

The EuroBirdPortal (EBP) project

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Abstract. During the last ten years, the number and diversity of web portals dedicated to the collection of bird observations has increased rapidly and most of Europe is now covered by at least one of them. While there is substantial variation in the scope and volumes of data gathered by different portals, the advent of online data collection has produced a vast amount of data that would previously have been impossible to amass. However, in order to make best use of the data gathered by online portals across Europe, a common database will need to be developed. The EuroBirdPortal (EBP) project has been conceived to overcome this problem by creating a common data repository that will hold data from each of the existing systems. It is a project of the EBCC developed through a partnership that currently comprises 29 institutions from 21 different European countries and was formally established in March 2015. The EBP will be the perfect companion to the work developed by the other two main projects undertaken by the EBCC: the Pan-European Common Bird Monitoring Scheme (PECBMS, undertaken with Birdlife International) and the new European Breeding Bird Atlas (EBBA2). The article describes in more detail the organization and geographical coverage, EBP's main goals and its role in the framework of the EBCC, and gives a review of the first developments and possible products.

Introduction

During the last ten years, the number and diversity of web portals dedicated to the collection of bird observations has increased rapidly and most of Europe is now covered by at least one of them. Some portals are based on very specific systems and cover a limited geographical area (e.g. a region or country) while others function across several countries using the same basic package. While there is substantial variation in the scope and volumes of data gathered by different portals, the advent of online data collection has produced a vast amount of data that would previously have been impossible to amass.

Unlike more traditional monitoring projects, which focus on structured data collection, these portals aim to obtain year-round data from the relatively unstructured but intensive and wide-

spread activities of birdwatchers. However, despite the fact that data are gathered following simple standardised protocols (e.g. complete lists), or in some cases even no protocol (casual observations), the vast amount of data contained in these portals and the sheer amplitude of their combined geographical and taxonomic coverage offer great potential for research on the temporal and spatial distribution of birds across large geographical areas. This is particularly the case where at least some basic information on recording effort is available. Such knowledge is urgently needed in order to increase understanding of bird distributions and movements throughout the year and to address issues concerned with conservation and management (e.g. wind farms, avian borne diseases, flight safety). It should be emphasised that such data are in no sense a substitute for well-structured monitoring



Figure 1. Countries currently involved in the EBP project.

programmes and atlases. Rather, they allow us to provide at least some basic information from situations where more structured surveys are not available.

In order to make best use of the data gathered by online portals across Europe, however, a common database will need to be developed. Data sources are very scattered, and several portals provide limited access to raw data or are available only in the native languages of their host countries. Moreover, given the diversity of initiatives and the well established nature of some of them, any attempt to favour only one of the systems or to create a new common one would be both undesirable and impractical.

The EuroBirdPortal (EBP) project has been conceived to overcome this problem by creating a common data repository that will hold data from each of the existing systems. This will contain the minimum aggregated information required to realise the full potential for large scale spatiotemporal analyses of such data and for other

research and applied uses that are appropriately undertaken at a European scale. Our plan is that in due course this repository will be updated automatically in close to real time, facilitating the production of near real time outputs.

Organization & geographical coverage

EBP is a project of the EBCC developed through a partnership that currently comprises 29 institutions from 21 different European countries (Figure 1). The partnership involves biodiversity data centres and ornithological institutions in their respective countries, which between them have extensive experience of collecting high quality monitoring data from thousands of volunteer birdwatchers and turning this information in sound science. This expertise will allow us to develop the scientific capability of EBP, and also to recognize its limitations.

The EBP project was formally established in March 2015. However, it is the result of an intensive ini-

Table 1. EBP timeline.

