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Bird Census News is the Journal of the European Bird Census Council or EBCC. The EBCC exists to promote the organisation and development of atlas, census work and population studies in all European countries; it promotes communication and arranges contacts between organisations and individuals interested in census and atlas work, primarily (but not exclusively) in Europe.

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.

Cover illustration by Toni Llobet

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EDITORIAL

Summer is not always a time for much reading, but we invite you to make an exception for Bird Census News. Swing your hammock in a cosy corner and enjoy this new issue!

EBCC's core business is bringing European ornithologists together and Marina Kipson and co-authors present how EBCC plans the future of bird monitoring across Europe, based on the outcome of the first joint workshop of the new European Breeding Bird Atlas (EBBA2), Pan-European Common Bird Monitoring Scheme (PECBMS) and EuroBirdPortal (EBP) held in Mikulov, Czech Republic in November 2015.

In the European Atlas section Karen Aghababyan and co-authors give a review on the status of their first national breeding bird atlas project and some other ornithological activities and developments in Armenia which will provide useful information for the EBBA2 project.

The success of the second European Breeding Bird Atlas depends largely on the capacity to collect data following the predefined methodology that enables consistency across countries and datasets. Therefore, during spring 2016, four workshops were organized, in Azerbaijan, Belarus, Bosnia and Herzegovina, and Moldova, with the aim of adjusting the methodology to national circumstances and providing training on its implementation in the field. Marina Kipson and co-authors report on these successful events.

In the European Monitoring section, Vlatka Dumbović Mazal and co-authors tell us more about the Common Farmland Bird Monitoring scheme in Croatia that started in 2014. A selection of 37 farmland bird species will be used for the calculation of the national Common Farmland Bird Index.

Finally, in the Events section we give some additional information on the next international conference of the European Bird Census Council (EBCC) Bird Numbers 2016 that will be held soon, from Sept 5–10, 2016, at the University of Halle (Saale) in Germany, hosted by Dachverband Deutscher Avifaunisten (DDA).

Enjoy this volume!

Anny Anselin
Bird Census News Editor

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The EBCC bringing ornithologists together: a joint workshop planning the future of bird monitoring across Europe

Marina Kipson[1], Jana Škorpilová[1], Anna Gamero[1], Alena Klvaňová[1], Sergi Herrando[2], Gabriel Gargallo[2], Petr Voříšek[1]

[1] Czech Society for Ornithology, Na Bělidle 34 CZ-150 00 Prague 5, Czech Republic
kipson@birdlife.cz
[2] Catalan Ornithological Institute, Natural History Museum of Barcelona, Pl. Leonardo da Vinci 4-5 08019 Barcelona, Catalonia, Spain
ornitologia@ornitologia.org

Abstract. The first joint workshop of the 2nd European Breeding Bird Atlas (EBBA2), Pan-European Common Bird Monitoring Scheme (PECBMS) and EuroBirdPortal (EBP) was held in November 2015, in Mikulov, Czech Republic. All three initiatives are under the umbrella of European Bird Census Council (EBCC) and managed to gather 96 participants from 41 European countries. The main objectives of the workshop were to present the current work and progress of the initiatives and enable all participants to enrol into discussion about future directions and development of the initiatives.

Introduction

Between 2nd and 5th of November, the first joint workshop of three EBCC initiatives (EBBA2, PECBMS and EBP) was held in Mikulov, Czech Republic. The agenda of the workshop was wide and divided mainly between sessions on EBBA2 and PECBMS, with a parallel EBP meeting, but with one joint session combining all three initiatives. The aims of the workshop were to present to national coordinators an update on the progress and problems of each initiative and then discuss the future directions for each. This paper brings an overview of two main workshop parts (EBBA2 and PECBMS), with their discussions and conclusions, as well as a brief summary of the EBP meeting. All workshop material is freely downloadable at http://bigfiles.birdlife.cz/ebcc/PECBMS_workshop2015/.

EBBA2

Filling in the gaps

EBBA2 is currently half-way through the project with most European countries in the middle of the process of data collection. An overview of current state of atlas work was presented from various countries, and it was clearly evident that there is a major difference in financial and human capacities between Western/Northern and Southern/South-eastern European countries. In order to achieve the goal of covering as many squares as possible for EBBA2, it was evident that countries would benefit from closer cooperation (e.g. potential to explore twinning between more and less experienced countries) and in general from sharing their atlas experiences. Discussions on how to bring foreign birdwatchers into countries that lack observer capacity indicated the importance of advertisement in countries and organizations that have a large network of volunteers and could disseminate it within their networks. The key issue that emerged from these discussions was the necessity to identify gap squares where mapping efforts can directed. The support (financial, coordination, training, equipment) that South-eastern and Eastern countries in Europe received in 2015 through a grant provided by MAVA Foundation has already proven to be valuable in bringing us closer to EBBA2 goals. Furthermore, the establishment of EuroBird Portal has provided a unique framework for enabling the flow of the data from various national and international on-line portals directly to European and national coordinators.

EBCC Chairman Ruud Foppen introducing the workshop

MapChecker tool and data provision

In order to enable national coordinators to manage their data in an easier way, a new tool, Map Checker, has been developed at the Catalan Ornithological Institute. It will allow the coordinators to quickly and easily check and change the data for each individual 50×50 km square within their own country. This might especially be useful for border squares where the coordinator(s) of the neighbouring country will be notified immediately about the proposals of changes within these squares and the final decisions on the square can be made in consultation with coordinators from all countries involved.

Parallel with the workshop the second data provision for EBBA2 was taking place, the majority of the countries have already provided their standardised data to European coordinators by the start of the workshop. Different types of timed data have been received but specific atlas surveys and common bird monitoring schemes were the most widely used data sources. Pilot maps will be produced from the data received in 2016. Through the discussion with the national coordinators, decisions on future real data provision have been made. The plenum agreed on providing the 50x50 km data in 2016 on selected 15 (10±5) species in order to produce preliminary maps for these species. These maps will hopefully show the policy makers and funders the significance and magnitude of both temporal and spatial scale of the entire EBBA2.

Future steps

The years 2016 and 2017 will be crucial for gathering fieldwork data from as many squares within the EBBA2 region as possible. The situation in the south-eastern and eastern Europe presents a number of obstacles, and will require a special focus and support in the following years. Although initial support (training, fieldwork, equipment) was already provided to certain countries in 2015 through the support provided by the MAVA foundation, it will be necessary to establish a sustainable and long-term platform for bird mapping and monitoring in these countries. Similarly, more attention will be paid to attracting foreign birdwatchers — for this, the identification of gap squares will be crucial. The formation of EuroBird Portal is also a promising start, developing a framework that will collect and transfer data from the numerous national and international on-line portals which promise to be a substantial data source. The real data provision and provision of timed surveys will show the potential difficulties with data processing and management in the future.

PECBMS

Where we are

This was the fifth workshop since the start of PECBMS in 2002; the scheme is now 13 years old. A forum of national coordinators for all three initiatives enabled some countries to give a very quick overview of their schemes and the issues they faced. The PECBMS part of the workshop focused on the usage of PECBMS data in research, policy relevant outputs, new tools in data provision and novel approaches to selecting species indicators. Each of the above mentioned sections will be discussed in corresponding section below.

Research initiatives and the need for site level data

The interest of the research community in analysing the data coming from PECBMS is growing with each year. An overview of the data used in the research was presented to the national coor-

Audience of the joint session with short presentations on monitoring, atlas and online data portal projects

dinators. Since 2012, PECBMS has been involved in 13 research projects coordinated by external researchers across Europe. This cooperation has led to five published scientific papers, and several other studies are in a phase of data analyses or manuscript writing. It was clearly evident that the use of PECBMS data in research purposes brings novel and policy relevant results, some of them were presented at the workshop (see http://bigfiles.birdlife.cz/ebcc/PECBMS_workshop2015/3_PECBMS_presentations/).

It appears that the most interesting data for research are the site level data. However, at the same time, using TRIM F1 files as a source of monitoring data at site level is limited, time consuming and requires a novel solution. Therefore, a question to be solved in the future is the availability of raw data under strict protection of the ownership by the national coordinators and institutions.

In the future, PECBMS coordination team will regularly provide concise updates to the national coordinators about all research projects where PECBMS has been involved. In the longer-term, such information should be available via an online tool. Furthermore, the PECBMS team will take a more proactive role in the future research and have already identified several directions for further research. These should focus on policy relevant questions at a European scale, including helping to answer questions about effectiveness of management, and other biodiversity relevant measures which might provide the necessary data to relevant policy makers.

Supranational outputs and Farmland Bird Indicator (FBI)

The national coordinators have approved making PECBMS supranational outputs (European species population indices, trends and indicators) freely available (open access) on the internet, most probably on EBCC webpage, and the exploration of the option of publishing them in a form of a data paper. Further discussion amongst EBCC Board members will determine the technical details of how supranational data will be made available.

It was also agreed that the coordinators of the national monitoring schemes will provide their national Farmland Bird Indicators (based on national species selection) to the PECBMS coordination team in November 2015. The PECBMS coordination team has collected and forwarded these data to the European Commission (DG Agri, Eurostat). Since such data can be quite sensitive depending on a country specific situation, particularly in cases where no funding for the indicators was available at the national level, the national coordinators had the option to prevent this delivery, which was considered as provisional. Further deliveries of this type will require the standardisation of the production of indicators at the national level, and the availability of funding. For the first time, PECBMS team presented a proposal on the potential benchmarking national farmland bird indicators. A lot of questions and suggestions have been raised regarding the benchmarking approach and a common decision on the need to further explore the approach was accepted.

Species selection for indicators and on-line tool for data provision

Selection of species for the indicators based on the niche approach was presented. This prompted a discussion on the potential for using this approach for future species indicators and possibly revising indicators that countries have in place already. This is however still an initial phase and production of niche based indicators more directly linked to policy (e.g. Natura 2000, SPAs, AES, Annex I) will be further explored.

