (B. Borisov - unpublished data).

Lyubimets
The colony is located in old White Poplars on the northern shore of the Maritsa River close to Lyubimets. The herons feed along the river and neighbouring reservoirs. We have no data on the history of the colony.

Vaya
At Vaya there is a heron colony and a separated cormorant colony. The heronry is located in the western part of Bourgas Lake (Vaya) close to the Dolno Ezerovo suburb. The birds nest in reed beds. Possible threats are water pollution and burning of reed. In general all heron populations increased during the period 1981-2002 (Dimitrov M. *et al.,* 2005). Only numbers of *A. ralloides* have decreased from 30-50 pairs in 1981- 2002 to 22 pairs now. The other two species – *P. leucorodia* and *P. falcinellus* have bred in Vaya until 1976 and 1985 respectively. Until 2002 they were absent as a breeding species from the site (Dimitrov M. *et al.*, 2005). Now both species have started to recolonize. Pigmy Cormorants have bred until 1990. Sporadically a pair of Great Egrets was recorded (Dimitrov M. *et al.,* 2005). The Great Cormorant colony is situated in the eastern part of the same lake,

on metal electric pylons. Great Cormorants were discovered breeding in Vaya in 1982 when 40 pairs were counted (Ivanov *et al.*, 1997). According to Dimitrov M. *et al.* (2005) their number increased to 312 pairs in 1999 but then again dropped to 105 pairs in 2002, which number is close to the present.

Poda

The colony lies in the "Poda" protected area, south of Bourgas, at the Black Sea coast. Part of the Great Cormorants breed on electric pylons in the neighbouring "Kumlushka" area. The other birds of the colony breed in the reed. The birds feed at Poda and Uzungeren areas, also on the shores of Mandra Lake. The possible threats are human disturbance and soil and water pollution. Data on the status of the colony in the period 1981 -2002 presented here were published by Dimitrov M. *et al.* (2005). According to these authors Great Cormorants started breeding here in 1998 and since then their number increased. In 2006 compared to 2002 their numbers have increased by 10.5 % and reached 486 pairs. In the period 2002-2006 most of the herons (*N. nycticorax, A. ralloides, A. cinerea, A. purpurea*) showed stable population numbers. We detected considerable decrease in numbers of *E. garzetta, P. facinellus* and *P. leucorodia* compared to these previous censuses.

Alepu

A small colony of Grey and Purple Herons was found in the reed of Alepu lake (to the south of Dyuni resort), at the southern Black Sea coast. The lake is protected territory but nevertheless it is highly threatened by the expansive tourist development in that area.

Extinct colonies after 1990

We have data about six colonies that were occupied after 1990 but no more existed by 2006 (see details below). In the period 1983-1997 other colonies at Vinitsa, Trud (Plovdiv district) and Radnevo (Stara Zagora district) were abandoned (Nikolov *et al.,* 1999).

Iskar reservoir, Sofia district

1996-2001: *A. cinerea:* 15-30 bp, in Scots pine trees and reed at fishponds, +2002 (Various observers)

Orehovitsa, Pleven district

1998-2001: *E. garzetta*: 14 bp, *N. nycticorax* (2000): 8-11 bp, *Ph. carbo*: 6 bp in willows in an old river bed, +2002 (Shurulinkov et al., 2005)

Bolyarino, Plovdiv district

2002: *N. nycticorax* – 25-30 bp, *E. garzetta*- 4 bp, in willows in a reservoir, +2003 or 2004 (D. Plachijski, G. Popgeorgiev - pers. Comm.)

Between Orizovo and Partizanin, Stara Zagora district

1997-1998: *N. nycticorax* – 85-92 bp, *E. garzetta*- 27-30 bp, *A. ralloides*- 2-3 bp, *Ph. pygmaeus*-16 bp (1998), in flooded willows in a reservoir, +1999 (Demerdzhiev D., 2000), Demerdzhiev D. et al. (in preparation)

Between Brezovo and Rakovski, Plovdiv district

Before 1993: *E. garzetta, N. nycticorax* (numbers unknown), in flooded willows in a reservoir, +1993 (K. Velev, S. Stoychev, D. Demerdzhiev and others)

Popovitsa, Plovdiv district

No date or numbers: *E. garzetta, N. nycticorax, A. ralloides, Ph. pygmaeus*, +1994 (Nikolov *et al.,* 1999)

Discussion

Population changes in time

In Table 2, we present the results of our heron and cormorant counts together with previous published national estimations. These figures are difficult to compare due to the different goal, scale, and detail of the surveys. Therefore we can not calculate real sound overall population trends over a longer period but we comment here on the broad changes.

Both Cormorant species seem to have increased. On the other hand, most other species show a general decrease in population numbers, in particular *P. falcinellus* and *A. ralloides*. Together with *E. alba* and *P. leucorodia* they are threatened with extinction in Bulgaria.