- September 2012*
- Creation of a working group for exploring the possibilities of on-line bird portals data integration and analysis
- June 2013*
- 1st EBP meeting (Sempach, Switzerland)
- First analyses done using aggregated data from 5 on-line bird portals operating in 12 countries
- September 2013*
- 2nd EBP meeting (Cluj, Romania)
- Definition of the EBP overall goals and expected products
- Overall agreement between on-line bird recording schemes approved by the EBCC
- February 2014*
- 3rd EBP meeting (Ilmitz, Austria)
- EuroBirdPortal becomes the official name of the project
- Initial data sharing structure defined (based on aggregated data by week and 10x10 km square)
- June 2014*
- 4th EBP meeting (Thetford, UK)
- October 2014*
- 5th EBP meeting (Satigny, Switzerland)
- EBCC Board agrees EBP to become an EBCC project
- March 2015*
- 6th EBP meeting (Hoeilaart, Belgium)
- EBP agreement formally approved
- EBP demo viewer ready to be launched in June 5th (Green Week)

Table 2. Links to the on-line bird portals currently submitting data to the EBP project (see the corresponding websites and <http://www.eurobirdportal.org/> —to be launched in early June— for further information and the list of organizations involved).

On-line bird portal	Country/Region
http://www.ornitho.at/	Austria
http://observations.be/ & http://waarnemingen.be/	Belgium
http://avif.birds.cz	Czech Republic
http://www.dofbasen.dk/	Denmark
http://tiira.fi/	Finland
http://www.faune-ain.org/	Ain (France)
http://www.faune-alsace.org/	Alsace (France)
http://www.faune-aquitaine.org/	Aquitaine (France)
http://www.faune-ardeche.org/	Ardèche (France)
http://www.faune-auvergne.org/	Auvergne (France)
http://www.faune-tarn-aveyron.org/	Aveyron-Tarn (France)
http://www.faune-bretagne.org/	Bretagne (France)
http://www.faune-champagne-ardenne.org/	Champagne-Ardenne (France)
http://www.faune-charente.org/	Charente (France)
http://www.faune-charente-maritime.org/	Charente-Maritime (France)
http://www.faune-cher.org/	Cher (France)
http://www.oiseaux-cote-dor.org/	Côte-d'Or (France)
http://www.nature79.org/	Deux-Sèvres (France)
http://www.faune-drome.org/	Drôme (France)
http://franche-comte.lpo.fr/	Franche-Comté (France)
http://haute-savoie.lpo.fr/	Haute-Savoie (France)
http://www.faune-iledefrance.org/	Île-de-France (France)
http://www.faune-touraine.org/	Indre-et-Loire (France)
http://www.faune-isere.org/	Isère (France)
http://www.faune-lr.org/	Languedoc-Roussillon (France)
http://www.faune-loire.org/	Loire (France)

Table 2 continued.

http://www.faune-loire-atlantique.org/	Loire-Atlantique (France)
http://www.faune-lorraine.org/	Lorraine (France)
http://www.faune-anjou.org/	Maine-et-Loire (France)
http://www.faune-maine.org/	Mayenne-Sarthe (France)
http://www.faune-nievre.org/	Nièvre (France)
http://www.faune-paca.org/	Provence-Alpes-Côte d'Azur (France)
http://www.faune-rhone.org/	Rhône (France)
http://www.faune-savoie.org/	Savoie (France)
http://www.faune-vendee.org/	Vendée (France)
http://vienne.lpo.fr/	Vienne (France)
http://www.faune-yonne.org/	Yonne (France)
http://www.ornitho.de/	Germany
http://blx1.bto.org/birdtrack/main/data-home.jsp	Ireland
http://www.ornitho.it/	Italy
http://dabasdati.lv/	Latvia
http://www.ornitho.de/	Luxembourg
https://ndff-ecogrid.nl	Netherlands
http://artsobservasjoner.no/fugler/	Norway
http://birdlaa5.memset.net/worldbirds/poland.php	Poland
http://birdlaa5.memset.net/worldbirds/portugal.php	Portugal
http://aves.vtaky.sk/en/zoology	Slovakia
http://www.ornitho.cat/	Catalonia (Spain)
http://www.worldbirds.org/v3/spain.php	Spain
http://svalan.artdata.slu.se/birds/	Sweden
http://www.ornitho.ch/	Switzerland
http://blx1.bto.org/birdtrack/main/data-home.jsp	United Kingdom

