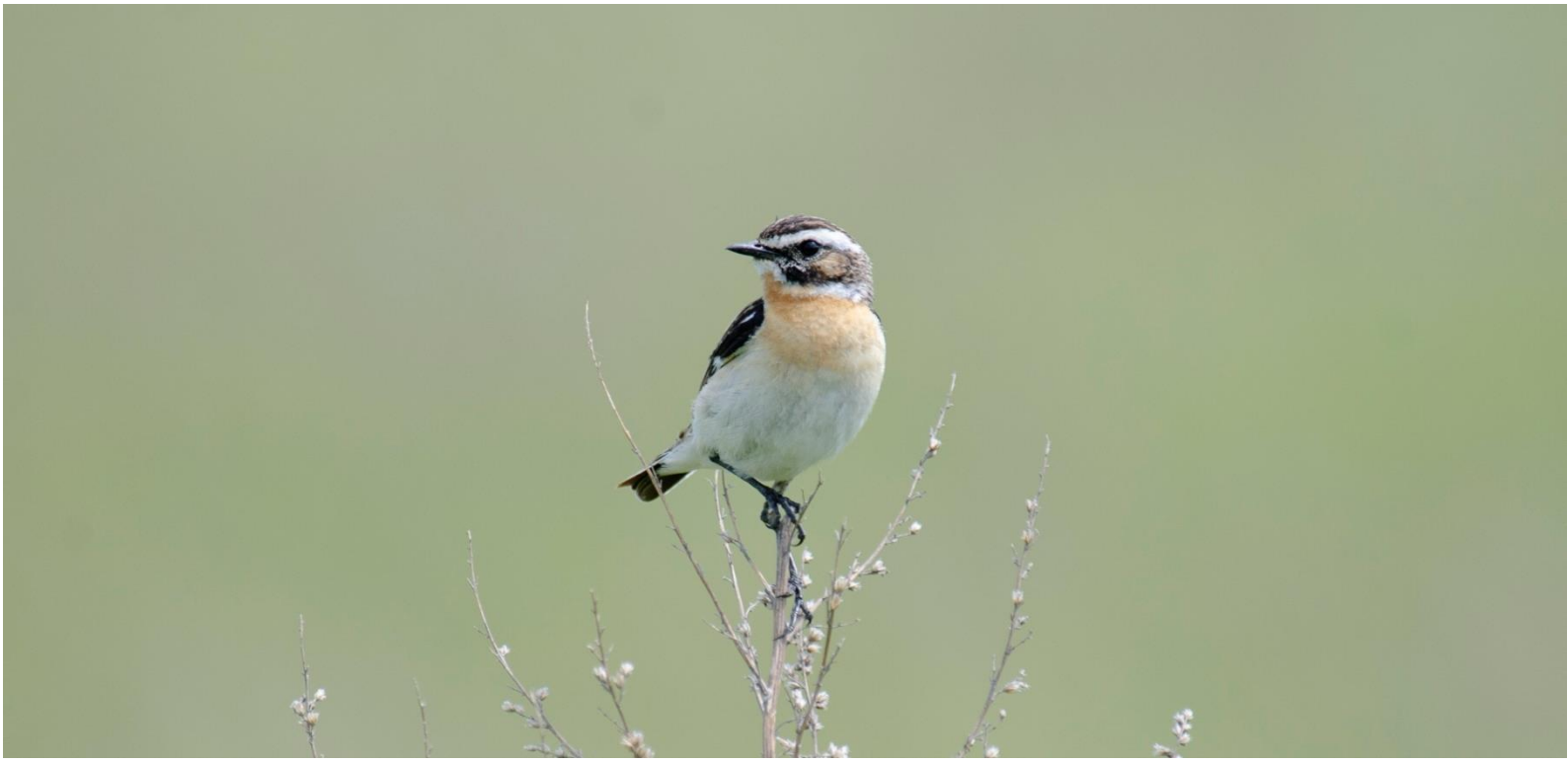
Bird Numbers 2025: Synergies in monitoring for conservation

Abstract Book

BIRD NUMBERS 2025 RIGA



23rd conference of the European Bird Census Council

March 31 – April 4, 2025, Riga, Latvia

UNIVERSITY OF LATVIA

BirdLife INTERNATIONAL

LATVIJAS ORNITOLOĢIJAS BIEDRĪBA

EBCC European Bird Census Council every bird counts

Editors

Ainārs Auniņš, Oskars Keišs

Faculty of Medicine and Life Sciences, University of Latvia, Riga

Scientific Programme Committee

Aleksi Lehikoinen (chair), Ainārs Auniņš, Dawn Balmer, Sergi Herrando, Verena Keller, Jean-Yves Paquet, Petr Voříšek

Local Organising Committee

Oskars Keišs (chair), Ainārs Auniņš (vice-chair), Ance Priedniece (volunteer coordinator), Agnis Bušs, Valts Jaunzemis, Edgars Lediņš, Antra Stīpniece

Faculty of Medicine and Life Sciences, University of Latvia, Jelgavas iela 1, Riga, LV-1004, Latvia

Conference logo

The logo of the Conference pictures two species with different stories: the Great Snipe *Gallinago media* and a silhouette of the White Wagtail *Motacilla alba* both occur in Latvia. The first was formerly considered extinct as a breeder in Latvia, but dedicated surveys found a significant breeding population in the floodplains of eastern Latvia; the second is a widespread breeder and the national bird of Latvia.

Cover photo

Whinchat *Saxicola rubetra* by Ainārs Auniņš, Nature Park ‘Kuja”, 22 June 2008

DOI: https://doi.org/10.22364/bn2025.ab

Contents

Plenaries

Tuesday April 1, 2025

9:30 – 10:15 *Auditorium Magnum*

BIRDS OF LATVIA THROUGH TIMES: THE WAY TO MONITORING OF COUNTRY'S AVIFAUNA

Oskars KEIŠS[a], Ainārs AUNIŅŠ[a], Viesturs ĶERUS[b]

[a]Faculty of Medicine and Life Sciences, University of Latvia, [b]Latvian Ornithological Society

Avifauna of Latvia formed after the last glaciation ~12000 years ago. The first description of the nature of Livonia by Jacob Benjamin Fischer was published in 1778 in Leipzig. In 1792 first book on birds of Courland was published by Johann Melchior Gottlieb Beseke in Mitau (present day Jelgava) and Leipzig. Almost 200 years later the first breeding bird atlas of Latvia 1980–1984 was made and published (Priednieks et al. 1989). During the atlas, the first systematic monitoring surveys of Latvian bird fauna were made using the Finnish line transect method. Given the broad time scale, the changes in the bird fauna in Latvia are also considerable. Once abundant breeding species in Latvia, like Short-eared Owl, has become only occasional breeder, other species, like Willow Ptarmigan, once abundant in raised bogs are extinct now. The successful reintroduction of Beaver in the 20th century has led to wet forest areas where species like Black Stork and White-backed Woodpecker flourished in 1990ties. Overharvesting of forests has set the population of Black Stork on the decline now – 30 years later. Latvia has a strong international responsibility to protect forest species, especially Lesser Spotted Eagle, Black Stork and woodpecker species. While climate change affects avian distributions, management practices both in forestry and agriculture continue to shape the fauna of Latvia as well as the Baltic Sea region. Changes in the agricultural landscape of Latvia have caused Roller to become a rarity, occurring at only one locality despite being a very common species only 60 years ago. Agriculture has also shaped trends of other species like Corncrake, Ortolan Bunting and Yellow Wagtail, all currently in decline in Latvia. Latvian Ornithological Society was formally founded only 40 years ago in 1985 as an outcome of the volunteer work during the first breeding bird atlas 1980–1984. Volunteers of the Latvian Ornithological Society continue to play a leading role in monitoring the bird populations of Latvia.

13:45 – 14:30 *Auditorium Magnum*

BIODIVERSITY MONITORING CONTEXT AND DIRECTIONS IN RELATION TO EU POLICIES

Nestor FERNANDEZ

German Centre for Integrative Biodiversity Research (iDiv)

Essential Biodiversity Variables (EBVs), a framework initially conceptualized by GEO BON, have a great potential to support policy-relevant biodiversity assessments. Yet, producing consistent biodiversity change data across spice, time and multiple dimensions of biodiversity remains challenging. Here, I review progress and discuss concepts of the EBVs framework and the relevance of EBVs to bridge gaps between biodiversity monitoring and policy-relevant assessments. By integrating multiple data sources including remote sensing, coordinated monitoring programs, and

citizen science, I propose ways in which data workflows under the European Nature Directives and the Nature Restoration Regulation can be effectively enhanced. Ensuring that EBV data are widely used and accessible is crucial for fostering comprehensive and coherent biodiversity monitoring across Europe.

Wednesday April 2, 2025

9:00 – 9:45 *Auditorium Magnum*

USING ORNITHOLOGICAL FIELD DATA TO PREDICT RAPID EVOLUTION OF MIGRATION IN RESPONSE TO CLIMATE CHANGE

Jane REID

Norwegian University of Science & Technology / University of Aberdeen

Many European bird populations are dramatically changing in size and distribution in response to changing climates and habitats. Efficient conservation efforts, prioritisations and evaluations require that we can monitor current changes, and ideally also predict future changes. However, the ambition to predict future population sizes and distributions is highly challenging. This is not least because, as well as directly impacting demography, ongoing climate and habitat changes could also drive rapid evolution of key aspects of bird biology and ecology. Such rapid evolution could potentially allow populations to persist despite environmental stress. While predicting the form and rate of evolution is itself highly challenging, it is now possible to do so using combinations of widely-collected ornithological field data. I will illustrate this principle using colour-ringing, resighting and nest monitoring data from partially migratory European Shags (*Gulosus aristotelis*) in Scotland, thereby investigating whether shags could escape from mortality caused by severe winter storms through rapid evolution of seasonal migration. I show that extreme storms can alter the form of natural selection acting on seasonal migration versus residence in adults and juveniles, and show evidence of underlying heritable variation in migration. Yet, the potential for rapid adaptive evolution in the context of major environmental perturbations is highly constrained, and may therefore be too slow to rescue declining populations from extinction.

Friday April 4, 2025

9:00 – 9:45 *Auditorium Magnum*

USING BIRD DATA FOR CONSERVATION PRIORITISATION

Heini KUJALA

Natural History Museum of Finland, University of Helsinki

The urgency of reversing biodiversity decline is reflected in the increasing ambition of national and international conservation policies, such as the Kunming-Montreal Global Biodiversity Framework, EU Biodiversity Strategy and Restoration Law. At the same time, competition between different land use needs is as high as ever, particularly in densely populated areas such as Europe. To achieve

ambitious biodiversity targets, conservation measures will need to be strategically placed and cost-effective.