Breeding populations of two other heron species, *E. garzetta* and *N. nycticorax*, also seem to have decreased - at least in part of the colonies and compared to the numbers in the 1970ties and the beginning of 1980ties-. In

1984 in the former colony between Vinitsa and Milevo (Plovdiv district) 550-600 pairs of *N. nycticorax* were counted (Darakchiev *et al.,* 1986) which is more than 60 % of the present counted number of the species. However, general conclusions are precarious. In 15 colonies with data for the period 1990-2006, *E. garzetta* numbers have increased or remained stable in eight of them and decreased in seven. For *N. nycticorax* we also could make a comparison in 15 colonies with data from the period 1990-2001. Of these in ten colonies we detected increasing or at least stable numbers and only in five colonies we detected decrease. Among the colonies with increasing numbers of both *E. garzetta* and *N. nycticorax* were some of the most important ones as Srebarna, Persina, Mechka and Vaya. But we must take into account that some colonies where both species were present were abandoned after 1990 (Partizanin, Brezovo, Bolyarino, Popovitsa, Orehovitsa, and some possible more). *A. cinerea, P. leucorodia* and *E. alba* showed more or less stable numbers for the period 1979-2006, although general statements are difficult due to biases in the counts.

Threats

Some colonies have disappeared and others are under threat of various human actions. Most important are direct persecution of breeding herons and cormorants in private (or rented) reservoirs and fish ponds and disturbance by people, destruction of the wetlands (on a large scale in the period 1930-1990), cutting of nest-trees, reduction of fish stocks mainly as a result of industrial fishing and poaching, and urban development. Therefore, the future of the Bulgarian heron and cormorant colonies is uncertain and measures are needed to stop the negative trends. When colonies are destroyed in rented fish producing reservoirs or fish ponds, the rent agreement should be terminated by the authorities. This should be stipulated in the rent agreements for industrial fishing and should be an additional punishment to the measures emanating from Biodiversity Law in Bulgaria.

Other measures are:

*To stop legal and illegal cutting of riparian and other lowland forests in Bulgaria.

*To ensure legal protection of all unprotected colonies. Thirteen out of 24 Bulgarian heronries lie in protected territories, but eleven are still not protected.

*To restore some big marshes which have been drained during the 20th century as Straldja, Kaykusha (Svishtov) and Karaboaz.

*To ensure the long-term connection of some other wetlands e.g. on Belene (Persina) island, Garvan, Orsoya and Kalimok–Brushlen with the Danube.

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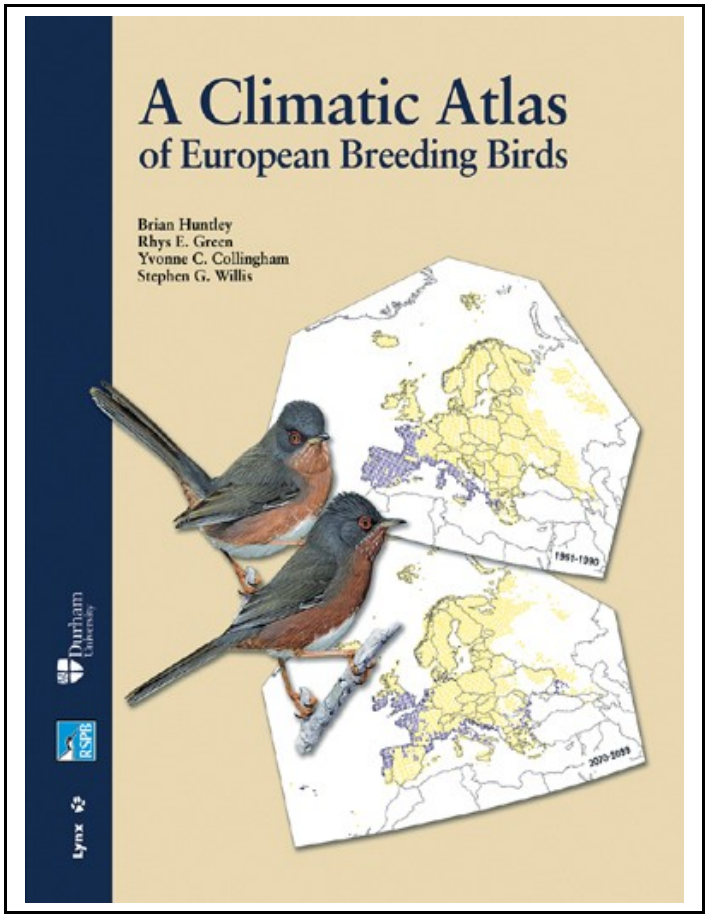
Table 1: General results of the heron and cormorant census in Bulgaria and the Danube border zone, 2006, with overall total (including three Danube Romanian colonies*) and Bulgarian total.
[2]Data from 2004, [1]breeding in the fishponds.