PECBMS team also presented the very first version of new online tool for collection of national species population indices that is currently in development and should be available to national coordinators in 2016. The tool will serve as a pilot version for development of a tool with more functions. These should include data quality control, simple routine computation facilities, data sharing and information on the use of data in research studies. This task will be included, if possible, in the next EU grant supporting the PECBMS core activities. Finally, further capacity building, especially in common bird monitoring in eastern and south-eastern Europe, should be developed via synergies with EBBA2 capacity building effort.

EBP

In October 2015, a proposal for a LIFE preparatory project grant was submitted to the European Commission in order to address one of their specific needs under the programme ENVIRONMENT: “Support to the further development of a European Web Portal displaying near-real-time information on migratory birds in Europe”. The submitted proposal is for three years (2016–2018) and has a total budget of €510,557, of which 60% would be provided by the EU with the rest is co-financed through other sources. The Mikulov EBP meeting was essentially devoted to presenting full details of all organizational, technical and financial aspects of the proposal as well as all the actions planned. The four main objectives of the proposal are: 1) to create a new EBP data-sharing standard, database repository and data-flow system capable of managing automatically and in near-real-time all data interchange processes between the local online portals and the central databank; 2) adapt and improve the current EBP demo viewer and the spatial bird distribution models in order to reliably display detailed and up-to-date European-wide spatiotemporal patterns of bird distribution in near-real-time; 3) increase the geographical coverage of the EBP project to include most of the European Union (>90% of its territory); and 4) improve the quality and relevance of the data collected. This grant could certainly offer a great opportunity to move the EBP initiative significantly forward during the next three years.

Acknowledgements

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EUROPEAN ATLAS NEWS

First National Atlas of the Birds of Armenia

Karen Aghababyan, Hasmik Ter-Voskanyan, Siranush Tumanyan, Anush Khachatryan

TSE Towards Sustainable Ecosystems NGO, American University of Armenia. 87b Dimitrov, apt 14 Yerevan 0020 Armenia

karen.aghababyan@gmail.com, tervoskanyan@gmail.com, siranush_tumanian@yahoo.com, animuslupi@gmail.com

Abstract. We give an overview of the rich variety of ecosystems found within Armenia, and the avifauna these habitats support. There are, however, a number of significant pressures acting upon the country's rich biodiversity, arising from the unsustainable exploitation of natural resources. Good monitoring data are therefore essential as an investment into the sustainability of economic development of the country. We describe the development of ornithological studies in Armenia to date, and how we have arrived at the first Atlas of Breeding Birds in Armenia, which will contribute towards the European Breeding Bird Atlas 2. Although half of the data collected for this national atlas has come from foreign observers, concerted effort is recruiting and training new Armenia observers for a sustainable future for bird monitoring in the country.

Introduction to the country

Usually Armenia is well known for its culture and history, but is less so for its geography and nature. Its impressive biodiversity, with a number of endemic species, remains unknown to most people, as do the environmental issues which cause danger for plants and animals. That is why it is useful for us to start by providing a general description of its geography, nature, and economy.

Diversity of habitats

Armenia is a landlocked mountainous country with an elevation range of between 375 and 4090 meters above sea level, a rigorous terrain, contrasting climatic conditions and a wide variety of soil types. Due to these conditions, the range of habitats is also large, from dry semi-deserts to wet meadows. They include such types as wormwood, variegated, and halophytic semi-desert, impassable brushwood, tragacanth, esparcet and grass-forb steppes, sub-alpine meadows, alpine carpets, riparian forests, coniferous woodlands, deciduous mountain forests, complemented by cliffs, talus, swamps and floodplains. The lower elevations are mainly occupied by drier habitats, the middle elevation range is covered by steppes, woodlands and forests, and the higher elevations by meadows and other low vegetation cover. Cliffs and rocky canyons occur at any elevation range. The majority of wetlands are found on the Ararat Plain and at higher elevation. One of those is the Lake Sevan, which is the second largest high-mountain lake in the world with a surface area of 1242 km^2.

Diversity of birds

The diversity of habitats, as well as geographical position of Armenia at the junction of the European and Iran-Anatolian zoogeographical provinces, results in a relatively rich diversity of the breeding birds. In addition, Armenia's location between the Black and Caspian seas within the bird migration route between Eurasia and the

Middle East and Africa has a positive effect on its migratory species diversity.

At present 365 bird species have been recorded in Armenia; 235 breeding and 130 migratory. The high species diversity in Armenia and in the whole Caucasus was one of the reasons for the region to be included in the list of 35 Global Biodiversity Hotspots. The avifauna of the country includes European species, such as Red-breasted Flycatcher *Ficedula parva* and Greenfinch *Chloris chloris*; Asian species, such as Eastern Rock Nuthatch *Sitta tephronota* and Persian Wheatear *Oenanthe chrysopygia*; and also several endemics of Caucasus ecoregion, such as Caucasian Black Grouse *Tetrao mlokosiewiczi* and Mountain Chiffchaff *Phylloscopus sindianus* (BirdLife International 2004).

Current economic developments and related threats

Historically, grasslands covered 83.3% of Armenia however more recently they have been managed rather intensively (Tumanian 2006). About half of the grasslands have been transformed into arable land for the cultivation of different crops; the other half is used for ubiquitous and often poorly-controlled grazing of cattle, sheep and goats (Tumanian 2006). These activities are leading to a large-scale change in the vegetation, change of animal communities, and often erosion.

Forests in Armenia occupy about 11.2% of the country. Almost 40% of forests are classified as industrial, and therefore are subject to regular logging (Junge & Fripp 2011). Since the logging practice was developed mostly during the Soviet period, when the dominating concept was timber production, the current exploitation of the forests leads to thinning of forests, reduced shaded areas, fragmentation of forest areas and aridization.

Wetlands cover around 4.7% of the area of Armenia, and include lakes, rivers, marshes and wet meadows (Jenderedjian 2004). Marshes in Armenia have been subject to draining (due to traditional underestimation of their importance) for peat production and for horticulture. Recent aquaculture developments increased wetland pollution (Aghababyan & Khanamirian 2015) by organic matter, residuals of chemical disinfectants, and antibiotics.

Open-pit mining of both minerals and metal causes habitat destruction, while the processing of ore often results in land and water pollution. Pollution affects bird populations mainly through two groups of substances: persistent pesticides, which are widely used as a method of pest control in agriculture and forestry, and heavy metals, which enter the food chain due to poor waste management, mining activity, and the use of lead shot in hunting. Hunting also presents problems through the unsustainable management of game species, and in addition illegal hunting (poaching).

Another economic activity continuously developing in the country is tourism (World Travel and Tourism Council 2015). The majority of tourism is related to historic-cultural and skiing activities; however recent developments are aimed at discovering new opportunities. While most tourism developments result in the expansion of infrastructure and the associated reduction of natural habitats, it also has a positive effect in terms of ecotourism (birdwatching, mammal-watching, flower-watching, etc.).

In summary, we can state that industrial activities result in number of threats to natural ecosystems and biological diversity, with the most significant impacts falling within four main categories: biological resource use, pollution, agriculture and aquaculture, energy production and mining (IUCN 2016).

Protected areas

Currently Armenia has two reserves, three national parks, one biosphere complex, and 24 sanctuaries. The network of protected areas covers over 13% of the area of the country. This is due to recent developments initiated by major international organizations, such us WWF and UNDP, supported by the Ministry of Nature Protection (before 1990s the total cover was about 4%). However, all the protected areas require capacity strengthening, improvement of management systems, adequate monitoring, and sustainable financing. In addition, it should be mentioned that about 40% of the populations of important species are still not covered by the protected areas of Armenia, and there is a lack of corridors between protected areas. Therefore the 87% of Armenia that lies outside of the protected area network requires new sustainable management approaches. The situation is worsened by the fact of poor development of ecosystem monitoring in Armenia and therefore lack of information about conditions and trends of natural habitats and wild species.

Bird studies in Armenia: towards monitoring and a national Breeding Bird Atlas

Armenia has a relatively short history of ornithological studies that can be divided into three periods:

1. Identification of species list and general distribution of species (1930-s till 1980-s).
In this period mostly Russian scientists were interested in the Armenian bird fauna and this helped research institutions to obtain substantial financial support from the Soviet Government. Most of this research was aimed at assessing species diversity, and some peculiarities of species biology and distribution. Important publications in this period are Dahl (1954) and Lyaister & Sosnin (1934).

2. Distribution and abundance studies (1992 to 2000).
These studies started soon after the collapse of the Soviet Union. At that time there was a lack of governmental financial support, fortunately, a generous benefactor, Mr Sarkis Acopian from Pennsylvania, initiated and funded these studies within the framework of his new initiative: the popularization of birds in Armenia. Thanks to Mr. Acopian's patriotic interest in bird and habitat conservation, a bird distribution mapping project on Armenian species was developed. The results were published in the Field Guide to Birds of Armenia (1997, 2000) and the Handbook of Birds of Armenia (1999).

3. Quantitative studies (2002 till now).
In this period the necessity of research and monitoring for conservation became clear. In 2006, our group at the Environmental Conservation and Research Center of American University of Armenia launched a monitoring project of White Storks *Ciconia ciconia*. Thanks to the generosity of the Whitley Fund for Nature, it became possible to build a network consisting of over 1000 rural families, who acted as citizen scientists. Every year they collected data on the breeding and wintering population of the storks, including their breeding success. This White Stork monitoring program demonstrates the interest of people to collaborate with such kind of projects (Aghababyan 2011, Aghababyan et al. 2013). Although at the start there were serious financial shortages, the development of concept of monitoring for conservation, accompanied with professional training of new generation, helped obtaining grant funds for further development.