Spatial conservation prioritisation is a powerful conservation planning tool that optimises the placement of conservation measures in space, so that benefits can be simultaneously maximised for many species within budgetary constraints. It allows identifying sets of priority areas that can cost-effectively help conserve and improve habitats of multiple species. Spatial prioritisation tools have gained popularity and are increasingly used to support real-world land use and conservation planning. The most common bottleneck for utilising spatial prioritisation tools, however, is that they require spatially complete data on species at large scales and at high spatial resolutions, which are not always available. Consequently, well monitored taxa, such as birds, are often overpresented in spatial conservation plans. But even with birds, observation-based data may need to be expanded using e.g., range maps or species distribution models.

In this talk, I will go through the basics of spatial prioritisation and show how bird data can and have been used in prioritisations to support land use and conservation decision-making. I will also touch on the issue of data gaps and discuss when data related uncertainties are particularly important and whether there are instances where they could be safely ignored.

9:15 – 10:00 *Auditorium Magnum*

THE INTEGRATION OF DATA, THE SPIRIT OF THE EBCC AND CHALLENGES FOR THE FUTURE

Sergi HERRANDO

European Bird Census Council

The European Bird Census Council (EBCC) was founded in 1992 as a partnership of national organisations aimed to develop the first European Breeding Bird Atlas (EBBA1) by means of the integration of information on breeding birds across Europe. Likewise, in 2002 the EBCC and BirdLife International initiated the Pan-European Common Bird Monitoring Scheme (PECBMS) as an integration of population trends from national monitoring schemes. In 2010 the General Meeting of the EBCC decided to start a second European atlas (EBBA2) following the same principles of EBBA1 and PECBMS. In 2014 the EuroBirdPortal (EBP) started to integrate a vast amount of bird observations collected by online portals managed by national organisations to build a comprehensive European portal. All these achievements have been possible thanks to the development of governance agreements, coordination units, data flows, databases and analytical tools. All together, these features have shaped the spirit of integration of the EBCC and have become a great example for others. In the future, the EBCC will have to make new efforts of integration. Among them, we could cite species not included so far in PECBMS or EBP, or data from East and Southeast Europe. However, needs of integration will not only come from the perspective of the data that flows to the EBCC projects, but also from that of novel outcomes. For example, the spatial and temporal perspectives of bird population dynamics have so far mostly run in parallel, but their combination have proven to be promising tools for science and conservation. The EBCC and its partnership, researchers and policy makers will have to boost collaboration and together find new ways to integrate their data and correctly inform on challenges posed by the biodiversity crisis.

Oral contributions

Tuesday April 1, 2025

10:45 – 12:15 *Auditorium Magnum*

SUCCESSFUL POPULATION RECOVERY: MONITORING NEST BOXES FOR THE EUROPEAN ROLLER (*CORACIAS GARRULUS*) IN SERBIA

Dimitrije RADIŠIĆ[a], Oto SEKEREŠ[b], Atila AGOŠTON[c], Ištvan BALOG[d], Dejan ĐAPIĆ, Ištvan HAM[b], Jožef GERGELJ, Zoran KARIĆ, Mirjana RANKOV[c], József SIHELNIK[e], Nenad SPREMO[f], Anita SUČIĆ[g], Milivoj VUČANOVIĆ[h], Lea MILINSKI[a], Nikola VELJKOVIĆ[a]

[a]University of Novi Sad, Faculty of Sciences, Department of Biology and Ecology, [b]Riparia Association of Environmentalists, [c]Eco centar „Tisa“ Novi Kneževac, [d]Društvo ljubitelja prirode Falco, [e]Arcus Ecological Association, [f]Bird Protection and Study Society of Serbia (BirdLife Serbia), [g]Udruženje za zaštitu velike droplje, [h]JKP „Drugi oktobar“

The population of European Roller (*Coracias garrulus*) is declining across Europe, with a significant reduction in its range and local extinctions. Habitat degradation has been identified as the primary threat; however, various limiting factors, such as lack of suitable nesting cavities affect populations in different regions. Trends of certain populations have completely reversed due to the installation of nest boxes. Once common throughout Serbia, roller population had declined to 60-70 pairs, with near-total disappearance from the Pannonian region. The nest boxes installation and monitoring of their occupancy and reproductive success started in 2003, with the boxes being occupied almost immediately. The population in the Pannonian region has been recovering rapidly, following the positive population trends in neighbouring Hungary. In central Serbia, however, the population continued to decline until the initiation of the nest boxes programme in 2018, after which the declining trend was halted. The overall population from nest boxes in Serbia is gradually increasing: 2005 – 4 breeding pairs, 2010 – 66, 2015 – 158, 2020 – 308, 2023 – 455, with a rising proportion of pairs nesting in nest boxes. The range expanded from four 10x10 UTM squares in 2005 to 86 in 2024, and the roller successfully recolonized a significant portion of its historical range, particularly within the Pannonian area. The population utilizing natural cavities has not been systematically studied, but it is estimated to only 10-15% of total number of breeding pairs, underscoring the importance of nest box monitoring for tracking the national population trend. While the installation of nest boxes and monitoring efforts have been partially funded through various projects, they are primarily conducted by a group of volunteers with licences for bird ringing. Beside obvious success, monitoring of roller recovery indicates potential future challenges that need to be addressed to ensure a secure future for this species.

A SUCCESSFUL NEW SCHEME TO MONITOR RARE BREEDING BIRDS IN GERMANY: CONCEPT, PROTOCOLS AND FIRST RESULTS

Malte BUSCH[a], Bettina GERLACH[a], Kees KOFFIJBERG[a], Rainer DRÖSCHMEISTER[b], Johannes WAHL[a]

[a]Federation of German Avifaunists (DDA e.V.), [b]Federal Agency for Nature Conservation

Traditionally data on rare breeding birds in Germany are gathered via annual queries, send out to the responsible institutions, to collect up-to-date population estimates at federal state level. This approach worked well for decades, but also induces challenges concerning data quality and aggregation, comparability due to varying survey efforts and little standardisation across the federal states.

To tackle these issues a restructuring process of the German rare breeding bird monitoring scheme, coordinated by DDA, was initiated in 2017 aiming at the implementation of a modular approach which facilitates the participation of a large spectrum of volunteers due to reasonable survey effort, the possibility to focus on distinct species of personal interest and opportunities to participate (almost) independent of the levels of ornithological experience. This was achieved by the development of distinct monitoring protocols for single bird species (e.g. Grey Heron, Sand Martin, Corncrake) and concise species groups (e.g. woodpeckers, gulls and terns, waterbirds), allowing a survey design with simple, tailor-made monitoring methods. Since the restructuring process started, 17 protocols have been developed and implemented. Some protocols now run for 6 years and built up a good coverage, enabling initial trend analysis.

All newly developed protocols are technically implemented via ornitho.de and the app NaturaList to allow digital and mobile data collection and transmission, allowing volunteers to focus on the rewarding field work, while desk work is reduced to a minimum.

The nearly complete digital data flow allows short term feedback after the end of the monitoring season, helping to keep volunteers motivated. Moreover, it allows the provision of a growing number of digital tools enabling volunteers to visualise, analyse and compare their own data.

BIRD MONITORING CAN INFORM ECOSYSTEM MANAGEMENT IN ARMENIA

Karen AGHABABYAN

BirdLinks Armenia NGO

The current development of Armenia's economy in three major ways (mining, agriculture, and tourism) is supposed to increase the load on the natural ecosystems: woodlands, wetlands, grasslands, and arid lands. Meanwhile, the monitoring of ecosystems in the country suffers due to a lack of appropriate capacity. The National Bird Monitoring, implemented in the country since 2003, can be used to identify indicator bird species for the key types of ecosystems in the country and the crosscutting influence of climate change. Analysis of the abundance of bird species and communities versus ecological characteristics of the key ecosystems identified the following. In the forests, the composition of bird species, the total number of all birds, and 11 species can indicate forest degradation, fragmentation, and aridization. In grasslands, the total number of all birds and seven species can indicate degradation of the mountain steppes and meadows due to overgrazing and uncontrolled mowing. In arid lands, the change of bird species composition and total number of all

birds can indicate the degradation of semi-deserts, scrublands, and juniper woodlands due to their transformation into orchards; six species can indicate the degradation of these habitats due to overgrazing. In rivers and streams, four species can indicate fragmentation of the rivers. In wetlands, at least seven species can indicate a negative influence of wetlands' drainage, and at least one can indicate wetlands' pollution. In addition, the study identified seven species, which can indicate the influence of climate change on birds' distribution at the Eurasian scale. Additional studies of the indicators of wetlands and lakes, as well as the influence of climate change, are still required, though.

THE CHALLENGE OF UPDATING DISTRIBUTION AND ABUNDANCE CHANGE BEYOND WIDESPREAD MONITORING

Marc ANTON RECASENS[a], Lluís BROTONS[bcd], Sara FRAIXEDAS, Marc FUSELLAS FULLÀ[a], David GARCIA CARDENAS, Sergi HERRANDO[abe], Elisenda PERIS MORENTE[a], Guillem POCULL

[a]Catalan Ornithological Institute (ICO), [b]CREAF, [c]CSIC, [d]CTFC, [e]EBCC

The need of knowledge about changes in distributions and abundances of a greater number of species in a given geographical context has been needed both from a point of view of strict scientific knowledge and to guide environmental policies. Monitoring schemes based on citizen science have been providing in recent years very extensive and very valuable information on the evolution of birds and give response to a large part of these needs. Unfortunately, large synthesis projects such as atlases are not always possible and widespread monitoring such as related with common birds had huge geographical gaps and do not cover rarest or less detectable species. In these cases, additional approaches must be considered to obtain full knowledge on changes in bird diversity. Last years, we have integrated data provided by many monitoring programs beyond common birds like monitoring of species of conservation interest or in protected areas coordinated by the administration, local initiatives, etc. Here, we will show the results of the integration of the information of these data sources and the degree of achievement of the knowledge on distribution and abundance change over the 223 breeding bird species in Catalonia. Additionally, we will explain in a synthetic way how we carry out the integration of the information to generate the needed products continuously every year.

ESTIMATING BREEDING BIRD POPULATIONS BY COMBINING SYSTEMATIC MONITORING, MODELING AND CITIZEN SCIENCE

Thomas Eske HOLM, Thorsten BALSBY, Claus LUNDE PEDERSEN

Aarhus University

Article 12 of the Birds Directive requires Member States to report on the progress of its implementation. These reports must include the population numbers and trends for all bird species within the territory of each Member State. For most breeding species, experts estimate the status and trends, as it is often difficult or costly to monitor all potential breeding sites. In Denmark, the Danish Environmental Protection Agency monitors all designated breeding birds in Special

Protection Areas (SPAs), while the rest of the country remains unmonitored. Aarhus University is responsible for providing bird population data for Article 12 and has developed a species-specific method to estimate national breeding populations by combining systematic monitoring with Citizen Science and modeling techniques. Examples include species such as the Eurasian Bittern (*Botaurus stellaris*), Common Crane (*Grus grus*), and Bluethroat (*Luscinia svecica*).