tiative started in September 2012 with the creation of a working group devoted to explore the possibilities of integrating and analysing data from different European on-line bird portals, and with the organization of the first EBP meeting in Switzerland in June 2013 (Table 1). The partnership is formally based in two key agreements: the *Collaborative agreement between on-line bird recording schemes operating in Europe* and the *Collaborative agreement between on-line bird recording schemes participating in the EuroBirdPortal (EBP) project*. The first is a generic agreement promoted by the EBCC since 2013 to encourage data sharing and research at the European scale and to support the development of future European Breeding Bird Atlases. The second and more recent agreement is made within the framework of the more generic one, and sets out the specific terms and conditions of the EBP initiative and names EBCC as the organization formally responsible of the project and owner of the intellectual property.

Overall, the online data gathering portals run by the EBP partners (Table 2) collect some 30 million bird records every year thanks to the collaboration of more than 100,000 active observers (Figures 2 & 3). This is the largest and most dynamic citizen science biodiversity data flow in Europe, and, has great potential in terms of conservation, research and outreach.

The EBP goals and its role in the framework of the EBCC

The EBP will be the perfect companion to the work developed by the other two main projects undertaken by the EBCC: the Pan-European Common Bird Monitoring Scheme (PECBMS, undertaken with Birdlife International) and the new European Breeding Bird Atlas (EBBA2). The EBP project will, specifically, complement PECBMS and EBBA2 by focussing on the study of continent-wide seasonal changes in bird distributions as well as those seasonal changes