Atlas of Breeding Birds of Armenia

In 2010 a group of bird researchers in Armenia started to discuss on the possibility of producing a first Breeding Bird Atlas of Armenia, and presenting population trends of the breeding species. Developing and formalizing the idea took about a year and in 2011 we started working on the Atlas with a tentative name "State of Breeding Birds of Armenia". That is why, when the Coordinating Team of European Breeding Bird Atlas 2 (EBBA2) approached our team for participation in that large-scale project, it was absolutely coinciding with our own plans. With the kind assistance of EBBA2 and the extensive network of our volunteers we will be able to supplement the national database with new data collected during 2015–2017. Therefore the plan for a National Atlas project is to finalize its preparation and get it ready for publishing in 2018.

The data for Atlas are coming from the following sources:

1. At present over half of the data has come from foreign birdwatchers who occasionally visit the country. An important achievement in this regard was the standardisation of the process of occasional data collection. This was improved by adapting the methodology of the European Bird Census Council, particularly with the introduction of breeding code recording.

2. As a result of the development of a network of Armenian volunteers, they contribute about 20% of the data that is collected annually in Armenia. Standardization of this data collection still requires improvement.

3. Specialists collecting data within the framework of various research projects provide 30% of the data, mostly covering the remote areas, or urbanized areas which are not very interesting for volunteer birdwatchers.

Data collected in a standardized way will significantly increase the opportunities to analyze and model population changes. For this reason the current activity is focused on the creation of a robust database that can collect data from various

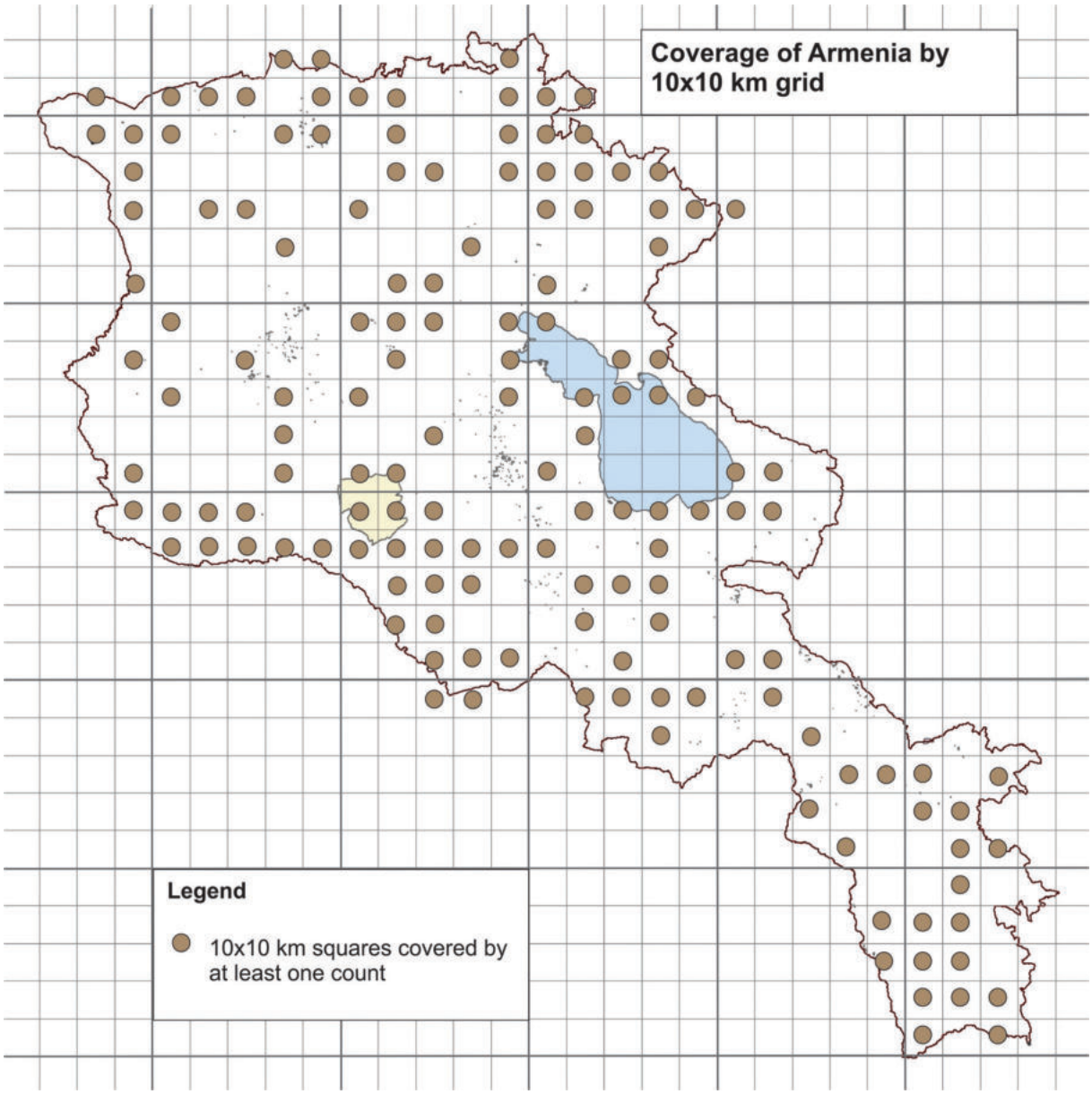

Figure 1. 10×10 km atlas squares counted in Armenia

categories of observers, and on linking of the database to an online data input platform, supplemented with mobile applications.

During the study period (2011–2016) we were able to implement bird counts in all the twenty seven 50×50 km squares of Armenia, and in 148 10×10 km squares (out of 374 such squares in Armenia), as it is shown in Figure 1. The results will allow modelling of distribution of almost all breeding birds of Armenia (see Figure 2) and also provide an idea of their abundance. The data is still insufficient to calculate the population trends currently; this is a task for the (near) future.

As part of the project we have started a training program for students and have trained over 60 people; in addition the number of qualified counters and instructors has increased from four to eight. For further promotion of birdwatching in Armenia we have created the new website (www.abcc-am.or), and have been stimulating activities of the Facebook group "Birding Armenia". Although the popularity of the website is growing and the number of members in the group has doubled, we have not been satisfied with the level of birdwatching activity in Armenia. That is why on 7th July 2016 we launched the first birdwatching club in Armenia (see Figure 3). The club has weekly meetings aimed at presenting interesting talks and training in bird identification and also Sunday field excursions (Figure 4).

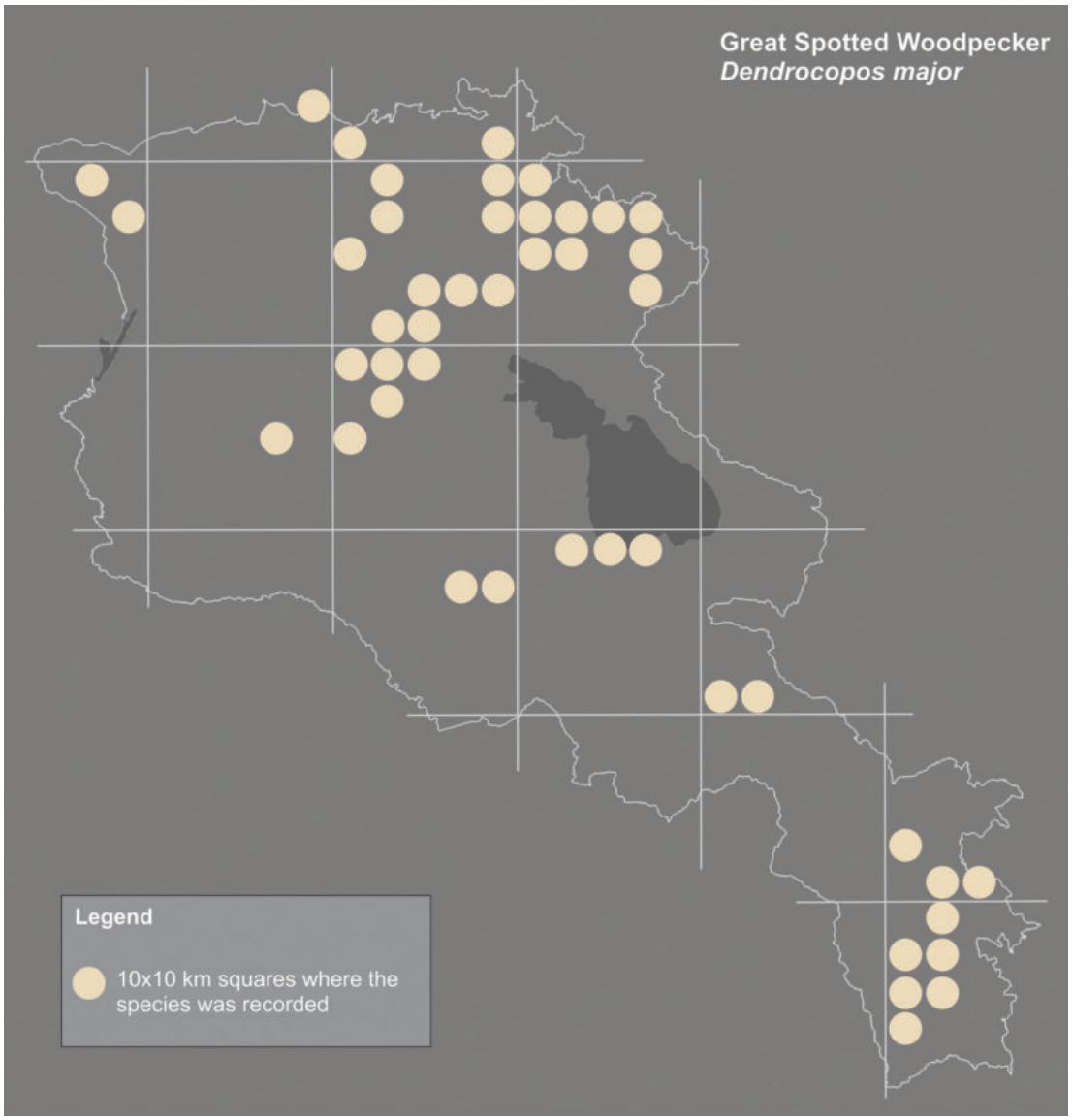

Figure 2. Modelled distribution map of the Great Spotted Woodpecker, *Dendrocopos major* in Armenia

During the implementation of the project we have established a good collaboration with a number of national state and non-governmental organizations, such as Ministry of Nature Protection, focal point of Bern Convention in Armenia, WWF Armenia, Foundation for Preservation of Wildlife and Cultural Assets, Association of Young Biologists NGO, Armash fish-farm, reserves and national parks, and also with international organizations, such as RSPB (UK), Kuzey Doga (Turkey), Ilia State University and SABUKO (Georgia). Our future plans include increasing the number of foreign birdwatchers coming to Armenia, increase the local birdwatching activities and the use of birdwatching to support nationwide bird monitoring.