THE ORNITHO FAMILY PROJECT: TWO DECADES OF CITIZEN SCIENCE IN BIODIVERSITY MONITORING

Gaëtan DELALOYE[a], Noémie DELALOYE[a], Olatz AIZPURUA[b], Tomasz CHODKIEWICZ[c], Marc ILLA[d], Philippe JOURDE[e], Roberto LARDELLI, Patric LORGÉ[f], Ilze PRIEDNIECE[g], Norbert TEUFELBAUER[h], Johannes WAHL[i], Samuel WECHSLER[j]

[a]Biolovision Sàrl, [b]Sociedad de Ciencias Aranzadi, [c]Museum and Institute of Zoology PAS/ OTOP BirdLife Poland, [d]ICO, [e]LPO France, [f] natur&ëmwelt a.s.b.l., [g]Latvijas Dabas fonds, [h]BirdLife Österreich, [i]DDA, [j]Swiss Ornithological Institute

Initiated in 2003, the "Ornitho Family project" has established itself as a key platform in the field of citizen science, enabling large-scale biodiversity monitoring across Europe. Over the past 22 years, this initiative has expanded considerably, integrating numerous partners and generating extensive datasets that have informed a wide range of conservation projects, including species atlases, population monitoring, and biodiversity assessments.

This presentation addresses the central research question: how can citizen science contribute to long-term, scalable biodiversity monitoring efforts? We will showcase the project's significant contributions, demonstrating how the collection of observational data by non-professionals has enhanced the understanding of species distribution and population trends. These data have proven crucial for conservation planning or environmental policy development and obligations (e.g. article 12 reporting for EU member states).

Key findings from this long-term effort include insights into the reliability and accuracy of data collected by volunteers, the importance of user engagement and feedback loops, and the development of robust digital tools for data validation and analysis. The integration of these tools has significantly improved data quality and expanded the scope of monitoring programs, facilitating real-time access to biodiversity information at regional and continental scales.

In conclusion, we will discuss the next steps for the Ornitho Family project, particularly the launch of new portals aimed at increasing accessibility and participation. These advancements reflect the evolving landscape of citizen science, highlighting the need for adaptive platforms that can meet the growing demand for biodiversity data. The project's continued success demonstrates that citizen science can be a powerful force for advancing both scientific research and public engagement in biodiversity conservation and awareness.

10:45 – 12:15 *Auditorium 223*

EUROPEAN MOUNTAIN BIRD INDICATOR

Anna GAMERO[a], Alena KLVAŇOVÁ[a], Aleksi LEHIKOINEN[b], Arco VAN STRIEN[c], Eva ŠILAROVÁ[a], Jana ŠKORPILOVÁ[a]

[a]Czech Society for Ornithology (CSO), [b]University of Helsinki, [c]Statistics Netherlands

Human-induced land use change and climate change are among the primary causes of biodiversity loss. Mountain specialist species are particularly vulnerable to these factors due to the difficulty to find new suitable habitats at higher altitudes or in other mountain areas, and experiencing higher pressures related to human disturbance, air pollution and afforestation.

In this study, we used site-level data from 17 breeding bird surveys from four European mountain regions (Fennoscandia, British Isles, Alps and Iberia) and data from 44 mountain generalist and specialist bird species spanning 23 years (2000-2022). Based on habitat coverage and altitude, we selected the mountain sites of higher altitude and open habitat using mountain range specific criteria to consider the occurrence of mountain habitat along the latitudinal gradient. We calculated regional and European mountain species population indices using rtim package in R and three different approaches (no weights, population weights, mountain area weights) to combine the species national data. The population indices were subsequently used to produce composite species indicators for the four mountain regions and for Europe. The Fennoscandia and Alps mountain population weighted indicators were stable while the Iberian indicator showed a negative trend and the indicator for the British Isles showed an upward trend. The European mountain weighted indicator was overall stable. We found only minor differences between the two weighted indicators, and although population weighting is conceptually preferable, area weighting can be suitable when good population estimates are not available. Non-weighted indicators were susceptible to differences in sampling intensity between countries. The use of combined site-level data from different countries allowed for the calculation of regional population trends of species without proper national trend estimates, and could be included in the indicator.

SKI PISTE ENCROACHMENT OF CLIMATE REFUGIA IS THREATENING HIGH-ELEVATION BIRDS

Francesca ROSEO[ab], Claudio CELADA[c], Mattia BRAMBILLA[ab]

[a]Università degli Studi di Milano, [b]Dipartimento Scienze e Politiche Ambientali, [c]Lipu/BirdLife Italia

Climate and environmental changes are dramatically impacting mountain systems. Alpine species and habitats are contracting as a response to global change and human impacts; climate refugia are crucial sites for conservation, because they will preserve suitable conditions for biodiversity in the face of climate change. Outdoor recreational activities, and ski sports in particular, are threatening mountain ecosystems, leading to conflicts with biodiversity. There is therefore a compelling need to investigate the potential impact of ski resorts on climate refugia.

We evaluate the spatial impact of ski resorts on climate refugia for high-elevation species (using ecologically realistic distribution models for both birds and ski-pistes), under current and future conditions in the Alps, where those key conservation sites are exposed to human pressure and are often located outside protected areas.

Downhill ski-pistes, which occupy nearly 500,000 ha in the Alps and, considering also their immediate surroundings, currently overlap with 11% of climate refugia and determines additional strong fragmentation of high-elevation habitats, potentially impairing connectivity. Ski-piste distribution will shift upwards in the future due to climate change.

At the present time, one out of three of existing ski areas is overlapping with, and hence potentially impacting on, climate refugia. This concerning situation is predicted to further aggravate in the future: moving upwards, ski-resorts will further encroach on climate refugia, substantially exacerbating their overlap with climate-threatened biodiversity. There is therefore an urgent need to preserve and protect climate refugia from environmental alterations caused by unsustainable development, and to monitor high-elevation avian species and communities within climate refugia to evaluate their effectiveness and highlight possible negative effects of human activities within such key sites.

MICROCLIMATE INFLUENCES MEAN ALTITUDES BUT NOT ALTITUDINAL SHIFTS ACROSS EUROPEAN MOUNTAINS

Josephine COUET[a], Aleksi LEHIKOINEN[a], Emma-Liina MARJAKANGAS[b], Andrea SANTANGELI[c]

[a]University of Helsinki, [b]Section for Ecoinformatics and Biodiversity, Department of Biology, Aarhus University, [c]Animal Demography and Ecology Unit, Institute for Mediterranean Studies (IMEDEA), CSIC-UIB

Climate change is driving species towards higher altitudes. While local shifts in altitude are well documented, patterns across entire mountain ranges are less understood. Abiotic factors, such as topography and solar radiation affect species distribution and can thus influence the speed of these shifts on mountain slopes. Impact of microclimate on biodiversity is evident, but range shift studies have mostly focused on plants, invertebrates, and amphibians, and only at a fine scale. In our study, we adopted a cross-scale community approach to quantify the impact of solar radiation on the mean altitude and altitudinal shifts of bird species across European mountain ranges of the Alps, Pyrenees, Scandinavia and UK over an 18-year period. We found that bird species inhabit higher altitudes on slopes receiving more solar radiation, but the altitudinal shifts did not differ between low, medium or high solar radiation areas. Species were moving uphill across Europe with a speed 0.45 m/year. However, the speed of the range shifts differed between mountain ranges. Our findings underscore the significant influence of abiotic factors on the bird altitudinal distribution but not altitudinal shifts. Further research is needed to explore how other potential variables, like land-use, may interact with climate variables to affect future altitudinal range shifts.

IDENTIFYING CLIMATE REFUGIA FOR WHITE-WINGED SNOWFINCHES *MONTIFRINGILLA NIVALIS NIVALIS*

Maria Mar DELGADO[a], Iván AFONSO[b], Carmen ASTUDILLO-GARCÍA[c], Rafael BENJUMEA[a], Chiara BETTEGA[d], Mattia BRAMBILLA[d], Santiago DELGADO[c], Virginia ESCANDELL[c], Marti FRANCH[e], Blas MOLINA[c], Francesca ROSEO[d], Federica ROSETTO[a], Davide SCRIDEL[f], Juan Carlos DEL MORAL[c]

[a]Biodiversity Research Institute (CSIC/UO/PA), [b]Conselh Generau d'Aran, [c]Sociedad Españolade Ornitología, [d]Università degli Studi di Milano, [e]Serveide Fauna I Flora, Generalitat de Catalunya, [f]Department of Life Sciences

In the face of accelerating climate change, it is crucial to identify habitat and climatic conditions that could define climate refugia for conservation purposes, especially for species highly threatened by climate warming. This study aims to identify the environmental characteristics that determine climatic refugia, focusing on the White-winged snowfinch (*Montifringilla nivalis nivalis*; hereafter, snowfinch) as a target species. The snowfinch is a mountain specialist passerine, whose traits make it particularly vulnerable to climate change, making it an ideal model for investigating the broader consequences of climate change on biodiversity.

We utilized a long-term historical dataset, collected during the breeding period from 1980, of snowfinches in the Cantabrian Mountains. We employed favorability models based on landscape and climate characteristics to classify the favorability of each historical breeding area. As part of an intensive monitoring program, these areas were again surveyed in 2024 to determine whether snowfinches had maintained their presence or become absent over time. By comparing the environmental characteristics of the areas where snowfinches are still present with those where they are now absent, we identified key factors that may determine areas with suitable conditions for snowfinch persistence under climate change, potentially serving as climate refugia.

The results of this study are expected to significantly enhance our understanding of the ecological factors driving displacement in a mountain specialist bird species due to climate change, with broader consequences for conservation strategies aimed at preserving biodiversity in the face of ongoing environmental change. Identifying and protecting climate refugia is essential for mitigating the effects of climate change on vulnerable species, ensuring their survival and overall resilience of mountain ecosystems.

POPULATION GAINS AT HIGH ELEVATION LOCALLY COMPENSATE DECLINES OF COMMON LOWLAND SPECIES

Marvin MOOSMANN, Nicolas STREBEL

Swiss Ornithological Institute

In Alpine regions, climate warming is advancing at an above-average rate, prompting bird populations to shift their ranges to higher elevations. While much of the focus of elevational range shifts has been on the threats this poses to alpine specialist species, less attention has been given to the effects on common lowland species. As bird populations expand into higher altitudes, increased population densities and the colonization of previously uninhabited areas may contribute positively to overall population dynamics.

Using site-specific monitoring data, we investigate the relationship between local population trends and elevation, assessing its impact on regional population trends. In Switzerland, we find that for many common breeding birds, population gains at higher elevations substantially drive national trends. Notably, for some species facing significant declines in lowland areas, these high-elevation gains have slowed, stabilized, or even reversed negative national trends over the past decade.

However, we observe that the average elevation where population trends shift from negative to positive is substantially higher than the European continental average, suggesting that this refuge effect may be a localized phenomenon. To better understand the spatial dynamics, we extend our analysis to include site-level data from the Pan-European Common Bird Monitoring Scheme (PECBMS), focusing on the Alps and the Pyrenees.