Colony	*Ph. c.*	*Ph. p.*	*A. c.*	*N. n.*	*A. r.*	*E. g.*	*P. l.*	*P. f.*	*E. a.*	*A. p.*	**Total**
Kutovo	70		5								75
Malak Bliznak	28		41	9		11	9				98
Dolni Tsibar	450-500	55-60	60-70	120-140	3	110-130	6				804-909
Kalnovats*	280		33	15	1-2	15					345
Persina*	300	70-80	10	25-30	5	60-70	15				485-510
Vardim	17		21	40-45		23-26	2-3				103-112
Mechka, Paserika *	140	45-50	15-18	25-30	8-10	32-34	10-12			1-2[1]	275-294
Mishka	200	30-40	15	45-55	6-8	30-40	6-8				332-366
Malak Kosuj	60		15-20	10-15		20-25					105-120
Sreburna (+Danube island)	540-560	190-240	30-40	210-250	40-50	90-110	15-20	35-40	5	5-10	1160-1325
Gorni Dabnik	5		87	30		5-10					127-132
Bivolare				13	2	15					30
Jastrebino			+								?
Dreneto			10								10
Dolni Bogrov				70							70
Konush				236	2-3	49					288
Dolna Topchia			40	15							55
Zlatopole			9			8-10					17-19
Panicheri			120-140								120-140
Nikolaevo			34-38								34-38
Kurdjali		1		35		12					48
St.kladenets	10-12		26-31								36-43
Krumovo			26								26
Simeonovgrad			65-70[2]								65-70
Liubimets			44								44
Vaya	87		45	40	22	50	2	3		8	257
Poda	486		32	18	4	35	12	14		12	613
Alepu			12							2	14
Overall total	**2673-2745**	**391-471**	**769-857**	**961-1051**	**93-109**	**565-642**	**77-87**	**52-57**	**5**	**27-32**	**5508-5903**
Total for Bulgaria	**1953-2025**	**268-348**	**711-796**	**896-976**	**75-91**	**452-529**	**50-60**	**52-57**	**5**	**27-32**	**4379-4776**

Table 2: Population size estimations for herons and cormorants in Bulgaria,1985-2006 (numbers in breeding pairs). **: data largely incomplete (see text), RDB Red Data Book, 1985; BD: BirdLife International, see references.

Species	RDB[1] 1979	Simeonov et al. 1990	Kostadinova 1997	Nankinov et al. 2004	BD 2004[2]	this study 2006
Ph. carbo	339	339	1000-1300	1600-1800	2000-2800	1953-2025
Ph. pygmaeus	10-50	10-50	90-150	400-500	350-400	268-348
A. cinerea		500	200-2000	500-700	1000-1400	711-796**
N. nycticorax		<1500	560-5000	1000-1500	1800-2500	896-976
A. ralloides		2000-2500	500-1000	200-300	300-650	75-91
E. garzetta		1500-2000	500-1500	800-1000	1400-2000	452-529
P. leucorodia	50-70	50-70	100-110	100-120	60-100	50-60
P. falcinellus	100-700	100-700	200-300	60-80	50-130	52-57
E. alba	3	3-5	0-10	3-9	4-20	5



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Brian Huntley , Rhys E. Green , Yvonne C. Collingham , Stephen G. Willis
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A landmark advance in our understanding of the potential impacts of human-induced climate change on wildlife was launched on 15 January 2008. A Climatic Atlas of European Breeding Birds - which maps potential changes in the distribution of all of the continent's regularly occurring nesting birds based on the EBCC's atlas of European breeding birds - suggests that we need urgent action to cut greenhouse gas emissions, and redouble our efforts for nature conservation, if we are to avoid potentially calamitous impacts on birds.

A disastrous vision?

The atlas suggests that for the average European bird species their ‘potential’ distribution by the end of this century will shift nearly 550 km northeast. The average bird's distribution could also be reduced in size by a fifth and overlap the current range by only 40 per cent. Alarmingly, the atlas shows that three quarters of all of Europe's nesting bird species are likely to suffer declines in range according to their models. This potentially disastrous vision for the future of wildlife, which could set some species on a path to extinction, has hastened calls by conservationists for urgent action to cut greenhouse gas emissions and to help wildlife adapt to a rapidly warming world. The estimates used in the atlas are based upon a model of climatic change that projects an increase of global average temperature of about three degrees Centigrade since pre-industrial times. However, many regard any rise above two degrees Centigrade as disastrous for wildlife and mankind.