Possibilities for the use of bird monitoring data

We believe that the Breeding Bird Atlas will be a strong instrument in the management of ecosystems in general and theconservation of birds and their habitats in particular. The Atlas could be used for:

1. the determination of species‘ Conservation Status at National Level;
2. contribution to assessments of species‘ Conservation Status for IUCN SSC;
3. measuring the impact of conservation measures;
4. development of the network of National Protected Areas, and Emerald Sites (under Bern Convention);

Figure 3. Launching of the Birding Armenia birdwatching club in Yerevan (picture K. Aghababyan)

5. decision-making for various EIAs in business and industrial activities, as well as for ESIA;
6. decision making in improvement of forestry, land-use and water-use policies;
7. identification of necessary conservation/ management measures for species with declining populations;
8. fundraising for conservation via the marketing of threatened species;
9. developing the next generation of conservation biologists and activists.

We are convinced that due to the current rate of intensification of industrial activities in Armenia, the publication of such a National Atlas on Breeding Birds (and possibly other important indicators, such as butterflies, dragonflies, some plants, etc.) is an investment into the sustainability of economic development of the country.

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References

Adamian M. & D. Klem Jr. 1997. A Field Guide to Birds of Armenia. American University of Armenia Corporation, 220 pp. [English]

Adamian M. & D. Klem Jr. 1997. Handbook of the Birds of Armenia. American University of Armenia Corporation, 649 pp.

Adamian M. & D. Klem Jr. 1997. A Field Guide to Birds of Armenia. American University of Armenia Corporation, 183 pp. [Armenian]

Figure 4. Field excursion of Birding Armenia on Aragats Mountain (picture H. Ter-Voskanyan)

Aghababyan K. 2011. White Storks (*Ciconia ciconia* L.): Population tendencies in Armenia. International Conference "Biological Diversity and Conservation Problems of the Fauna of the Caucasus", At Yerevan, Armenia. September 2011.

Aghababyan K. & G. Khanamirian. 2015. Pollution of freshwater ecosystems by products of water disinfection and disease prevention chemicals. Electronic Journal of Natural Sciences, National Academy of Sciences of RA, 1 (24): 72–75.

Aghababyan K., Kochinyan M., Lyman J., L. Stepanyan. 2013. White Storks in Armenia: population, trend, and relationships to humans. In book: White Stork on the top? — Results of the VIth International White Stork Census 2004/05, Chapter: White Stork populations across the world, Publisher: NABU (Naturschutzbund Deutschland e.V.), Berlin, Editors: H. Hötker, K.-M. Thomsen, pp. 1–7.

BirdLife International. 2004. Birds in Europe: population estimates, trends and conservation status. BirdLife International, Cambridge, U.K.

Dahl S.K. 1954. Fauna of the Armenian SSR. Academy of Scientific Press, Armenian SSR. Yerevan, Armenia. 416 pp.

IUCN. 2016. Threat Classification Scheme (Version 3.2). Retrieved on 25 Apr 2016 from http://www.iucnredlist.org/technical-documents/classification-schemes/threats-classification-scheme.

Jenderedjian K. 2004. Armenia Keynote Wetlands in Armenia — their values and threats and their contribution to sustainable development and poverty alleviation. 5th European Regional Meeting on the implementation and effectiveness of the Ramsar Convention 4–8 December 2004, Yerevan, pp 1–7.

Junge N. & Fripp E. 2011. Understanding the forestry sector of Armenia: current conditions and choices. ENPI-FLEG, Main Report, 56 pp.

Leister A.F. & Sosnin G.V. 1942. Materials on ornithofauna of the Armenian SSR. ARMFAN, Yerevan, Armenia. 352 pp.

Tumanian R. 2006. Country Pasture/Forage Resource Profiles. FAO, 22 pp.

World Travel and Tourism Council. 2015. Travel and Tourism: economic impact 2015, Armenia. World Travel and Tourism Council, 24 pp.

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EBBA2 training workshops in 2016

Marina Kipson[1], Petr Voříšek[1], Martí Franch[2], Mikhail Kalyakin[3], Guille Major[4], Sergi Herrando[2], Verena Keller[5]

[1] Czech Society for Ornithology. Na Bělidle 34. CZ-150 00 Prague 5, Czech Republic
kipson@birdlife.cz
[2] Catalan Ornithological Institute. Natural History Museum of Barcelona.
Pl. Leonardo da Vinci 4-5. 08019 Barcelona, Catalonia, Spain
[3] Zoological museum of the Moscow Lomonosov State University.
Bolshaya Nikitskaya Str., 2, Moscow, 125009, Russia
[4] SABUKO (Society for Nature Conservation). 44 Irakli Abashidze Street, 0179 Tbilisi, Georgia
[5] Swiss Ornithological Institute. Seerose 1. CH-6204 Sempach, Switzerland

Abstract. The success of the second European Breeding Bird Atlas (EBBA2) depends largely on the capacity to collect data following the predefined methodology that enables consistency across countries and datasets. Although many Western countries have already produced at least one bird atlas, the situation is strikingly different in Eastern and Southeastern Europe, where many countries have not yet produced a national atlas. Therefore, exchanging knowledge and experience in atlas work is crucial and is one of the essential tasks of the EBBA2 coordination team. During spring 2016, four workshops were organized, in Azerbaijan, Belarus, Bosnia and Herzegovina, and Moldova, with the aim of adjusting the methodology to national circumstances and providing training on its implementation in the field. Workshop participants had a chance to practice recording the atlas breeding codes, and performed timed species surveys to provide data for mapping distribution in 50×50 km squares and as a basis for modelling distribution at a resolution of 10×10 km. This was an excellent opportunity for local participants to better understand the differences between the field methods, and the different outputs of the Atlas, and hence to enable both national coordinators and fieldworkers to improve data collection.

Introduction

The second European Breeding Bird Atlas EBBA2 will be based on data collected in all countries in Europe (Keller 2014). While many countries already possess experience in conducting national atlases, and may already have data collected, others lack capacity in field ornithologists, or have little experience with the type of data collection required for EBBA2. Providing support for atlas work in these countries is therefore crucial to achieve the common goal of EBBA2. Support does not only include financial contributions but also the provision of know-how regarding EBBA2 methods; the correct interpretation and adaptation of the methodology is essential for data collection process. The EBBA2 methodology relies on two spatial resolutions for data collection: at the level of 50×50 km and 10×10 km squares. Data collected at the 10×10 km scale will serve as a basis for the production of maps of modelled distribution of selected species, while data collected at the 50×50 km scale will be used for traditional maps of presence/absence and abundance estimates. Each of the spatial resolutions has its own requirements, with the larger spatial scale requiring the finding of, and recording of atlas breeding codes for, all species occurring within each square as a basic minimum standard. Modelling distribution at the smaller spatial scale relies on standardised data collection, i.e. performing timed surveys in order to produce complete lists of species detected within a given time period. This part of the atlas includes also targeted surveys of specific sites and habitats within each square. The detailed methodology of EBBA2

was described in Herrando *et al.* (2013). The exact methodology and sampling differs country by country to account for differences in capacities and in some cases the requirements for data for a national atlas.

The support for EBBA2 by the MAVA Foundation enabled us to increase the support provided by the coordination team and organize training workshops in several countries that lacked experience in this regard. These training workshops followed a similar model in all the countries in which they were implemented: i) introduction of EBBA2 by members of the coordination team, and of work at the national level by local coordinators, ii) field implementation of methodologies – by EBCC experts and local birdwatchers together, iii) discussion on the feasibility of the field methodologies in the particular country, and finally iv) local adjustments and final discussions on the methodology and feasibility of data collection. In 2014, the first such workshop was organised in Turkey, in 2015 one each in Ukraine and Serbia. Short reports can be found on the EBBA2 website (http://www.ebba2.info/2015/05/01/two-day-workshop-and-training-in-serbia-3/ , http://www.ebba2.info/2015/05/12/ebcc-board-and-ebba2-steering-comittee-met-with-ukrainian-ornithologists-in-kyiv-ukraine/). In 2016, four workshops were organized in Azerbaijan, Belarus, Bosnia and Herzegovina, and Moldova. Here we present reports for each of these workshops.

Azerbaijan

In Azerbaijan, data collection for EBBA2 has so far been restricted to the compilation of existing data. The training workshop served as a basis for targeted fieldwork to start. The two days of training included a theoretical part (seminar) and two field excursions that were organized by the national coordinator, Elchin Sultanov, on 9th and 10th April. The theoretical part of the training took place in Qafqaz University in Khirdalan town near Baku city. The lecture on EBBA2 methodology was given by Guillermo Mayor (SABUKO Georgia), and Mikhail Kalyakin (Zoological museum of Moscow Lomonosov State University), and there were around 57 participants to this lecture, mainly students. The fieldwork took place in Altiagach and Shirvan National Parks where 11 and 19 participants, respectively, joined the practical training. The methods included one hour timed surveys in the morning hours and also recording atlas codes. Additional discussion during the evening was also helpful for developing personal contacts and answering general questions. The core group of c. ten observers had a real experience of "one-hour" counts where they could check their results, use breeding codes and choose areas for the survey. However, the practice in report compilation and completion of the special field forms developed for the purposes of data collection was probably not clear enough to all participants, and this task will require a designated data-manager that will collate all the data. Fieldwork participants showed excellent general knowledge of birds which, together with the number of observers, bodes well for the development of the project. After the training the local team had its own short meeting for square allocation and further discussion about methodology and general design of the atlas work in Azerbaijan.