This study underscores the importance of mountain regions as biodiversity refuges, not only for alpine specialists but increasingly for common lowland species. These findings highlight the complex role of elevational shifts in mitigating the impacts of climate and land use changes on avian populations across Europe.

CLIMATE AND LAND USE EXPLAIN MID-ELEVATION DECLINES OF SWITZERLAND'S OPEN-LAND BIRDS

Tyler HALLMAN[a], Jérôme GUÉLAT, Nicolas STREBEL[b], John KILLBRIDE[c], Eliane MEIER[d], Thomas SATTLER[b]

[a]Bangor University, [b]Swiss Ornithological Institute, [c]Renoster, [d]Agroscope

Ongoing declines in European and North American birds have been particularly pronounced for species in open habitats. Agricultural intensification, land abandonment, forest expansion, and changing climate contribute to declines through altered habitat suitability. Understanding the patterns and drivers of such declines is important to conservation efforts moving forward. Here, we investigated the environmental drivers of change in diversity of open-land avian communities over two decades in Switzerland. We used estimates of species abundance from territory mapping surveys conducted for two Swiss Breeding Bird Atlases (1990s and 2010s). We restricted survey locations to km squares that were surveyed in both atlas periods and contained over 40% open-land cover. Metrics of diversity were calculated for the full communities and open-land communities (included only species for which at least 50% of the total observations were in open-land habitats). Over the 20-year period, diversity of the full communities and open-land communities increased above 1500 m. In open-land communities, however, diversity declined between 1000 and 1500 m. While variables for climate and land cover were included in the AIC top model, early season NDVI and seasonal scope of NDVI were the strongest predictors of observed changes in open-land diversity.

16:30 – 18:00 *Auditorium Magnum*

DO PROTECTED AREAS BENEFIT BIRDS?

David NOBLE, Ailidh BARNES, Philipp BOERSCH-SUPAN, Jacob DAVIES, Sarah HARRIS, Blaise MARTAY, James PEARCE-HIGGINS, Rob ROBINSON

British Trust for Ornithology

There have been recent renewed commitments to increase the extent of protected areas to combat the growing biodiversity crisis but the underpinning evidence for their effectiveness is mixed and causal connections are rarely evaluated. We used data gathered by three large-scale citizen science programmes in the UK to provide the most comprehensive assessment to date of whether national (Sites of Special Scientific Interest) and European (Special Protection Areas/Special Areas of Conservation) designated areas are associated with improved state (occurrence, abundance), change (rates of colonization, persistence and trend in abundance), community structure and, uniquely, demography (productivity) on a national avifauna, while controlling for differences in land cover, elevation and climate. We found positive associations with state that suggest these areas are well targeted and that the greatest benefit accrued to the most conservation-dependent species since positive associations with change were largely restricted to rare and declining species and habitat specialists. We suggest that increased productivity provides a plausible demographic mechanism for positive effects of designation.

BIRDS IN EUROPE 4: THEIR CONSERVATION STATUS

Ian BURFIELD, Anna STANEVA

BirdLife International

Since 1994, BirdLife International has comprehensively assessed the population status of all European bird species four times, identifying Species of European Conservation Concern (SPECs) so that action can be taken to improve their status. Species are categorised according to their global extinction risk, the size and trend of their European population and range, and Europe's global responsibility for them.

Of the 546 species assessed in the latest assessment, 207 (38%) qualify as SPECs. The proportion of SPECs has remained similar (38–43%) across all four assessments, but the number of European species of global conservation concern (listed as Threatened or Near Threatened on the IUCN Red List) has doubled since 1994.

The 44 species joining the SPEC list in the fourth assessment include multiple waders, raptors and passerines that breed in arctic, boreal or alpine regions, highlighting the growing importance of northern Europe and mountain ecosystems for bird conservation. Conversely, the 62 species that no longer qualify as SPECs include various large waterbirds and raptors that are recovering due to conservation action. Since 1994, the number of specially protected species (listed on Annex I of the EU Birds Directive) qualifying as SPECs has fallen by 33%, while the number of huntable (Annex II) species qualifying as SPECs has risen by 56%.

The broad patterns identified in previous assessments remain evident: 100 species have been classified as SPECs in all four assessments, including numerous farmland and steppe birds, ducks, waders, raptors, seabirds and long-distance migrants. Many of their populations are heavily depleted or continue to decline and/or contract in range. Europe still holds 3.4–5.4 billion breeding birds, but

more action is needed to halt and reverse losses. Recommendations include targeted measures for threatened species, protection and management of key sites, stronger enforcement of existing legislation, and increased restoration efforts.

THE POTENTIAL OF CONSERVATION MEASURES TO FACILITATE WATERBIRD RESPONSES TO CLIMATE WARMING

Leonie JONAS[ab], Jon BROMMER[a], Elie GAGET[b], Martin JUNG[c]

[a]University of Turku, [b]Tour du Valat, [c]International Institute for Applied Systems Analysis

Biodiversity is increasingly negatively affected by climate warming, which makes this issue a major concern for conservation. Many bird species respond to warming temperatures by shifting distribution ranges, but such shifts often lag behind temperature changes. Protected areas (PA) can facilitate such shifts in distribution by acting as migration corridors, stepping stones or buffers. However, an increasing body of literature suggests that not all PAs support bird responses to climate warming equally, as PAs can differ in realized management actions and conservation funding. Here, we study waterbird community change as a response to climate warming in relation to management actions implemented in Natura 2000 protected areas in the EU. We combined long-term European bird surveys (i.e. International Waterbird Census) with data on conservation actions funded by the LIFE program, the main EU instrument for environmental actions in Natura 2000 areas. We used the community temperature index to measure community changes over 28 years. Community adjustment to climate warming lagged behind temperature changes. However, community adjustment was faster at sites receiving funding targeted at wetland conservation compared to sites with other conservation targets. Our results demonstrate that management actions currently not targeting climate warming impacts on biodiversity, have the potential to support species responding to climate warming and highlight how conservation actions can be used to ensuring long-term biodiversity conservation.

CONTRASTING DIFFERENT WATERBIRDS SPECIES' USE OF RESTORED WETLANDS IN DENMARK

Preben CLAUSEN[a], Rasmus Due NIELSEN[a], Jacob STERUP[a], Claus Lunde PEDERSEN[a], Timme NYEGAARD[b], Kevin Kuhlmann CLAUSEN[a], Tony FOX[a]

[a]Department of Ecoscience, Aarhus University, [a]Birdlife Denmark

Denmark is one of the countries where agricultural land comprise the largest proportion of the land surface area. From the late 1860s until the early 1960s, large areas of formerly natural habitat were taken into cultivation. Worst affected have been lakes, wet meadows, bogs and shallow fjords, and it has been estimated that Denmark has lost around 90% of its wetlands. Since the 1990s,

wetland restoration, especially to reduce effects of agricultural fertilizer runoff, have recreated formerly dried-up lakes and rewetted lowland areas. In this talk, we present results from the national monitoring of waterbirds in Denmark (in March, August, October and mid-winter) where we

separate between waterbirds occurring on restored wetlands and those using unaffected coastal and inland wetlands as well as on arable land. Analyzes of 30 waterbird and wetland-foraging raptor species, whose occurrence peaks in October, showed that there were significant differences between species in the degree to which they are attracted to these naturally restored areas, even between closely related species. Thus while 27-29% of Gadwall *Mareca strepera* and 21-34% of Shovelers *Spatula clypeata* were found in restored wetlands in October 2022-2023, only 4% of northern pintail Anas acuta and 6% of Eurasian wigeon *Mareca penelope* were counted in restored areas. Species like Shelduck *Tadorna tadorna* and Brent Goose *Branta bernicla* hardly use restored areas at all. Amongst raptors, White-tailed Sea Eagles *Haliaeetus albicilla* seem to use the restored areas proportionally more than Hen Harrier *Circus cyaneus* and Peregrine Falcon *Falco peregrinus*. We will wrap up by discussing how near-coastal restoration of wetlands may provide a helping hand for safeguarding some species, while for others, restoration of near-shore seagrass beds and safeguarding of intertidal mudflats represent a high priority action for their future conservation.

THE CONTRIBUTION OF RESTORED WETLANDS TO SUPPORTING GREYLAG GEESE *ANSER ANSER* IN DENMARK DURING MOULT, POST-BREEDING, AUTUMN STAGING AND WINTER

Preben CLAUSEN[a], Rasmus Due NIELSEN[a], Iben Hove SØRENSEN[a], Henning HELDBJERG[a], Gitte Høj JENSEN[a], Claus Lunde PEDERSEN[a], Jacob STERUP[a], Timme NYEGAARD[b], Tony FOX[a]

[a]Department of Ecoscience, Aarhus University, [b]Birdlife Denmark

Greylag Goose *Answer anser* numbers breeding, staging and (since2000) wintering in Denmark have shown considerable increases in number over the last 40 years. As a result of widespread strategic wetland restoration (mostly to reduce agricultural fertilizer runoff from farmland) over the same time period, Denmark now has more than 100 new freshwater wetlands, many of which constitute attractive habitats to Greylag Geese. Indeed, the species is a rapid and successful colonizer of such newly created wetlands, so the question is: to what degree do restored lakes and wetlands in Denmark contribute to supporting this species at different critical stages of the annual cycle? In this presentation, we use Danish countrywide coordinated monitoring counts and special surveys from June (in 2024, during the moult period), August (2022 and 2023, post-breeding), October (2022 and 2023, autumn staging) and January (2022 and 2023, mid-winter) to determine the degree to which Greylag Geese now utilize (re-)created wetlands relative to existing unmodified wetlands in Denmark.

IDENTIFICATION OF HABITAT-RELATED PRESSURES, THREATS AND KEY-ACTIONS OF ANNEX II SPECIES OF THE BIRDS DIRECTIVE IN NON-SECURE STATUS

Petr MUSIL[a], Zuzana MUSILOVÁ[a], Carles CARBONERAS[b], Beatriz ARROYO[b], Beatriz RUBIO[b], Concha OLMEDA[c], Ernesto RUIZ[c], David STROUD[d], Joe FRASER-TURNER[e], Jenny WESTON[e], Šárka NEUŽILOVÁ[a], Monika HOMOLKOVÁ[a], Dorota GAJDOŠOVÁ[a]

[a]Faculty of Environmental Sciences, Czech University of Life Sciences in Prague, [b]Instituto de Investigación en Recursos Cinegéticos, [c]ATECMA, [d]independent consultant, [e]Royal Society for the Protection of Birds

Human pressures on biodiversity accelerate, including rapid declines of bird populations. In the EU, the Bird Directive aims to maintain or restore such bird populations. Tasks 2 of the service contract with the European Commission "Supporting the recovery of bird species of Annex II of the Birds Directive in non-secure conservation status" (09.0201/2022/886665/SER/D.3) refer to the identification of pressures and/or threats and that have been assessed for the relative role of survival and reproduction on their population demography, as well as on the role of off-take by hunting on individual survival. The identification and characterization of habitat-related pressures/threats of 26 Annex II species in non-secure status was based on the review of available knowledge. Following the list of pressures/threats for individual species, we identified key actions to address the identified pressures and threats related to habitat. We have used the extensive scientific expertise of the research organisations that form part of the consortium and have also engaged in a wider consultation to species and thematic experts beyond the consortium. For each of the 26 species concerned, we identified up to 5 key actions relative to habitat-related threats and pressures and made them SMART (Specific, Measurable, Achievable, Relevant and Time-bound), to identify the most critical ones, and to propose indicators to measure their implementation and performance by the Member States.