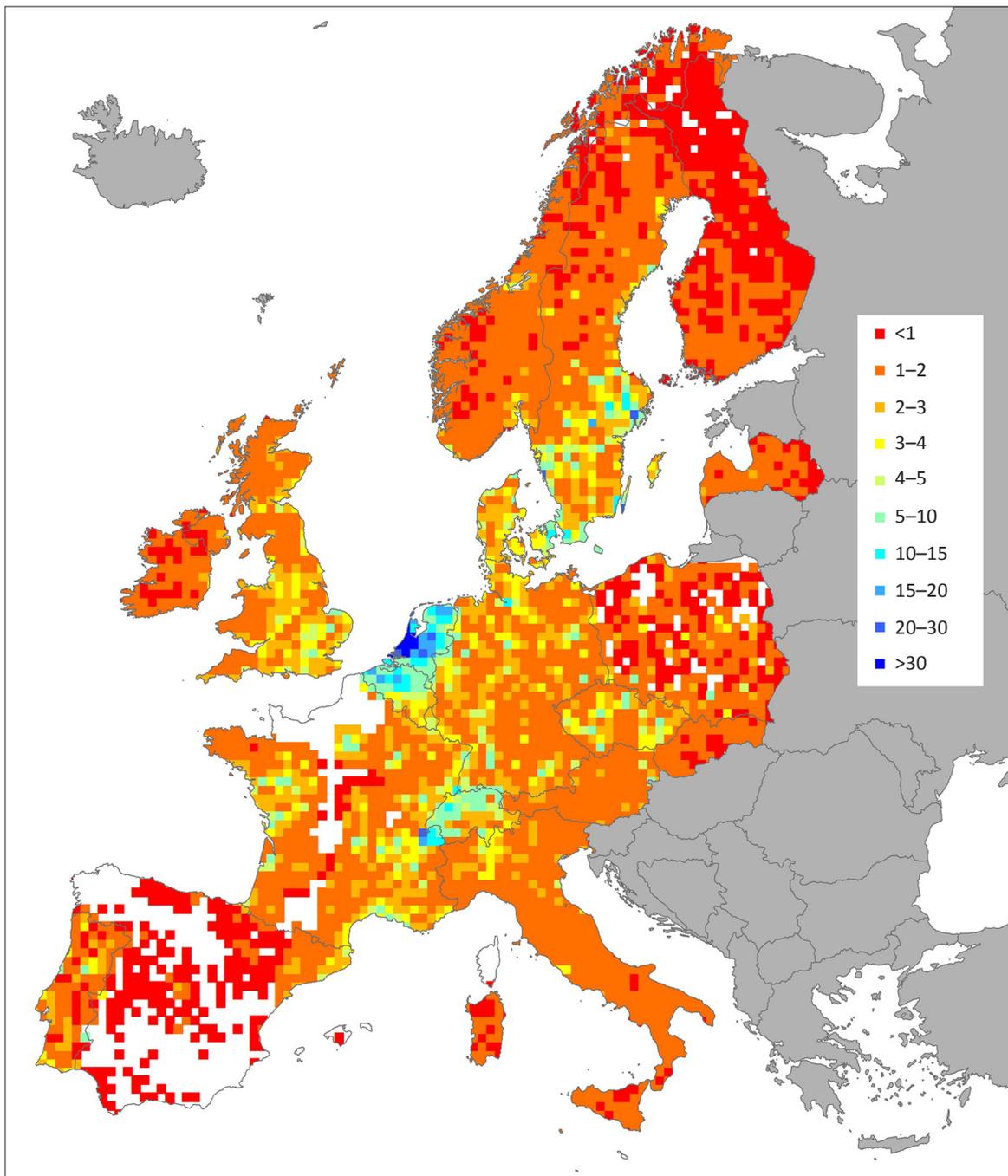


Figure 2. Mean weekly number of observers by 10x10 km square that submitted records to the EBP partner's on-line bird portals in 2013.

taking place too fast as to be properly tracked by more traditional monitoring projects. EPB will promote the use of simple, standardized bird recording protocols so as to improve the quality of the results that can be produced using these data.

EBP main objectives

The purpose of EBP is to establish a European data repository based on aggregated data from

online bird recording portals from across Europe with the following major objectives:

1) To describe large scale spatiotemporal patterns of bird distributions (seasonal distributional changes, migratory patterns, phenology) and their changes over time.

Modelling bird distributions in time and space.

Delimitating migratory flyways and bird movements.

Modelling phenological patterns.