One of the problems in Azerbaijan might be the lack of experienced observers that would be able to cover the whole country within the next two breeding seasons, as well as the inability of visiting part of the south-west of the country due to military reasons. Another issue was the general confusion about the differences between the 50×50 km and the 10×10 km squares. It was clarified several times but a part of the task for the Azerbaijan coordinator before and during atlas work will be to make sure that the data are being collected properly. Abundance of migrant bird species is also an additional problem, because there is an overlap of breeding and migration periods for some species. Most probably, the beginning of systematic data collection and exchange will require some additional coordination between the national coordinator and the EBBA2 coordination team. On the other hand the number of squares which were included in a work plan for the 2016 (the first from only two seasons for atlas work) is almost 50% of the overall number, so we can believe that a real progress of the project is just starting in the year 2016.

Belarus

In Belarus, the support by the MAVA foundation in 2015 was a first step to establish a national coordination team, but fieldwork will only start in 2016. 21 participants were present at the workshop, including three from Ukraine. They were accompanied by six experts (five from Czechia, one from Latvia). The workshop and the field-

Belarus: The groups went to open areas, mostly abandoned fields and performed counts on a line transect (picture P. Voříšek)

work training were held in Berezinski Reserve (15–17 April). Morning hours were reserved for doing timed visits in different 10×10 km squares, whereas the afternoon was reserved for gathering new species observations and observing higher Atlas codes within the overall 50×50 km square.

A discussion of these field vists followed; the essential issue was to explain the role of each type of data and their contribution to different atlas outputs. Regarding methods, timed species lists were understood very well and the participants did not have any problem using this field method. A need to tailor the field methods to different groups of birdwatchers, according to the level of their fieldwork expertise and identification skills, was one of the concerns raised. Abundance estimates, required in later phases of EBBA2 for 50×50 km squares, were another concern, especially for common and widespread species. Some participants had previous experience with counting birds on line transects, as used in the Belarussian common (farmland) bird monitoring scheme. The method was tested the following day, when a 2 km transect was walked, with all the birds heard or seen being recorded within three distance bands. Although this was straightforward for experienced participants, it appeared that this method can be more difficult for less experienced birdwatchers due to the difficulty of estimating distances. Recommendations for using different field methods by birdwatchers with different identification skills and experience were provided to the national atlas coordinator shortly after the workshop. They reflect the experience gained at the workshop and outputs of vital discussions there.

Bosnia and Herzegovina

Up until 2015 fieldwork in Bosnia and Herzegovina (BiH) concentrated on data collection in nature reserves without a strategy to cover the whole country. A training workshop was held in Sarajevo (23–24 April) following the meetings there of the EBCC Board and the Atlas Steering Committee. In total, 11 local participants gathered along with 10 experts from the EBCC side. The fieldwork was done on mountains Bjelašnica and Igman. It included two one-hour line transects with making

Bosnia-Herzegovina: Participants in the mountains around Sarajevo (picture G. Topić)

complete species lists (one on open grassland and the second one in mixed forest) within the same 10×10 square in the morning. Additional observations of species with atlas breeding codes within the same 50×50 km square, above the treeline, were done in the afternoon. During the timed visits, participants were also encouraged to note the atlas breeding codes. Regarding the methods, participants had no previous experience with recording atlas breeding codes or complete species lists limited by time. These elements were therefore emphasised during fieldwork training.

The discussion was primarily aimed at further clarifying the difference between the data collection for modelling at 10×10 km and for the 50×50 km squares and outputs of each dataset. Participants had experience with species-specific surveys, and bird surveys of certain areas, in which they were used to counting individual birds of target species. Whether to count individual was left to the choice of observers, as in some cases it may enable them to better assess the abundance of each species for the entire 50×50 square. The most problematic issue in BiH is the inaccessibility of certain areas due to minefields. Therefore, the question of doing transects or point counts during timed visits was left open to them, only with the request to note which method they used each time they performed a timed visit. Timed visits were defined to last 60–120 minutes, and participants were encouraged to note the exact time they spend performing them. During the following couple of weeks, the national coordination team developed a plan of responsibility for each 50×50 km square in order to ensure the best possible coverage.

Moldova

Moldova is a small but diverse country where a systematic data collection for EBBA2 and for a national strategy of square coverage has only started with the breeding season of 2016. In Chisinau, 13 local participants gathered along with three experts from the Catalan Ornithological Institute. The morning fieldwork was performed in Orheiul Vechi, in an area of riparian forest, small fields, open shrubland and rocky slopes. It included three line transects where quantity and atlas codes were recorded.

Most of the discussion focused on standardised surveys and helped defining the methodology. Participants preferred line transects to point counts (which are used in common bird

Moldova: Participants met in Chisinau for discussion on EBBA2 methodology and Moldovan contribution to the project (picture M. Garcia)

monitoring in Moldova). It was agreed to record quantity, in order to facilitate the abundance assessment for the 50×50 km squares. Since most participants didn't have any problems performing the line transects, the Moldovan coordination team designed a methodology of 2 km line transects, one in each 10×10 km square of the country. The difference between standardised and non-standardised data and their roles in different outputs was stressed. The level of identification skills varied between participants, and not all of them were experienced enough to perform line transects. Less experienced observers were encouraged to perform non-standardised surveys to complete species lists for 50×50 km squares. The main problem in Moldova is the low number of observers. Therefore, discussions during and after the workshop focused on fieldwork planning, which is essential to have a good coverage of the country at both 10×10 km and 50×50 km scale. As a result, line transects were designed to cross as many habitats as possible in each 10×10 km square, to provide a rather complete species lists for all 50×50 squares and ensure a minimum coverage in the less surveyed areas.

Conclusions

One of the shared issues across the countries where training was held is the comprehension of the difference between data collection and subsequent outputs for the 50×50 km squares and the modelled maps at a resolution of 10×10 km. The workshops helped to clarify these issues. The use of combined fieldwork forms prepared in advance also helped with explaining the difference, usually through joint discussion and data unification with the participants. The basic methods used in EBBA2, mainly atlas codes and timed surveys (which have not been well known and practiced in the countries visited so far) have been accepted well and participants have applied them easily in the field.

Besides the above-mentioned issues, there are also always country-specific topics that are usually solved in cooperation with the EBBA2 coordination team. Overall, the training workshops have proven to be successful by not just solving methodological issues, but also in motivating people to collect data in the field. Therefore they have proven to be an excellent way to improve both the quality and quantity of data collection in countries that lack observer capacity. The workshops were

also very helpful for the members of the EBBA2 coordination team and the EBCC board to understand the challenges that national coordinators and fieldworkers face in different regions in Europe. The workshops strengthened the collaboration between the national and European coordination teams and was thus useful at all levels.

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References

Herrando, S., Voříšek, P., Keller, V. (2013). The methodology of the new European breeding bird atlas: finding standards across diverse situations, *Bird Census News* 26 (1–2): 6–14.

Keller, V. (2014). EBBA2 — A New European Atlas of Breeding Birds, *Bird Census News* 26 (1–2): 3–5.

Kupka, M. (2015). *Two day workshop and training in Serbia*. [online] EBBA2 Latest News. Available at: http://www.ebba2.info/2015/05/01/two-day-workshop-and-training-in-serbia-3/ [Accessed 17 June 2016]

Kupka, M. (2015). *EBCC Board meeting and EBBA2 Steering Committee met with Ukrainian ornothologists in Kyjiv, Ukraine*. [online] EBBA2 Latest News. Available at: http://www.ebba2.info/2015/05/12/ebcc-board-and-ebba2-steering-comittee-met-with-ukrainian-ornithologists-in-kyiv-ukraine/ [Accessed 17 June 2016]

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The launch of the Common Farmland Bird Monitoring Scheme in Croatia

Vlatka Dumbović Mazal [1], Luka Basrek [1], Jelena Kralj [2]

[1] Croatian Agency for Environment and Nature, Radnička 80/7, 10 000 Zagreb, Croatia
vlatka.dumbovic@dzzp.hr

[2] Institute of Ornithology, Croatian Academy of Sciences and Arts, Gundulićeva 24, 10 000 Zagreb, Croatia

Abstract. The Croatian Common Farmland Bird Monitoring Scheme was initiated in 2014, which was a pilot-year. The scheme uses a semi-random method of point-transects. In each chosen 10×10 km grid cell we defined two transects, with 9 counting points placed along each of them. In 2015, the survey was repeated, and the number of survey plots had almost doubled. We surveyed 52 10×10 km grid cells at 936 points along 104 transects, and recorded information on 171 bird species. Their abundance and frequency at survey points recorded in both years were compared and lead to the selection of 37 common farmland bird species which will be used for the future calculation of the Common Farmland Bird Index in Croatia.

Introduction

During the preparation of the NATURA 2000 network proposal and the second edition of the Red Data Book of Birds of Croatia (Tutiš et al. 2013) in 2010 it became clear that the knowledge on abundances and trends of many rare and endangered bird species in Croatia was fairly good but that similar information about common species was often insufficient or lacking. Common bird monitoring on national level has not been a priority to institutions and NGOs dealing with birds in Croatia, due to insufficient capacities and limited available funding for that purpose.