16:30 – 18:00 *Auditorium 223*

IMPUTATION MODEL TO STRENGTHEN ECOLOGICAL ANALYSES OF DATASETS WITH HIGH PERCENTAGES OF MISSING DATA

Barbara BRICOUT[a], Nadjiba BENDJEDDA[b], Mohamed DAKKI[c], Pierre DEFOS DU RAU[d], Stephane ROBIN[a], Sophie DONNET[e], Thomas GALEWSKI[f], Khalil BADDOUR[f], Khaled ETAYEB[g], Hichem AZAFZAF[h], Laura DAMI[f], Wed ABDOU[i]

[a]LPSM, Sorbonne Université, [b]Direction générale des forêts, [c]GREPOM/Birdlife Morocco, [d]Office Français de Biordiversité, [e]INRAE, Paris-Saclay, [f]Tour du Valat, [g]Libyan Society for Birds, [h]Association des Amis des oiseaux, [i]Ministry of Environment Egyptian Environmental Affairs Agency (EEAA)

In biodiversity monitoring, large-scale datasets are increasingly available and essential for estimating species trends and conservation status worldwide. However, these datasets often present significant challenges due to missing values, zero-inflation, overdispersion, and detection bias,

making accurate analysis difficult. Current statistical methods typically address these issues in isolation, which can introduce biases in trend estimations, particularly in low-income countries where spatial and temporal gaps in data are more pronounced.

This multidisciplinary study brings together statisticians and ecologists to develop an imputation model adapted to that kind of datasets, meaning a model which can take the overdispersion and the zero-inflation in count data into account and simultaneously predict missing data and estimates trends. The method will be applied to a 30-year biodiversity dataset from North Africa to estimate long-term trends of Common Pochard (*Aythya ferina*), one rare and threatened species of waterbirds. The findings will allow the development of targeted conservation actions in the region, helping to address critical gaps in biodiversity protection.

MODELLING BIRDS' ANNUAL CYCLE USING EURO BIRD PORTAL DATA

Juan GALLEGO-ZAMORANO[a], Jacob DAVIES[b], Céline FAVERJON[c], Gabriel GARGALLO[d], Christian KAMPICHLER[a], Rob ROBINSON[e], Henk SIERDSEMA[a], Julia STAHL[a]

[a]SOVON-Dutch Centre for Field Ornithology, [b]BTO Scotland, [c]Ausvet Europe, [d]ICO-Catalan Ornithological Institute, [e]BTO

The Euro Bird Portal (EBP) aims to create a comprehensive European data repository by aggregating bird observation data from various online portals across Europe at a 10x10 km scale. With our study we seek to describe broad spatiotemporal patterns in bird distributions, including seasonal shifts, migratory routes, and phenology, while tracking changes over time. We used all data collected by the EBP during the period 2015 to 2021 to model annual cycles of birds across Europe. To address data imbalances between countries and to capture non-stationary relationships between species and their environments, we applied a modelling framework called Adaptive Spatio-Temporal Exploratory Model (AdaSTEM). AdaSTEM is designed to analyse large-scale patterns using an ensemble of several local regression models, accounting for the variability among different models while reducing overfitting. In this talk, we will present this modelling framework and its application to 26 bird species for which we predicted their weekly abundances across Europe. Funded by the European Food Safety Authority these models were applied within a spatiotemporal risk assessment project aimed at forecasting the risk of Avian Influenza introductions into poultry populations, the so-called Bird Flu Radar.

SIMULATION-BASED PERFORMANCE ASSESSMENT OF GENERALIZED DISTANCE SAMPLING MODELS WITH TEMPORARY EMIGRATION: RECOMMENDATIONS FOR STUDY DESIGNS

Julia BARCZYK, Grzegorz NEUBAUER, Jaume Adria BADIA-BOHER, Malcolm SOH, Marc KÉRY, Kenneth KELL

University of Wrocław

Generalized distance sampling (GDS) models are the distance sampling equivalent of the temporary emigration N-mixture models of Chandler et al (Ecology, 2011). They can be represented as a three-level hierarchical model with lambda (λ) being the expected abundance of the superpopulation, phi (ϕ) an availability parameter, and then 1-2 parameters of the detection function. GDS models require repeated counts and can account for a certain kind of population openness, which makes them more robust, since avian populations are hardly ever perfectly closed. However, the performance of these models has not been tested thoroughly so far and unpublished analyses suggested that with certain combinations of parameter values, unrealistically high density and correspondingly low availability estimates may result. Therefore, our aim was to perform a comprehensive series of simulation studies to understand how and when such biased parameter estimates can arise. To better understand these biases, we performed a set of simulations under four different scenarios. Parameter estimates are influenced by multiple factors. Biases arose particularly frequently when the number of sites surveyed and of repeated visits were low, and also when the availability parameter was low. Our results have important implications for existing data sets amenable to analysis with GDS models and especially for the design of studies wherein GDS models will be used.

ACCOUNTING FOR PREFERENTIAL SAMPLING, TRANSIENTS AND STATE UNCERTAINTY IN LONG-TERM POPULATION STUDIES

Marc KÉRY, David JENNY, Thomas SATTLER, Samuel WECHSLER

Swiss Ornithological Institute

Preferential sampling (PS) is a form of sampling bias where the “value” of a unit affects the probability with which it is surveyed. PS is a major challenge for the analysis of opportunistically collected biodiversity data including virtually all citizen-science data: ignoring PS can seriously bias all inferences. However, our understanding of PS is still in its infancy. We developed dynamic occupancy models that account for PS and analyzed population trends of Swiss Eagle owls (Bubo bubo) in a nationwide survey over 23 years (2002–2024). We used JAGS to fit a joint PS/multistate occupancy model with two three presence states (transients, single bird, pair), where the estimated presence in year t, for both presence states combined, was used as a predictor in the probability that a territory was surveyed in year t+1. We stratified all parameters by six regions, since anecdotal evidence suggested different population trends in different parts of the country. We estimated a strongly positive effect of previous presence on visitation probability, i.e., strongly positive PS. Our joint model that corrected for PS identified stable to strongly increasing population trends in all six regions, and for single bird- and territories occupied by pairs alike. In contrast, trends in the raw data, as well under a PS-naive occupancy model, suggested stable or even declining populations. Our study emphasizes the importance of accounting for non-random sampling in analyses of

biodiversity data. In particular, it provides a powerful solution to the problem of PS in the important context of longitudinal occupancy models.

AN ALTERNATIVE TO LOG-LINK SPECIES DISTRIBUTION MODELS FOR COUNTS

Nicolas STREBEL

Swiss Ornithological Institute

Species Distribution Models (SDMs) are widely used to estimate and predict species abundance across landscapes, often relying on Generalized Linear Models (GLMs) or similar approaches. In these models, a log-link is typically used. This implies that if one sample site has twice as much suitable habitat (e.g., forest for a forest species) as another, the abundance at that site is assumed to be exp(2) times greater than at the other site. However, this assumption might not hold true in real scenarios. If species density remains constant, a linear rather than a log-linear relationship between habitat area and abundance would be more appropriate.

Moreover, GLMs with a log-link assume that abundance in a sample area results from the multiplicative contribution of various covariates (e.g., land cover, topographic and climatic covariates). In SDMs, this assumption can lead to significant over- or under-estimation of predicted abundance. In response to these challenges, I propose a novel modeling approach that estimates abundance based on a linear relationship between habitat area and abundance, rather than the traditional log-linear assumption. This model can be formulated in JAGS or by optimizing the negative loglikelihood. I will present the results of a case study comparing this approach with classic SDMs, e.g. Poisson-GLMs with log link. The new approach has the potential to improve SDMs, and to explicitly estimate density per land-cover type.

THE EFFECT OF COVERAGE LEVEL ON DENSITY MAP OUTPUT

Paul VAN ELS, Christian KAMPICHLER, Chiel BOOM, Juan GALLEGO-ZAMORANO, Henk SIERDSEMA

SOVON Dutch Centre for Field Ornithology

Finding the right balance between maximizing geographic coverage and burden on volunteer bird monitors is a recurring problem in the creation of map output. We ran simulations on data from the 2017 Dutch atlas project to estimate the effects of reduced geographic coverage at different scales and for different output types. We find that reducing coverage does not impact the modeling of distributions as much as it affects number estimation. Further, we find that estimate ranges may quickly narrow at certain levels of coverage. While large-scale coverage is important, detailed coverage of atlas squares may be preferable to safeguard map quality.

Wednesday April 2, 2025

10:30 – 12:00 *Auditorium Magnum*

DIRECT AND INDIRECT EFFECTS OF RAINFALL VARIABILITY ON FARMLAND BIRDS UNDER CLIMATE CHANGE: THE SPECIES-SPECIFIC ECOLOGICAL PROFILE MATTERS

Adrien JOSEPH[a], Ana SANZ-PÉREZ[b], David GIRALT[cd], Núria POU ÀLVAREZ[cd], Francesc SARDÀ-PALOMERA[cd], Rahel SOLLMANN[e], Nicolas TITEUX[f], Hans VAN DYCK[a], Gerard BOTA CABAU[cd]

[a]Université Catholique de Louvain (UCLouvain), Earth and Life Institute, [b]Oviedo University, Biodiversity Research Institute (CSIC), [c]Centre de Ciència i Tecnologia Forestal de Catalunya (CTFC), [d]Landscape Dynamics and Biodiversity program, Conservation Biology Group (GBiC), [e]Leibniz Institute for Zoo and Wildlife Research, Department of Ecological Dynamics, [f]Luxembourg Institute of Science and Technology

Biodiversity in agricultural areas is declining globally. In Europe, the so-called group of "farmland birds" – species depending on agricultural landscapes and practices – is experiencing the greatest population declines as a response to agricultural intensification. Farmland biodiversity is increasingly impacted by other human-related drivers, such as climate change. In the context of the Mediterranean region, climate change is taking the form of an increase in drought events and a change in rainfall regime.

In this study, we aim to investigate the direct and indirect impacts of changes in rainfall variability on the abundance of farmland bird species in the Lleida steppe plain (Catalonia, NE Spain). This study area covers dryland agricultural areas, dominated by cereal crops, with a varying percentage of natural steppe vegetation patches across the landscape. We hypothesize that rainfall has a direct impact on bird abundance (i.e. through survival and reproduction) but also an indirect effect, via an impact on key habitats features, such as height and coverage of cereals and fallows.