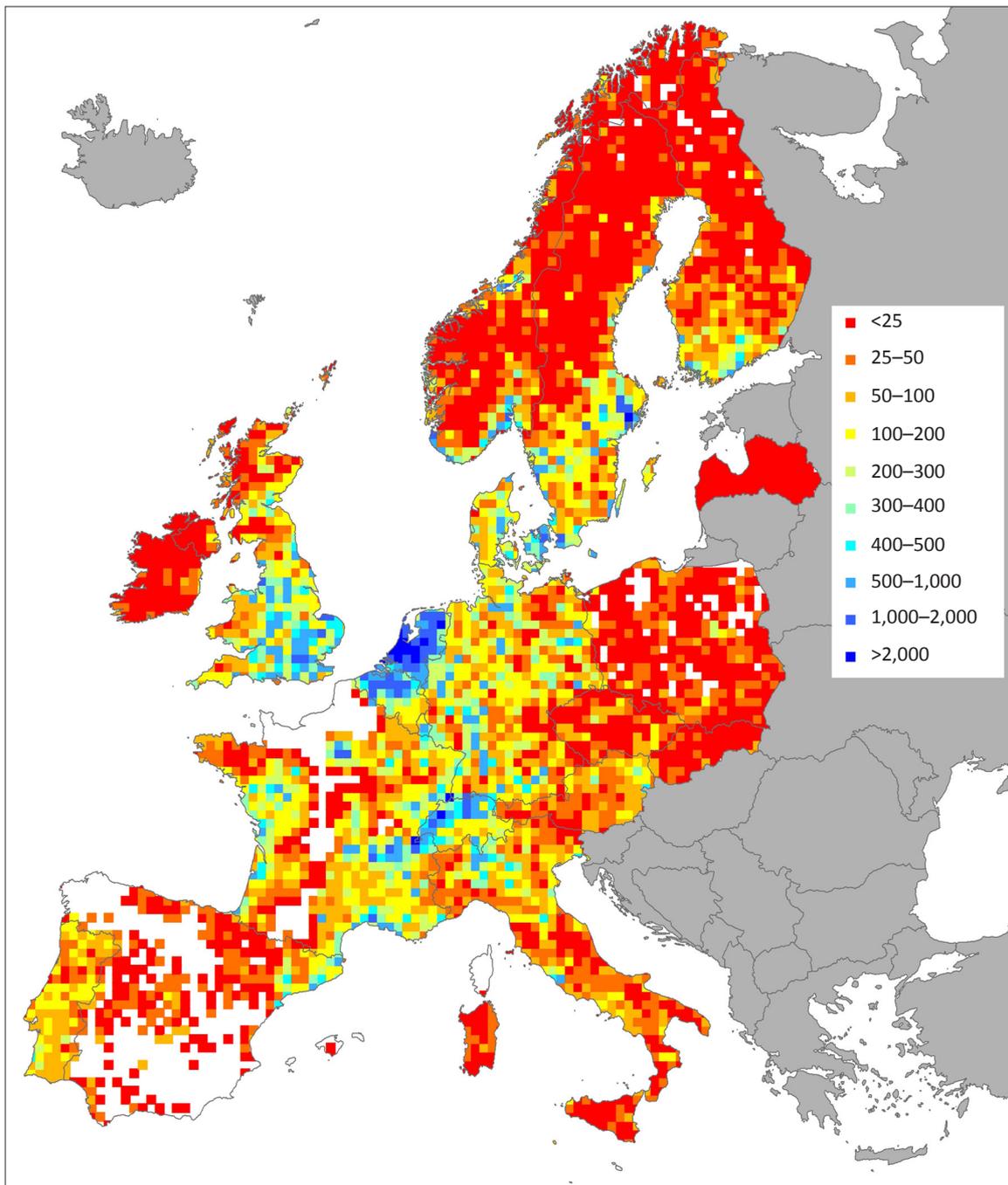


Figure 3. Mean weekly number of observations by 30×30 km square submitted to the EBP partner's on-line bird portals in 2013.

2) To improve the value of online data gathering portals.

Increase relevance and interest of the data collected, adding value to partner portals and thus encouraging people to record birds.

Promote standardisation and best practices.

Improve cooperation amongst birdwatchers and organisations.

EBP products

The purpose of the EBP project is to develop different products and initiatives that will help fulfil the objectives of the initiative. The following are some of the most relevant ones:

1) The EBP data repository.

2) The establishment of early warning systems for human-bird related conflicts.