However, in order to comply with EU legislation, the Croatian Ministry of Agriculture adopted the Common Farmland Bird Index as one of the environmental indicators for the Croatian Rural Development Programme 2014–2020. As a result the Croatian Agency for Environment and Nature (CAEN), in collaboration with the Institute of Ornithology in Zagreb and two NGOs (Association BIOM — BirdLife in Croatia and the Croatian Society for the Bird and Nature Protection) prepared for the first time a common bird monitoring programme aiming to obtain a national farmland bird index. CAEN followed best practices in setting up a comprehensive bird monitoring scheme taking into account the methodology presented in Vorišek et al. (2008) and information available on the PECBMS web site (http://www.ebcc.info/pecbm.html).

The first year of field work was conducted in 2014 and is considered as a pilot-year. However, during the survey in 2015 the number of survey plots was almost twice as high and this data will therefore be used for future trend analysis and calculation of indices.

The purpose of this article is to present the main features of the Common Farmland Bird Monitoring Scheme in Croatia including a description of the bird census methodology and sampling design. In addition, results from the survey years 2014 and 2015 are presented as well as the first selection of common farmland bird species to be used for the calculation of a national common farmland bird index.

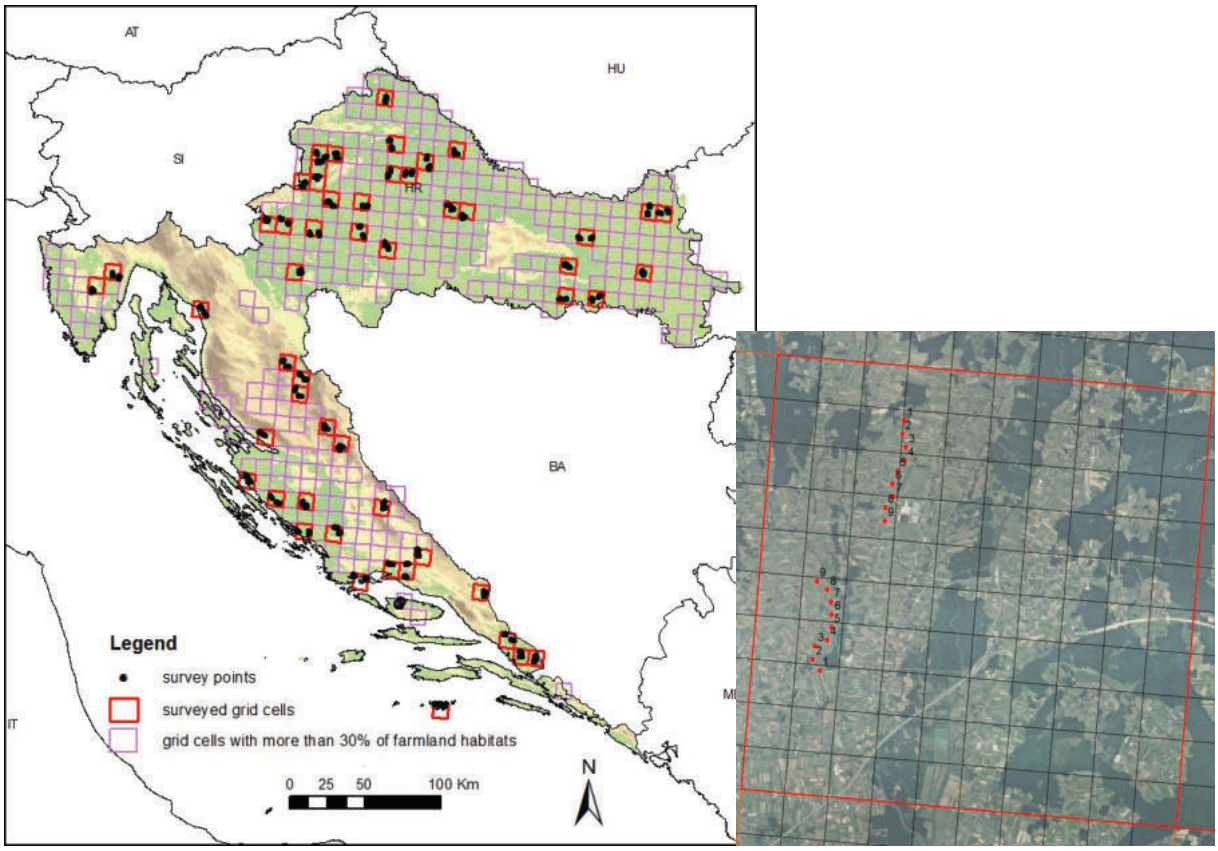

Figure 1. Position of the survey plots in Croatian Common Farmland Bird Monitoring Scheme (left) and an example of 18 survey points positioned along two transects within one 10×10 km grid cell (right).

Methodology

Fieldwork

The Croatian Common Farmland Bird Monitoring Scheme is based on point-counts placed along transects. Each transect consists of 9 points at intervals of 300 m.

A 10×10 km grid cell was found suitable for common farmland bird monitoring if its terrestrial area covers at least 30% of agricultural habitats. Due to the lack of more detailed habitat maps we used the Croatian CORINE 2012 Land Cover spatial database maps (CLC 2012) (CAEN, 2012) to determine the proportion of farmland habitats in the grid squares. The following CLC classes were considered as farmland: 2. Agricultural areas (including all sub-classes) and 3.2. Shrub and/or herbaceous vegetation association (including all sub-classes). Following this approach, 332 out of 827 10×10 km grid cells within Croatian territory were selected as a pool of suitable grid cells for the scheme (Figure 1).

Within a chosen 10×10 km grid cell the coordinators of the scheme decided on the starting points of each of the two transects in two randomly selected 1×1 km grid cells in a way that they coincided with existing paths or narrow (non-asphalted) roads. The subsequent 8 counting points on each route were placed at intervals of at least 300 m. Sometimes these distances could be slightly larger, depending on the situation in the field. In general this occurred when big trees or hedgerows limited the visibility at a stopping point.

Each observer can choose one or more 10×10 km grid cells (defined by the national ETRS grid) in which survey points were placed. Following the purpose of the scheme and to ensure its long term continuity, we proposed to the participants to choose the grid squares close to their homes or other sites they usually visit.

Counts were conducted early in the morning, in the period half an hour after sunrise until 9:00 hours. Counting at each point lasts 5 minutes. Observers were asked to wait 1 minute, standing quietly before starting recording, to allow the birds to settle down. During the counts birds were recorded in 3 distance bands: two fixed-width inner bands (0–30 m and 31–100 m) and one out-

Table 1. Grouping of standard CORINE land cover categories in habitat types

Habitat type	CORINE land cover categories included in habitat type
1. Continental grasslands	2.3.1. Pastures
2. Areas of intensive agriculture	2.1.1. Non-irrigated arable land areas and 2.1.2. Permanently irrigated land
3. Mediterranean grasslands	3.2.1. Natural grassland and 3.3.3. Sparsely vegetated areas
4. Permanent crops	2.2.1. Vineyards, 2.2.2. Fruit trees and berry plantations and 2.2.3. Olive groves
5. Agricultural mosaic habitat	2.4.2. Complex cultivation and 2.4.3. Land principally occupied by agriculture, with significant areas of natural vegetation

er band >100 m. All birds, identified by sight or sound, were recorded. Birds seen flying over the point were recorded separately as "flyovers".
Each point-transect was surveyed two times during the breeding season. The first visit took place early in the breeding season (April 1st – May 8th), the second in the late breeding season (May 9th – June 15th).
Habitat data were recorded at each point as a very simple categorization of main land-use observed around the survey point and 4 photographs (oriented towards cardinal points) were taken. Additionally, fieldworkers were asked to note any disturbance or obvious threats to the birds or their habitats. No surveys were made during rainy or windy weather conditions. All field data were entered in a Microsoft SQL database with the aid of the web-based multiuser application, created at the end of 2015. Data are organized in such a way that it is easy to extract them for calculation of trends using TRIM software (Pannekoek & van Strien 2001).

Data analysis

The higher count from the two visits was taken as a measure of species abundance and used in the analysis, although there were some exceptions due to the arrival phenology of certain species. For the late arriving migrants, like Yellow Wagtail *Motacilla flava* and Whinchat *Saxicola rubetra* that were abundant during first visits but still on migration, we took only results from the second visit survey into account. A similar approach for these two species was adopted in the Slovenian Common Farmland Bird Monitoring Scheme (Božić 2007, DOPPS 2011). For Starling *Sturnus vulgaris* and Hooded Crow *Corvus cornix* that are already present in large flocks during the second visit we took into account only the results from the first, early visits. For species with a large home range like Common Buzzard *Buteo buteo*, Common Kestrel *Falco tinnunculus*, Eurasian Hoopoe *Upupa epops,* Common Magpie *Pica pica* and White Stork *Ciconia ciconia* we calculated the annual number of breeding pairs taking into account higher counts per point-transects (i.e. nine survey points), not per point. Observers were asked to pay attention and to avoid double counts of mentioned species.
The frequency of the recorded breeding bird species was calculated as the ratio of the number of survey points where the species was observed at least once and the number of surveyed points within the borders of a certain bio geographical region (as defined by the European Environmental Agency (http://www.eea.europa.eu/data-and-maps/data/biogeographical-regions-europe-3) in which the species is breeding. This means that for a species that breeds only in Mediterranean region we have used the number of survey points in the Mediterranean region only. For species with large home ranges like Common Buzzard *Buteo buteo*, Common Kestrel *Falco tinnunculus*, Eurasian Hoopoe *Upupa epops*, Common Magpie *Pica pica*, White Stork *Ciconia ciconia*, and Hooded Crow *Corvus cornix* we calculated the frequency as the ratio of the number of transects where the species was observed at least once and the total number of surveyed transects that are positioned within borders of certain bio geographical region in which the species is breeding.
Survey plots were distributed throughout the Croatian farmland landscape, but to check if all habitat types were sufficiently covered we have used the CLC 2012 database to calculate the area of habitat types in a 100 m radius area of each surveyed point. CLC habitat categories present in survey localities were joined in five categories: intensive agricultural areas, extensive agricultural areas, permanent crops, continental grasslands and Mediterranean grasslands (Table 1).
Other habitats (forests, shrubs and settlements) covered less than 5% of surveyed plots and were usually patchily distributed.