To quantify these relationships, we used 13 years of data extracted from a local monitoring project across the Lleida Plain collecting annual data on farmland bird species and vegetation structure along line transects. We analyzed data from 147 transects using a combination of distance sampling and structural equation models for 37 farmland bird species.

Our data shows a variability in weather conditions (with dry and wet years) and vegetation structure, with contrasting effects on bird abundances. Our results reveal relationships between bird abundance, rainfall variability and vegetation structure that are highly depending on the species considered and their ecological profiles. We argue that these different profiles should be taken more explicitly into account in management and conservation measures for farmland birds under climate change.

USING EBBA2 DATA TO PREDICT THE FUTURE DISTRIBUTIONS OF EUROPE'S BREEDING BIRDS

Alaaeldin SOULTAN[a], Tyler HALLMAN[b], Thomas SATTLER[a], Nicolas STREBEL[a]

[a]Swiss Ornithological Institute, [b]Bangor University

Global change, including climate and land use change, poses a significant threat to global biodiversity. Numerous studies have investigated the impacts of global change on biodiversity, but most rely on presence/absence data, confining their conclusions to only one simplified aspect of biodiversity. Conservation management and planning require more realistic assessments. Incorporating species abundance data provides a more detailed understanding, as it accounts for biotic factors often overlooked in presence/absence models. In this study, we used species abundance data from the second European Breeding Bird Atlas (EBBA2) to evaluate the projected impacts of global change on the spatial distribution of breeding bird populations across Europe. Climate and land use data from the EBBA2 sampling period (2013-2017) and spatial covariates derived from EBBA1 data were used to inform (i.e., train) abundance models. These models were then used to predict to future conditions under three scenarios (SSP 2.6, 4.5, and 8.5) for 2041-2060. The abundance data was modelled using a Poisson distribution within a Bayesian framework. Our results are assumed to give realistic predictions on abundance per grid cell in 2050, thus indicating future abundance hotspots for common European breeding bird species. The results show varying patterns of change across species: some are predicted to decrease in abundance, while others are expected to increase. Similarly, range shifts show no consistent directional pattern, with some species moving southward and others northward, with an average shift of approximately 0.5 km per year. Our findings would facilitate complementing the protected sites network to optimize the Europe-wide protection of common breeding birds. Additionally, our findings emphasize the need for targeted conservation efforts, such as prioritization strategies, to enhance the resilience of bird populations to future global changes.

THE EFFECTS OF CHANGING CLIMATE, LANDSCAPE AND HUMAN DENSITY ON AVIAN POPULATION TRENDS

Emanuela GRANATA[a], Gianpiero CALVI[b], Claudio CELADA[c], Matteo FONTANELLA[c], Federica LUONI[c], Paolo PEDRINI[d], Roberta RIGHINI[c], Laura SILVA[c], Mattia BRAMBILLA[a]

[a] Milan University, Department of Environmental Science and Policy, [b] StudioPteryx, [c] Lipu/BirdLifeItalia, [d] MUSE – Trento Science Museum

Thanks to their sensitivity to different environmental changes, birds are used as indicators to understand general patterns of biodiversity variation and ecosystem shifts. Within this study, we explore the link between changes in climate, land-use/land-cover and human population density, and the long-term trends of breeding bird populations. We rely on the data collected within the framework of the common bird monitoring regularly carried out in Italy, and assess the relative importance of the three different types of changes, and of single predictors within each group, on avian population trends. All predictors have been estimated at the same level of the main sampling units of the bird monitoring. By focusing on single species, community indexes and functional groups, we disclose the relative impact of each driver on different measures of the breeding avian assemblages. We therefore interpret the main changes occurred in the breeding bird communities

throughout Italy in the last two decades on the light of the effects of different drivers, compare patterns with other European countries, identify the possible future trajectories according to different scenarios, and discuss the main conservation implications of our finding. The several and multi-faceted dramatic changes that are affecting many regions in the world have strong impacts on bird communities and should be properly governed to promote biodiversity conservation and ecosystem functioning and processes.

CLIMATE ASSOCIATED CHANGES IN OVERWINTERING POPULATIONS OF WIDELY HUNTED WATERBIRDS IN THE EU: IMPLICATIONS FOR SUSTAINABLE HARVEST STRATEGIES

Jon BROMMER[a], Elie GAGET[b]

[a]University of Turku, [b]Tour du Valat

Harvest of waterbirds is of cultural and economic importance to local communities. Here we focus on 12 species of waterbirds that are huntable in all 27 European Union (EU) member states, and use winter counts from 1993-2020 (174,392 surveys collected at 18,872 sites) to model their wintering population growth rate in 50kmx50km grid cells covering the EU. Waterbirds typically show a northward temporal shift of their wintering distribution. If climate change is an important driver of this shift, we expect population growth at grid cells that historically represent a relatively cold thermal environment for the species, but declining populations at grid cells that are relatively warm. We used temperature measures over 1970-2000 to compute the Thermal Niche Position (TNP) of each grid cell by relating average temperature of the grid cell to the distribution of average temperatures over the species' wintering range. We find a strong negative correlation between winter population growth rate and TNP for 7 of the 12 species, suggesting climate change is an important driver for their local winter population dynamics. We use EU member-state level data on hunting bags to qualitatively consider the association between hunting pressure and expected winter population growth rate to illustrate how harvest pressure for some species may be substantial in regions where the climatic conditions are not favorable in terms of winter population growth rate. Our work illustrates how developing sustainable long-term harvest strategies may benefit from considering consequences of climate change for local population dynamics.

BREEDING BIRDS IN A CHANGING LANDSCAPE: MULTISCALE EFFECTS OF HABITAT LOSS, FRAGMENTATION, AND CLIMATE CHANGE

Laura BOSCO[a], Aleksi LEHIKOINEN[b], Cristina BANKS-LEITE[c], Samuel CUSHMAN[d], Åke LINDSTRÖM[e], Martin GREEN[e]

[a]Finnish Museum of Natural History, [b]University of Helsinki, [c]Imperial College London, [d]University of Oxford, [e]Lund University

Global biodiversity declines are driven by both climate change as well as habitat loss and fragmentation. Species' ability to respond to rapid climate change is likely influenced not only by

species traits but also by habitat availability and fragmentation. To understand the implications of land use changes on biodiversity, we analyzed the effects of habitat loss, fragmentation, and heterogeneity on breeding birds in Northern Europe. We focused on how these landscape changes influence bird densities, with a particular interest in the spatial scale at which they operate and their interaction with species' habitat specialization. We used long-term breeding bird monitoring data from 2007 onwards, covering approximately 100 species across Finland and Sweden. For each species, we assigned a primary breeding habitat and divided the data into three time periods: 2007-2010, 2012-2016, and 2018-2022. Using CORINE land cover data, we quantified habitat area, fragmentation, and habitat heterogeneity at multiple spatial scales per period and habitat. We then calculated the "scale-of-effect" for each species and landscape variable, identifying the spatial scale at which these factors most strongly influenced bird densities. Preliminary results suggest that lower habitat loss, reduced fragmentation, and greater habitat heterogeneity generally support higher bird densities, though these patterns vary depending on species' primary breeding habitat, habitat specialization, and latitude. Overall, habitat area had its strongest influence at smaller scales (<5km), while fragmentation effects were more prominent at broader scales (>15km). In a next step, we will quantify the influence of climate change on breeding bird densities and compare its effects to those of landscape structure variables. These findings provide critical insights into how landscape structure affect bird populations. By identifying key spatial scales of influence, we can better inform conservation strategies, such as targeted habitat restoration, to mitigate biodiversity loss in a rapidly changing world.

PROTECTED AREAS AND THEIR COVERAGE FACILITATES ADJUSTMENT TO CHANGING CLIMATE

Petteri LEHIKOINEN[a], Kim JAATINEN[b], Aleksi LEHIKOINEN[a], Ari RAJASÄRKKÄ, Andrea SANTANGELI[c], Maria TIUSANEN, Jari VALKAMA, Raimo VIRKKALA

[a]Finnish Museum of Natural History, University of Helsinki, [b]Finnish Environment Institute. [c]Animal Demography and Ecology Unit, Institute for Mediterranean Studies (IMEDEA), CSIC-UIB

Anthropogenic climate change and habitat degradation acting in synergy can have disastrous impacts on biodiversity. While climate change is redistributing species, habitat loss and fragmentation may hamper species ability to follow their climatic envelope or adjust to new climatic conditions. Protected areas, PAs, retain land from human induced degradation and often provide high quality habitats for specialist species. A well-connected network of PAs is theoretically more likely to allow populations existence under climate change and habitat degradation. We studied the role of PAs under species redistribution by modelling bird abundances from the 1970s–80s to present inside and outside PAs at the trailing range edge of northern bird species and the leading range edge of southern species. Abundances of retracting northern species were higher and declined less inside PAs at their trailing range edge. The positive effect of PAs on bird abundances was particularly marked in species that rely strongly on PAs in their core distribution area. Similarly, southern species with high reliance on PAs had higher abundances inside PAs. Further, we studied PA coverage effects on climate change driven communities changes between years 1980–1999 and 2000–2015 using community temperature index (CTI) as a proxy. The higher PA coverage was associated with lower changes in CTI in northern and central Finland, whereas such an association was not found in southern Finland. The results show that PAs are mitigating the retraction of northern species, but also facilitating northward expansions of southern species highly reliant on PAs, and the increasing PA coverage seem to enhance community resilience to a changing climate. The findings support the

international aims to rapidly enlarge PA networks in order to facilitate species to adjust to rapidly changing conditions.

10:30 – 12:00 *Auditorium 223*

THE DEVELOPMENT AND APPLICATION OF MULTI-SPECIES INDICES IN AVIAN STUDIES: CHALLENGES, OPPORTUNITIES, AND FUTURE DIRECTIONS

Chiel BOOM, Ruud FOPPEN

SOVON Dutch Centre for Field Ornithology

Multi-species indices (MSIs) have emerged as a powerful tool for assessing biodiversity trends, particularly in avian populations. Originating as a means to aggregate species-specific data into a comprehensive index, MSIs provide a valuable overview of population trends and ecosystem health. However, while MSIs have been widely adopted in conservation and environmental monitoring, they are not without limitations. These challenges have been the focus of numerous contributions at recent EBCC conferences, while also generating interest within the broader ornithological community. Over the years, key issues such as species selection, unequal weighting, and the handling of missing data have been identified as factors that can obscure the true state of biodiversity. In this presentation, we will provide an update on this rapidly evolving field, highlighting recent advances and potential solutions to challenges. This includes the incorporation of new statistical techniques and more refined methods for species grouping. Using examples from the Netherlands, we will showcase cases where MSIs have successfully conveyed meaningful ecological insights, as well as instances where their interpretation becomes less clear or even misleading due to methodological challenges. We aim to stimulate the ongoing open discussion on the necessary future improvements for MSIs to remain a useful tool in biodiversity research.