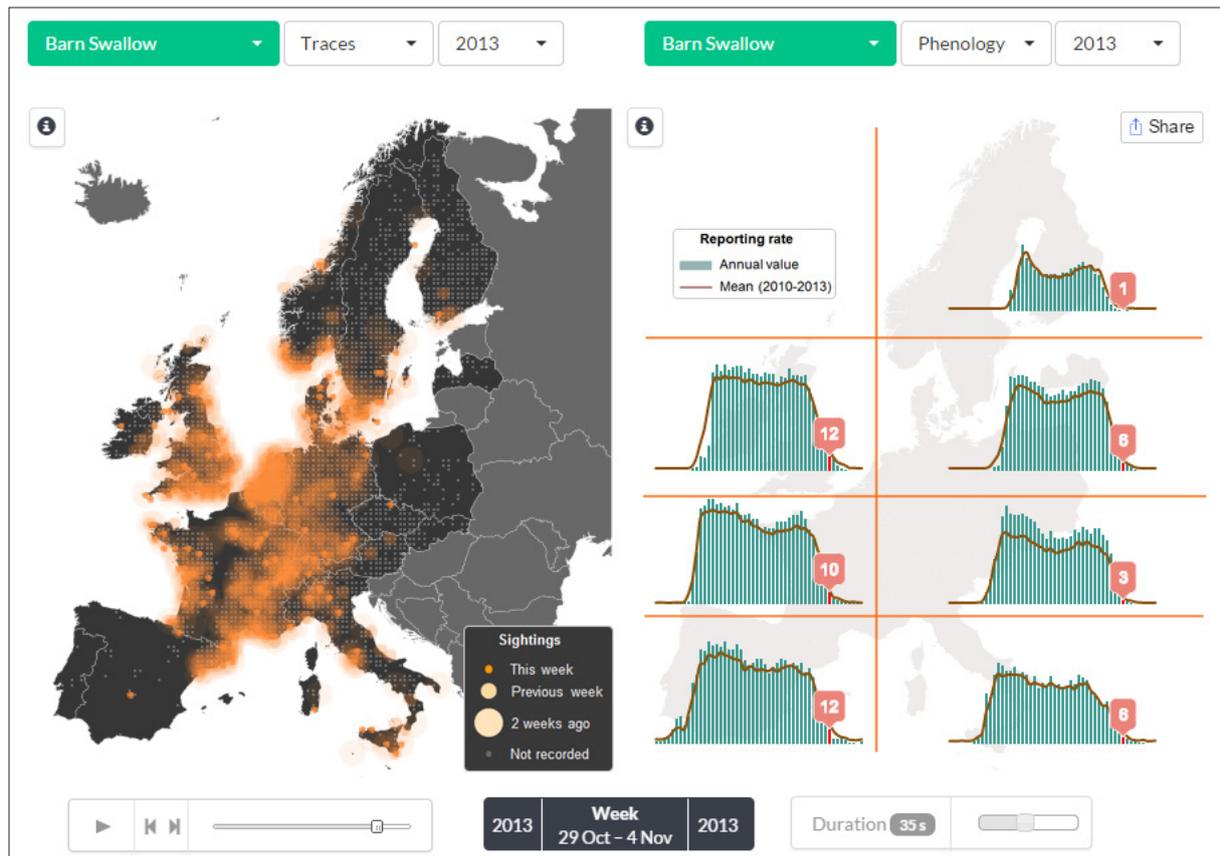


Figure 4. Screenshot of one of the map combinations that will be shown in the EBP demo viewer (<http://www.eurobird-portal.org/> —to be launched in early June—). The viewer will allow users to compare two animated maps of any species (or climatic variable), year and type. In this case (though only one week frame is shown here), the left map would show the 30×30 km squares where the Barn Swallow was recorded in each given week and the previous two ones (“traces map”), while the right one would depict the phenology of the same species in seven different geographical sectors according to the percentage of 30×30 km squares where the species was been recorded in each sector and week (“phenology map”). Data from 2013 was selected in both cases.

- 3) The creation of climate change bird indicators based on phenological patterns.
- 4) The implementation of a Spatiotemporal Bird Modelling Network.
- 5) The EBP website.

The first EBP developments

To attain the main objectives of the EBP project will certainly take time and will require us to raise significant funding. Therefore, the initial aims of the project are to demonstrate the scope and potential of the initiative and of its potential future developments. A perspectives paper, highlighting the soundness and relevance of the project and its several applications in research and conservation, is expected to be ready for submission in the forthcoming months. An on-line demo viewer giv-

ing an initial indication of the potential outputs from collaborative work between European on-line bird recording schemes will be launched in early June in the framework of the Green Week, the annual conference on European environment policy organized by the European Commission (cf. <http://www.greenweek2015.eu/>).

The EBP demo viewer will be accessible from each of the partner’s on-line bird portals and will show a set of five different animated maps depicting the week by week continent-wide distributional patterns of selected bird species in four years (2010–2013) and at a resolution of 30×30 km (Figure 4). Temperature and precipitation maps will also be shown for comparative purposes. In total, there will be several thousands of different map combinations available to choose from.

Acknowledgements

The EBP project is possible thanks to the activity of many thousands of birdwatchers who submit their observations to the on-line bird recording

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