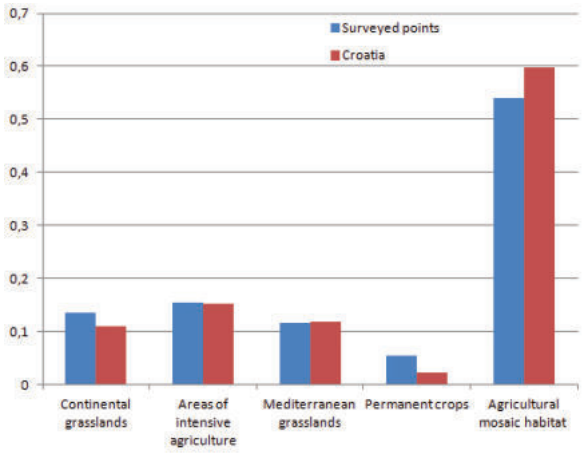

Figure 2. Distribution of five main habitat categories (based on CORINE land cover database) in the whole country and within the 100 m radius area of the surveyed points (N=936).

Results and discussion

Validation of the survey methodology and habitat and biogeographical region representation

The fieldwork in 2014 (pilot year) and 2015 was conducted by fieldworkers with ability to recognize bird species by sight or/and sound. During the two years of implementation of the scheme 33 participants have undertaken surveys. Overall 27 10×10km grid-cells (51 transects, 459 points) have been surveyed in 2014, and 52 10×10 km grid-cells (104 transects, 936 points) in 2015. All points surveyed in the 2014 pilot-project were also surveyed in 2015. Even though the methodology has not changed between the pilot year (2014) and the subsequent year (2015), we propose to use data from year 2015 as a baseline for the farmland bird index calculation in the future, because of the much higher number of point transects covered in 2015 and better coverage of all types of farmland habitats.

The proportion of the permanent crops (vineyards, olive groves and orchards) in the surveyed area (Figure 2) was quite larger than on national level. This is due to the fact that in Croatia fields with permanent crops are rarely larger than 25 ha (i.e. minimum unit mapping size of CLC 2012 map was 25 hectares) as a result of which the actual area and positioning of permanent crops in CLC 2012 differ from the actual situation in the field. After the comparison of the CLC map and digital orthophoto maps, at least at survey points, it became obvious that polygons usually identified as permanent crops are in fact mosaic habitats only partly covered by the mentioned habitat class. The percentage of the 5 main habitat categories within a 100 m radius area of the surveyed points in 2015 (n=936) showed similar distribution as for the whole country (Figure 2).

Table 2. Number and distribution of survey points in different biogeographical regions in different survey years

	Number of survey points per year	
Bio-geographical region	2014	2015
Alpine	5 (1.1%)	77 (8.2%)
Continental	261 (56.9%)	504 (53.9%)
Mediterranean	193 (42.0%)	355 (37.9%)
Total	459	936

The majority of 459 points surveyed in 2014 were situated in the Continental and the Mediterranean bio-geographical region. As in 2015 the number of point transects increased and the bio-geographical regions were represented proportionally to the availability of agricultural habitats in each of 3 regions present in Croatia (Table 2, Figure 3).

Bird data

Species total

A total of 181 bird species have been recorded during the two survey years. The numbers and abundance of species were higher in 2015, due to the increased number of point transects (Table 3). The average number of observations (yearly maximum) per point was identical: 26 observations in both years. The total number of all species observed differs between years. The proportion of non-breeding species (species on migration, summering or the ones just flying over the survey points) was similar, amounting to around 20%.

New breeding species

The increased number of survey points in the Mediterranean region in 2015 yielded records of new breeding species noted within this Monitoring Scheme like Zitting Cisticola *Cisticola juncidis*, Northern Bobwhite *Colinus virginianus* and European Roller *Coracias garrulus*. Other newly observed breeders in 2015, compared to the 2014 records, were some forest species like Middle Spotted Woodpecker *Dendrocopos medius*, Collared Flycatcher *Ficedula albicollis* and Goldcrest *Regulus regulus*, which were usually observed in the outer survey band and represented by only one pair.

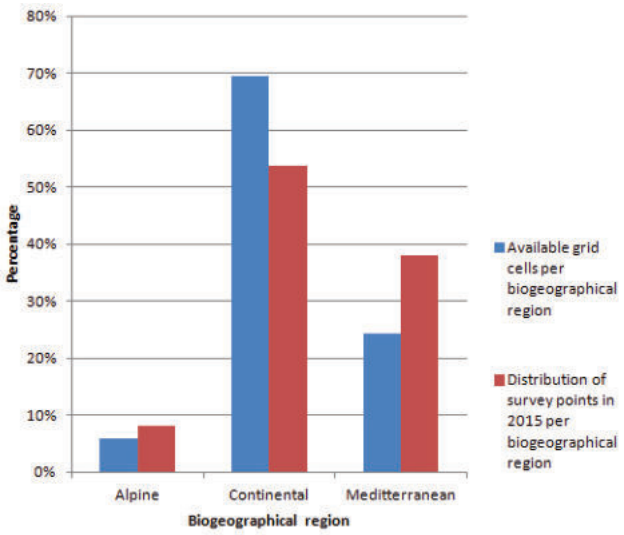

Figure 3. Distribution of survey points within bio-geographical regions in Croatia compared with availability of grid-cells with at least 30% of agricultural habitats in each bio-geographical region.

Table 3. Number of bird species and their abundance observed in different years of Croatian Common Farmland Bird Monitoring scheme.

Year	2014	2015	2015(but only points surveyed in 2014 too)
Species (total)	139	171	155
Species (breeding)	115	137	125
Observations (total)	11157	21623	10623

The 37 selected species

After only two years of survey it was possible to compare abundance and frequencies of 37 selected breeding bird species at the point-counts that were surveyed in both years (Table 4). Species compared fulfil following criteria:

— widely present in at least one of the three biogeographical regions in Croatia (Continental, Mediterranean and Alpine region) and its frequency is higher than 5%;

— the Croatian breeding population size is at least 1000 pairs

— the vast majority of the breeding population uses agricultural habitat for breeding and/or feeding.

Despite the fact that the Common Pheasant *Phasianus colchicus* is present at more than 50% of the survey points, it was excluded from the analysis, because the population of this species is heavily managed by hunters.

Comparing the results from the survey points included in the pilot-survey (2014) to those from the subsequent year (2015), revealed that the most abundant species were the same in both years: Barn Swallow *Hirundo rustica*, Common Nightingale *Luscinia megarhynchos* and House Sparrow *Passer domesticus*. Common Nightingale *Luscinia megarhynchos* and Common Whitethroat *Sylvia communis* were the most frequent (among bird species with small breeding territories and frequency calculated per point) in both years.

Frequency and abundance of some species had changed more than 30% (Table 4). Observed changes were apparently not linked to the migration strategy of the species (Table 5). Distinct large increase in abundance and frequency was noted in two long distance migrants, European Turtle-dove *Streptopelia turtur* and Eurasian Wryneck *Jynx torquilla* (Table 4). Such annual changes were observed also in the Slovenian and Hungarian Farmland Bird Monitoring Scheme (Szep et al. 2010, Kmecl & Figelj 2015).

Spanish Sparrow (*Passer hispaniolensis),* is common in the Mediterranean region (present in 20% of survey points in 2015) , but its abundance has almost halved in 2015 compared to 2014 (Table 2). Since it is a colonial species, often coming in huge flocks, it is sometimes difficult to assess the number of breeding pairs in the field using the point count method. Therefore we doubt that difference among years is a genuine change and attribute it to the impropriety of the field methodology. Additionally, this species is spreading its range in Croatia (Budinski et al. 2010) and it is

Table 4. Frequency and abundance (sum of yearly maxima per survey points) of selected farmland bird species (data from survey points observed both in 2014 and 2015) — 6 most distinct values in each column are highlighted; 2014 = Pilot year; 2015BY = data from points surveyed in 2014 and 2015 (BY = both years).