UPSCALING FINE-GRAINED SPECIES-HABITAT RELATIONSHIPS TO ESTIMATE BIRD ABUNDANCE AT THE LANDSCAPE SCALE

Corrado ALESSANDRINI[a], Paolo PEDRINI[b], Diego RUBOLINI[a], Mattia BRAMBILLA[a]

[a]Milan University, Department of Environmental Science and Policy, [b]MUSE - Trento Science Museum

Fine-grained studies provide a more mechanistic view of the ultimate environmental drivers of bird distributions, but are hardly generalizable and overlook landscape drivers, which prevents their full adoption as conservation tools. Upscaling such models (i.e. extrapolating their predictions over larger extents) can help disentangling landscape effects while retaining a more mechanistic ally oriented approach, allowing better estimates of population size/distributions and effective conservation recommendations.

We investigated breeding bird communities inhabiting apple orchards in the Non Valley (Trentino, Italy), by means of 200m-long transect counts, recording the exact location of each individual. For each of the 9 most abundant species, along with a "canonical" bird-habitat model at transect scale (~55190 m^2; 'transect' abundance model), we built two fine-scale models by using (1) the exact bird locations ('point' presence-absence model; spatial scale of 314 m^2) and (2) bird abundances within each apple parcel overlapping the transects ('parcel' abundance model; on average, 51 ± 22^{sd} parcels per transect; spatial scale ~1085 m^2). We then compared those abundances – predicted by the two fine-scale models and upscaled (i.e. summed up) to the transect level – with those predicted by the most-supported transect model.

Notably, in 6 out of 9 species, upscaled predictions outperformed transect-scale ones in estimating observed abundances; across species, upscaled and transect-level predictions returned similarly accurate estimates of actual abundances.

These results suggest that – in our relatively homogeneous study system – transect-level patterns of bird abundance are largely driven by individual, territory-scale, responses to factors acting at finer scales (up to two orders of magnitude finer), and can be better modelled (and interpreted) as such.

Parcel age, spatial configuration, and management (e.g. usage of protective nets) did affect bird abundances: by upscaling these fine-scale bird-habitat associations to broader scales, we were able to assess the effects of current/alternative farming regimes and their implications for future agricultural policies.

AI-BASED VALIDATION OF CITIZEN SCIENCE DATA – THE ORNITHO CASE

Marina SIEBOLD, Simon BIRKER, André EBERT, Jérôme GUÉLAT, Christopher KÖNIG, Johannes WAHL, Samuel WECHSLER, Thomas CLEMEN

Citizen science, the collection of observation data by non-professionals, contributes significantly to the understanding of biodiversity and environmental conditions worldwide. The Ornitho project, supported by organizations such as the Federation of German Avifaunists (DDA) and the Swiss Ornithological Institute, operates country-specific online platforms where birdwatchers can record their observations. With almost 28 million records in Switzerland, over 90 million in Germany, and over 330 million observations in 12 European countries, these platforms are an important source of high-quality data that is widely recognized and used in both national and international biodiversity research and environmental management.

However, the usefulness and reliability of such datasets depend heavily on their quality. The current approach, relying on static filters and experts for manual quality assessment, inevitably reaches its limits with increasing data availability. To maintain data quality, we aim to integrate artificial intelligence (AI)-based anomaly detection models to complement and assist manual expert validation. These unsupervised outlier detection algorithms and statistical filters aim to reduce the workload of human validators, focusing on clear user communication.

In addition, we use spatio-temporal change point detection to monitor shifts in bird species' distributions over time. This method can highlight sudden changes in distribution (e.g. occupation of new regions) or temporal patterns (e.g. invasions) and reveal ecological changes caused by factors such as meteorological, climatic, or anthropogenic influences. By visualizing these findings through a graphical interface, our approach contributes to a deeper understanding of ecological processes and supports evidence-based conservation strategies. The change point detection approach also

serves as an indicator for retraining the above-mentioned models to ensure their alignment with evolving data patterns.

The presentation will demonstrate the solution's value from a domain-specific perspective, while only briefly covering AI and data science basics to allow the audience a better understanding.

A NOVEL APPROACH TO ESTIMATE THE NUMBER OF TERRITORIAL BIRDS IN A NETWORK OF SPATIALLY DISTRIBUTED ACOUSTIC RECORDING UNITS

Leonhard BRÜGGEMANN[a], Nils ASCHENBRUCK[a], Daniel OTTEN[a], Frederik SACHSER[b]

[a]University Osnabrück, Distributed System Lab, Germany, [b]Austrian Research Centre for Forests

Modern technologies, such as the development of low-cost acoustic recording devices (e.g., AudioMoth) placed in natural habitats of various species, are increasingly becoming a valuable complement to traditional field studies. At the same time, significant progress is being made in computer based, acoustic species recognition of birds. Various innovative approaches and models, e.g. BirdNet, contribute to this and are now able to (relatively) reliably identify bird species based on their call or song. Currently, the focus is mainly on identifying whether a species is present at the location where the recording was taken. We lack methods to record the number of individuals of a species in recordings, as automated identification of individuals of the same species is difficult. In short, we are only at the beginning of a more sophisticated monitoring approach, the potential of which can already be assessed as immense.

In our research, we are taking steps towards a more complex method of bird monitoring. We fused biology and computer science knowledge to develop the algorithm TASE – Territorial Acoustic Species Estimation. Using multiple acoustic recording devices and AI-based species identification that form an acoustic sensor network, theoretical computer scientists thought (in the past) about a way to count bird individuals. We put their approach into practice and encountered various difficulties or unrealistic assumptions. However, their solution inspired us to develop a generalized approach that is easy to use even with limited computer science knowledge. By applying that algorithm to bird acoustics, our goal is to determine the number of breeding birds in spring in a specific area. Our process was tested in practice on an area of approximately 12 hectares. The initial promising results will be shared in our presentation and will show great potential for the future.

COMBINING SPECIES DISTRIBUTION MODELS AND PASSIVE RECORDING TECHNIQUES TO INFER POPULATION DENSITY OF BOREAL OWLS (AEGOLIUS FUNEREUS) IN SPAIN

Marina KLAAS FABREGAS[a], Ivan AFONSO[b], Irene FIGUEROA[c], Marti FRANCH[d], Rafael LÓPEZ DEL RÍO[e], José María MARTÍNEZ[f], Blas MOLINA[g], Juan Carlos DEL MORAL[g], Diego VILLANUA[h], Jesus MARTÍNEZ[a], Alba ESTRADA[a]

[a]Instituto Pirenaico de Ecología, [b]Conselh Generau d'Aran, [c]Paisatges Vius, [d]Servei de Fauna i Flora, Generalitat de Catalunya, [e]Servicio de Biodiversidad, Dirección General de Medio Natural, Caza y Pesca. Departamento de Medio Ambiente y Turismo. Gobierno de Aragón, [f]Sección de Biodiversidad Servicio Provincial de Medio Ambiente y Turismo, [g]Sociedad Española de Ornitología, [h]GAN-NIK

Effective biodiversity conservation depends on robust methods for assessing species distributions and population sizes. This is crucial for species that behave inconspicuously and live in remote areas. This is particularly the case for the Pyrenean boreal owl, whose populations are at the southernmost edge of the species' distribution. Novel passive recording techniques have allowed us to increase the sampling effort of several species in order to more accurately determine their distribution and population size. Here we present a novel method that incorporates passive recording and species-level detection along species distribution models to design sampling effort and estimate population density. We put up 326 passive recorders for 3 weeks, 90 minutes before and 150min after sunset 150min before and 45min after sunrise. By combining Birdnet and 4 methods using Kaleidoscope software, we were able to detect over 95% of species presence compared to manually analysed recordings. Passive recorders were set up along areas of high, medium and low environmental suitability, obtained from boreal owl species distribution models in a coordinated effort between all regions of the Spanish Pyrenees (Catalunya, Aragón and Navarra), allowed us to estimate population abundance for the whole Spanish Pyrenees. However, translating information from species distribution models to population abundance required the inclusion of life history traits to provide a more reliable estimate of population abundance. In conclusion, we demonstrate the usefulness of new field techniques to assess the conservation status of elusive alpine species in Spain, providing policy makers and managers with information to promote species conservation.

NEW METHODS FOR COLLECTING AND PROCESSING AUDIO DATA IN PROFESSIONAL AND CITIZEN SCIENCE RESEARCH

Otso OVASKAINEN[a], Patrik LAUHA[b], Aleksi LEHIKOINEN[b], Ari LEHTIÖ[a], Ossi NOKELAINEN[a], Tomas ROSLIN[c], Panu SOMERVUO[b]

[a]University of Jyväskylä, [b]University of Helsinki, [c]SLU

I describe three recent initiatives for collecting and processing large-scale audio data for bird research, and discuss their pros and cons in terms of their potential for European-wide monitoring schemes. (1) In the ERC-synergy project LIFEPLAN, we implemented a globally distributed sampling scheme with AudioMoth recorders, resulting in 120 years of data from >200 locations. (2) In the context of the Finnish Digital Citizen Science Centre, we created a smartphone app that was

used in 2023-2024 by 250,000 citizen scientists, resulting in 20 million bird observations. (3) We have recently developed a prototype of a semi-autonomous monitoring station that sends audio wirelessly to a computational cluster, enabling real-time inference. All three approaches store also the raw audio in addition to the AI-based classifications, enabling rigorous validation and reclassification with continuously improving AI-based models. We consider all three approaches to hold potential for European-wide audio monitoring, and are keen to discuss possible collaborations in this context.

13:30 – 14:30 *Auditorium Magnum*

HOW ARE FOREST BIRD COMMUNITIES AFFECTED BY MODERN FORESTRY?

Filip SZARVAS

Modern forest management creates stands whose characteristics greatly differ from natural conditions forest bird faced during their evolution. Although various studies investigated bird-habitat relationships in temperate forests, they seldom considered variables representing measures used in modern forestry. This omission complicated reaching of informed decisions by forest managers. To bridge this knowledge gap, we investigated the relationship between forest management practices and forest bird abundance in Czechia, utilizing common bird monitoring data and the modern forestry data from the Czech Timber Institute. Our analysis draws on data from up to 983 counting points over a period of 10 to 27 years, focusing on various forest characteristics: proportion of conifers, growth phase, number of vegetation layers, stem density, and tree damage, while also accounting for altitude.

In the first step, we identified proportion of conifers, growth phase, and tree damage as the most influential variables to explain variability in bird abundance. Principal component analysis reveals two main gradients: one distinguishes lowland from highland forest species, while the second discriminates species with higher abundance in broad-leaved forests with greater stem density, multiple vegetation layers, and higher tree damage from the species occurring more often in forests with opposite traits.