About the atlas

The atlas has been written by Professors Brian Huntley, of Durham University, and Rhys Green, of the RSPB and the University of Cambridge, and Drs Yvonne Collingham and Steve Willis, both of Durham University, and in close association with the EBCC and others. Atlas combines field data from the EBCC atlas with climate simulation modelling to map the potential geographical ranges of most European breeding bird species at the end of the 21st century. It does this by describing the current breeding range of each species in Europe in terms of three measures of climate: summer warmth, winter cold and water availability. This describes the typical ‘climate space’ occupied by each species. The Atlas then combines this climate space information with models projecting the late-21st-century climate of Europe, under a moderate greenhouse gas emissions scenario.Professor Rhys Green said: 'Climatic change and wildlife's responses to it are difficult to forecast with any precision, but this study helps us to appreciate the magnitude and scope of possible impacts and to identify species at most risk and those in need of urgent help and protection.'

Professor Brian Huntley, of Durham University, said: 'Although the details both of future climatic changes and of species' responses to these changes remain uncertain, the potential magnitude of both is clear, and is such that the adaptation measures necessary to conserve European biodiversity only can be achieved through urgent international action.'

The Atlas was published by Lynx Editions in partnership with RSPB/BirdLife International and Durham University. Several other organisations have been

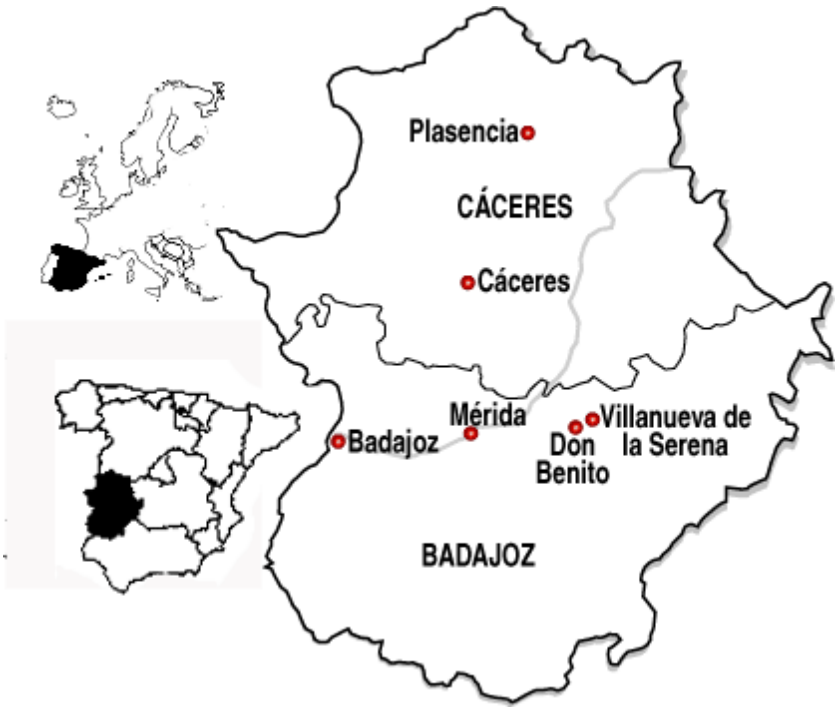
closely involved, particularly the EBCC. The book can be ordered through the EBCC website: www.ebcc.info

The RSPB and BirdLife International have produced an 8-page summary of the atlas: *Birds on the move: Introducing A Climatic Atlas Of European Breeding Birds*, which is also available from the EBBC-website.

Richard Gregory

Next EBCC conference 2010

The 18th International EBCC Conference will be held in the town of Cáceres, Extremadura, Spain, 22-26 March 2010. A great venue to combine an interesting conference with a birding holiday!
The meeting will be organised by EBCC and SEO/BirdLife, the Spanish association for the study and conservation of birds and their habitats, and the partner of BirdLife International in Spain.



We are short of original drawings to illustrate our Newsletter. Who can help us? This time Alena Klvaňová from Czech Republic kindly offered her collaboration.
Any other artists who are willing to send us their bird drawings for free? Names are always mentioned at the inner cover.
Thank you in advance!
Anny Anselin

Your text in the next issue?

Bird Census is meant as a forum for everybody involved in bird census, monitoring and atlas studies. Therefore we invite you to use it for publishing news on your own activities within this field:

- you have (preliminary) results of your regional or national atlas,
- you have information on a monitoring campaign,
- you have made a species-specific inventory,
- you are a delegate and have some news on activities in your country,
- you are planning an inventory and want people to know this,
- you read a good (new) atlas or an article or report on census and you want to review it,

Do not hesitate to let us know this!

Send text (in MSword), figures and tables (and ilustrations!) by preference in digital format.

* By email to:
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You will be send a pdf-format of your article to use for reprints

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