Species	Frequency 2014	Abundance 2014	Frequency 2015BY	Abundance 2015BY	Change in frequency 2014/2015BY	Change in abundance 2014/2015BY	Migration strategy
Hirundo rustica	44.88%	759	49.41%	806	90.83%	94.20%	long
Luscinia megarhynchos	62.75%	519	67.14%	478	93.45%	108.60%	long
Passer domesticus	21.13%	373	23.88%	382	88.50%	97.60%	resid
Alauda arvensis	34.64%	286	33.81%	275	102.46%	104.00%	resid
Passer hispaniolensis	20.21%	279	11.40%	160	177.26%	174.40%	short
Sylvia communis	58.62%	260	71.30%	304	82.22%	85.50%	long
Corvus cornix	82.35%	241	84.31%	218	97.67%	110.55%	resid
Oriolus oriolus	40.52%	238	49.41%	285	82.01%	83.50%	long
Lanius collurio	36.82%	232	43.50%	262	84.64%	88.50%	long
Passer montanus	17.43%	214	16.08%	165	108.39%	129.70%	resid
Miliaria calandra	21.13%	199	24.35%	223	86.79%	89.20%	resid
Emberiza citrinella	33.33%	152	41.74%	159	79.86%	95.60%	short
Carduelis chloris	20.48%	148	20.57%	128	99.56%	115.60%	short
Sylvia cantillans	36.87%	146	30.00%	133	122.90%	109.80%	long
Pica pica	60.78%	79	60.78%	68	100.00%	116.10%	resid
Anthus trivialis	27.20%	107	33.48%	121	81.25%	88.40%	long
Streptopelia turtur	19.39%	100	26.48%	135	73.22%	74.10%	long
Saxicola torquatus	15.03%	95	17.97%	97	83.65%	97.90%	long
Motacilla flava ssp.	15.25%	92	13.71%	86	111.24%	107.00%	long
Serinus serinus	12.85%	74	11.35%	55	113.25%	134.50%	short
Sylvia melanocephala	19.69%	74	20.73%	71	94.98%	104.20%	resid
Carduelis cannabina	12.42%	69	13.95%	72	89.02%	95.80%	short
Lullula arborea	10.68%	65	8.98%	60	118.88%	108.30%	short
Buteo buteo	66.67%	64	76.47%	53	87.18%	120.80%	resid
Streptopelia decaocto	12.20%	61	10.40%	55	117.31%	110.90%	resid
Emberiza melanocephala	18.13%	58	22.28%	68	81.39%	85.30%	long
Jynx torquilla	10.46%	57	19.62%	73	53.30%	78.10%	long
Sylvia hortensis crassirostris	23.23%	55	19.70%	42	117.93%	131.00%	long
Emberiza cirlus	9.80%	51	9.69%	59	101.18%	86.40%	resid
Falco tinnunculus	62.75%	48	58.82%	43	106.67%	111.60%	resid
Vanellus vanellus	14.56%	43	13.33%	33	109.22%	130.30%	short
Upupa epops	35.29%	43	35.29%	38	100.00%	113.20%	long
Galerida cristata	5.66%	35	6.15%	30	92.11%	116.70%	resid
Anthus campestris	13.13%	31	12.63%	26	103.97%	119.20%	long
Ciconia ciconia	37.93%	23	31.03%	13	122.22%	176.90%	long
Oenanthe hispanica	7.30%	18	5.70%	13	128.07%	138.50%	long
Lanius senator	7.30%	15	6.74%	14	108.31%	107.10%	long

hard to tell if the difference between years is the result of changes in farmland practice (habitat change) or due to other ecological factors.

Barn Swallows nests are situated in settlements and their nest census is not a part of common farmland bird monitoring methodology. During point-counts survey we gather data on barn swallows feeding on the farmland habitats and the change in abundance of "feeding" birds is difficult to use as a measure of Barn Swallow population change over the time. The same problem arises with White Stork *Ciconia ciconia* and Com-

Table 5. Yearly changes in frequency and abundance of selected farmland bird species with different migration strategies

	Migration strategy		
	Long distance migrants	Short distance migrants	Residents
Total number of species	18	7	12
Number of species — Frequency decreased > 20%	3	1	0
% of total species	17%	14%	0%
Number of species — Abundancy decreased > 20%	3	3	2
% of total species	17%	43%	17%
Number of species — Frequency increased > 20%	2	1	0
% of total species	11%	14%	0%
Number of species — Abundancy increased > 20%	2	0	0
% of total species	11%	0%	0%

mon Swift *Apus apus* observations. Since there is a long term White Stork nest census programme in Croatia we propose to use the results of this specific monitoring programme, for the calculation of White Stork population index as a part of the Croatian Farmland Bird Index, instead of using the results of the Common Farmland Bird Monitoring point-survey.

Conclusion

The first two years of the Common Farmland Bird Monitoring in Croatia provided information on abundance and frequency for 37 species. In the future, it will be necessary to implement a more robust analysis for the selection of bird species to be included in the calculation for the Croatian National Farmland Bird Index. Selection should be based not only on frequency of occurrence but also on the strong linkage to farmland habitat and reliability of the census methodology as described in Teufelbauer & Frühauf (2010) and Szep et al. (2012). Habitat preference should be derived from data collected in all habitat types where the species occur during the breeding season. We expect to get the necessary information from an analysis of the data collected within the three-year long project „EU Natura 2000 Integration Project", an inventory of the Croatian fauna, including birds. This project will finish by the end of 2016 and will result, among others, in the up-to-date breeding birds distribution on national level in Croatia.

Finally, monitored species that will show extremely uncertain trends, with high standard errors, should be excluded from the calculation of the farmland bird index (Szep et al. 2012).

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References

Božić, L. 2007. Monitoring splošno razširjenih vrst ptic v letu 2007 za določitev slovenskega indeksa ptic kmetijske krajine. Končno poročilo za MOP in MKGP. DOPPS — Društvo za opazovanje in proučevanje ptic Slovenije. Ljubljana, Slovenia.

Budinski, I., Čulina, A., Mikulić, K. and Jurinović, L. 2010. Bird species that have significantly changed breeding range on Croatian coastal area: comparison of 30 years old data and recent knowledge. Bird Census News 2010, 23 (1–2): 49–58.

CAEN (Croatian Agency for Environment and Nature). 2012. Croatian Corine Land Cover Spatial Database for 2012. Available at http://gis.azo.hr/gisapp/services/AZO_PublicData/Corine_Land_Cover_2012/MapServer/WFSServer?request=GetCapabilities&service=WFS

DOPPS (Društvo za opazovanje in proučevanje ptic Slovenije). 2011. Monitoring splošno razširjenih vrst ptic za določitev slovenskega indeksa ptic

kmetijske krajine — poročilo za leto 2010; poročilo za leto 2011. — DOPPS, Ljubljana, Slovenia.

Kmecl, P. and Figelj, J. 2015.Monitoring splošno razširjenih vrst ptic za določitev slovenskega indeksa ptic kmetijske krajine — poročilo za leto 2015. DOPPS — Društvo za opazovanje in proučevanje ptic Slovenije. Ljubljana, Slovenia.

Szép, T., Nagy, K., Nagy, Z. and Halmos, G. 2012. Population trends of common breeding and wintering birds in Hungary, decline of long-distance migrant and farmland birds during 1999–2012. — Ornis Hungarica, 20 (2): 13–63.

Teufelbauer, N. and Frühauf, J. 2010. Developing a national Farmland Bird Index for Austria. Bird Census News 2010, 23 (1–2): 87–97.

Voříšek, P., Klvaňová, A., Wotton, S. and Gregory, R.D. 2008. A best practice guide for wild bird monitoring schemes. CSO/RSPB. Czech Republic.

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EVENTS

20th International Conference of the EBCC

Do not forget that the next international conference of the European Bird Census Council (EBCC) **Bird Numbers 2016** will be held soon, from Sept 5–10, 2016, at the University of Halle (Saale) in Germany, hosted by Dachverband Deutscher Avifaunisten (DDA).

The conference is themed "**Birds in a changing world**".

It' getting close but Late Registration is still possible until 25 August!

More information on *www.birdnumbers2016.de* but here an overview of who the plenary speakers are and what they will present:

Franz Bairlein: Change of landscape and climate in Africa: Implications for birds in Europe
Director of the Institute of Avian Research "Vogelwarte Helgoland", professor of zoology at the University of Oldenburg and editor of the Journal of Ornithology. From 2001 to 2012, President of the German Ornithologists' Society.

Ariel Brunner: Birds and Common Agricultural Policy: What has to be changed?
Studied Environmental Sciences at Milan University. Currently head of EU Policy relevant for biodiversity conservation at BirdLife International.

Nigel Collar: Change and stability in the world list of bird species: the HBW-BirdLife endeavour, round 1
Senior Research Associate at Cambridge University, Dept of Zoology. He has served BirdLife International as Director of Science, Director of Development and Deputy Director, and now works as Leventis Fellow in Conservation Biology.

Gabriel Gargallo: A systematic approach to unsystematic data: The Euro Bird Portal project and visions beyond
Scientist at the Catalan Ornithological Institute and coordinator of the EuroBirdPortal (EBP) project, mobilizing citizen science information at the continental scale.

Beate Jessel: Nature Conservation in Germany: Can we change the world for birds?
President of the German Federal Agency for Nature Conservation (BfN); she has been Professor for Landscape Planning in Potsdam and Munich and is now teaching at the University of Bonn.

Verena Keller: Atlases as a tool to document changes in distribution and abundance
Scientist at the Swiss Ornithological Institute in Sempach (SOI) and Chair of the new European Breeding Bird Atlas (EBBA2) Steering Group.

Aly McCluskie: Birds and renewable energy, why counting counts
Researcher at the RSBP Centre for Conservation Science. Involved in the assessment of offshore wind developments. Honorary Lectureship at the University of Glasgow.

Johannes Wahl, Christoph Sudfeldt & Rainer Dröschmeister: Europe in a nutshell: Bird monitoring in a federal republic
Scientist at the DDA (Umbrella organization of German Avifaunists). He coordinates the International Waterbird Census in Germany and the Citizen Science project ornitho.de

Ruud P.B. Foppen — scientific programming committee of EBCC
Kai Gedeon — national organising committee

Erratum

The first author of the article “The EuroBirdPortal (EBP) project”, published in Bird Census News 27/1–2, Gabriel Gargallo, apologizes for the fact that Luis Brotons and Nicolas Titeux were mistakenly omitted from the list of authors.

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 articles and short reviews on your own activities within this field such as (preliminary) results of a regional or national atlas or a monitoring scheme, species-specific inventories, reviews or activity news of your country (as a delegate: see also below).

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– The length of the papers is not fixed but should preferably not exceed more than 15 pages A4 (including tables and figures), font size 12 pt, line spacing single (figures and tables included).
– Authors will receive proofs that must be corrected and returned as soon as possible.
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– References in the list: Gregory, R.D. & Greenwood, J.J.D. (2008). Counting common birds. In: A Best Practice Guide for Wild Bird Monitoring Schemes (eds. P. Voříšek, A. Klvaňová, S. Wotton & R.D. Gregory), CSO/RSPB, Czech Republic; Herrando, S., Brotons, L., Estrada, J. & V, Pedrocchi, V. 2008. The Catalan Common bird survey (SOCC): a tool to estimate species population numbers. Revista Catalana d'Ornitología, 24: 138–146.

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National delegates are also invited to send a summary of the status of monitoring and atlas work for publication on the website of EBCC, see www.ebcc.info/country.html.
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