In the second step, we classified bird communities based on ecological traits such as insectivory, migration distance, habitat specialization, and population trend. Results indicate that the response of bird species to forest characteristics is greatly influenced by their ecological traits. For instance, species migrating for longer distances prefer stands of lower growth phase, more broad-leaved trees and lower stem density than resident species suggesting the role of non-breeding habitat for emergence of these preferences.

By integrating ecological traits with forest management variables, our research enhances understanding of how contemporary forestry practices impact avian biodiversity, providing valuable insights for conservation and management strategies in European forests.

BLACK STORK (*CICONIA NIGRA*) – ANOTHER UNCOUNTABLE SPECIES?

Maris STRAZDS

University of Latvia

The Black Stork (*Ciconia nigra*) in most parts of Europe is a solitary-dwelling forest bird. Consequently, its nests may be difficult to detect. At the same time, it is often considered to be a flagship species and used as an indicator species of environmental quality or to assess the performance of forestry companies. In most such projects, formal breeding probability criteria are used to determine breeding probability and/or breeding success. Different projects may use various degrees of accuracy, reference units, or timeframes (one to several years). However, it may be very difficult to apply formal probability criteria properly if species "operational properties" such as lifespan, home range size, dispersal distances exceed those parameters. Using remote sensing data (GPS tags and trail camera data consisting of more than 2.8 million photos from 142 nests) over a multiple-year period, I discuss whether or not the formal criteria recommended to estimate breeding probability accurately represent the actual breeding status of the Black Stork. An additional subject of discussion is distinguishing between cases where there is a probability of formal criteria being applied incorrectly (when no additional information exist) from cases that we know are wrong (e.g., birds that according to formal criteria are "probable breeders" but do not breed). I propose those two cases be handled and represented separately.

FOREST DISTURBANCES AS A CONSERVATION OPPORTUNITY AND THREAT TO EUROPEAN BIRDS

Tristan BAKX[a], Ella PLUMANNS-POUTON[a], Stanislas RIGAL[b], Sergi HERRANDO[acd], Lluís BROTONS [aef]

[a]CREAF, [b] INRAE, [c]ICO, [d]EBCC, [e]CSIC, [f]CTFC

Increases in anthropogenic and natural forest disturbances in the early 21st century compared to the late 20th century have led to more forest canopy openings in Europe. It is unknown if and how the changes in vegetation structure due to forest disturbances have impacted the abundance of European birds. To properly inform conservation planning, it is important to investigate if different groups (e.g. habitat specialists) are differentially affected by forest disturbances. We studied if changes in bird abundances across Europe are related to forest disturbance area. We used PECBMS site-level data from 2003 to 2020 and satellite derived forest disturbance data from 1985 to 2020. We predicted the change in bird abundance at survey sites as a function of current, 6-year-old, and 12-year-old forest disturbance area at each PECBMS site. The overall pan-European effect of forest disturbances on the bird community was small and ephemeral. However, the sensitivity of bird abundance change to forest disturbance was strongly dependent on the habitat association of species. Forest disturbances drove temporary increases in abundance of open habitat species like Emberiza hortulana or Lanius minor. The initial positive effect of forest disturbance on open habitat species generally disappeared or reversed after six years. In contrast, the effect of forest disturbances on forest species such as Lophophanes cristatus and Dryocopus martius was generally initially negative but then often reversed after six to twelve years. Overall, specific species and functional groups had distinctly timed responses to forest disturbances across Europe, providing both benefit and detriment to the conservation of European birds. As forest disturbance frequencies are predicted to increase, the potential for conservation of open habitat species might increase as well.

FINDING THE APPROPRIATE FOREST BIRD INDEX FOR LATVIA

Viesturs ĶERUS[a], Ainārs AUNIŅŠ[ab]

[a]Latvian Ornithological Society, [b]Department of Ecology, Faculty of Medicine and Life Sciences, University of Latvia

Forest Bird Index (FoBI) has by now had relatively small importance for policy and has thus received little attention. This has changed with EU Nature Restoration Regulation (NRR) coming into force. In NRR FoBI is the only mandatory index to evaluate restoration of forest ecosystems. However, NRR does not clarify what FoBI is. In PECBMS there is a single European species list and also regional species lists for FoBI, and some countries calculate also national FoBI. It is clear that for the purposes of NRR FoBI needs to be appropriate for the national level. Furthermore, FoBI should be linked to forest management to be a relevant measure for ecosystem restoration.

We calculated four versions of FoBI: 1) the original national FoBI (based on 2007 version of Boreal species list of forest specialists); 2) an index based on the latest list of Boreal forest specialist species; 3) an index based on the single European species list; 4) an index based on the species list based on the score of their relative habitat use. As the species lists overlap, there are some similarities among the indices, nonetheless, they show different trends. We checked, which of the indices corresponds better to measures of forest management or status.

13:30 – 14:30 *Auditorium 223*

FROM FARMLAND TO CITIES: RECENT EVOLUTION OF THE ROOK *CORVUS FRUGILEGUS* POPULATION IN WALLONIA (BELGIUM)

Antoine DEROUAUX[a], Jean-Yves PAQUET[a], Mathieu DERUME[b]

[a]Aves, pôle ornithologique de Natagora, [b]Ecofirst

The Rook is now a vulnerable species in Europe due to persecutions in many countries where the species is abundant. This leads to a global decrease of the population despite an increase in the range (EBBA2).

In Wallonia (Southern Belgium), where the species is integrally protected since 1996, successive total colony counts have been organized every 15-20 years since 1928, the last one in 2024. The recent evolution is globally positive and the population is increasing despite some contrasting changes since 2001. Specifically, Rook is decreasing in grassland-dominated landscape and increasing in more urban and peri-urban contexts. More and more relatively small rookeries are dispersed in villages and towns, enhancing conflicts with local residents, because rookeries can be very noisy, and hence an increase of exemptions granted to destroy some colonies. This pattern does not support the hypothesis that increased illegal persecution in farmland led to the Rook urbanization.

ADULT SURVIVAL HAS A STRONGER ROLE THAN PRODUCTIVITY IN THE POPULATION DYNAMICS OF EUROPEAN SONGBIRDS

Inari NOUSIAINEN[a], Aleksi LEHIKOINEN[a], Markus PIHA[b], Petteri LEHIKOINEN[a], Laura BOSCO[a]

[a]LUOMUS – Finnish Museum of Natural History, [b]LUKE – Natural Resources Institute Finland

For effective biodiversity conservation planning, we need to understand the drivers behind population dynamics. Therefore, it is important to study the different stages of a species' life cycle, including adult survival and productivity. It is still poorly known whether adult survival or productivity has a major role in explaining annual population dynamics of species, and how the role of adult survival and productivity varies spatially or is connected with species' traits.

We used bird ringing data from the European Constant Effort Sites (CES) scheme, with 1.2 million bird captures, to answer these questions. We investigated the role of productivity and adult survival in annual population dynamics and how it is affected by spatio-climatic gradient (measured as an average breeding season temperature per country), migratory strategy (long- vs. short-distance and sedentary birds), and breeding habitat (forest vs. other habitats) by using linear mixed effect models.

Overall, our results show that adult survival is a more important driver of population dynamics than productivity. The role of adult survival was even stronger in long-distance migrants compared to short-distance migrants. The importance of adult survival and productivity varied spatially, both having a stronger influence in colder regions.

Our findings suggest that management actions should target both adult survival and productivity to help populations of bird species, but actions improving adult survival can be more effective, especially for long-distance migrants. The climatic gradient in adult survival and productivity is likely explained by the harsher and more variable climatic conditions in the cold areas, which can increase the annual variation in both adult survival and productivity compared to warmer and more constant climatic conditions at southern latitudes.

POPULATION SURVEY METHODS FOR ROOK (*CORVUS FRUGILEGUS*), AN EXPANDING COLONY BREEDING SPECIES IN SWITZERLAND.

Katarina VARGA, Nicolas AUCHLI, Marc KÉRY, Nicolas STREBEL, Samuel WECHSLER, Martin SPIESS

Swiss Ornithological Institute

The first recorded breeding pair of the Rook in Switzerland was in 1963 in the western Swiss Plateau, followed by a second record in 1964 in Basel. The species slowly expanded its range around these founding pairs and started to colonise the rest of the Swiss Plateau. From the 2000s onwards, this expansion got more widespread, meanwhile with the colonisation of the northeastern border as well as entering the Alps through the Rhone valley. While there were only about 100 breeding pairs 20 years after colonisation (1983), this number steadily increased to 1,700 in 2003 and, 60 years after colonisation, to over 12,000 in 2020. The Swiss Ornithological Institute in their role as national data centre collected records by volunteer observers, and from 2007 also on ornitho.ch. Following

their exponential growth, a complete national census of Rook became unfeasible. Alternatively, a new monitoring scheme was launched in 2020. With a sample-based national monitoring based on up to two 1x1 kilometre squares with established colonies per 100 km2 we intended to monitor the population trend annually. These fixed 1x1 kilometre squares however were unable to capture the natural dynamics of shifting breeding sites. Due to a preference for sampling at established breeding colonies, large fluctuations can be caused by small-scale displacement. For a truly random sampling design to be successful, however, this colony-breeding species is still clustering too strongly. In the future, we plan to survey the population annually using full species lists reported on ornitho.ch. This allows to track both the colonisation of new sites and the dynamically changing colonies. Furthermore, this method will minimise the risk of underestimating the trend due to site-selection bias. The example of the Rook illustrates challenges and the pitfalls of preferential sampling in a colonial species.

STARLING (*STURNUS VULGARIS*) – SPECIES FOR CITIZEN SCIENCE IN LATVIA: ARRIVAL PHENOLOGY AND NEST BOX MONITORING

Oskars KEIŠS, Mārtiņš BRIEDIS, Ivo DINSBERGS, Māris JAUNZEMIS, Valts JAUNZEMIS

Institute of Biology, Faculty of Medicine and Life Sciences, University of Latvia

The Common Starling (Sturnus vulgaris) is a species seen by the general public on its everyday life. Phenological observations of starling arrival in spring date back to 19th century in Europe. In Latvia, setting up nest-boxes for starlings has been popular since 20th century. This makes the Common Starling almost ideal species for citizen–science projects, involving individuals and schools.

In this study, I analyze participation of the public observers in collecting data on the Common Starling in Latvia through various means: 1) ringing of Starlings between 1925 and 1940 by school teachers; 2) recording spring arrival dates, published annually between 1962 and 2015; 3) spring arrival date phenology reporting actions in general newspapers in 1980ies by the Latvian Ornithological Society 4) nest box monitoring carried out in 1980ies and 1990ies by the Latvian Ornithological Society 5) data on Starlings in the Latvian citizen-science portal “www.dabasdati.lv” and 6) recent experiences on action “Bird of the Year 2025 – Common Starling” in Latvia.

Collecting data in schools do not only contribute to the data gathering, but, most importantly – show ornithology and biology in general as possible carrier in science for the young generation.

16:30 – 18:00 *Auditorium Magnum*

THE POTENTIAL OF ACOUSTICS TO INFORM AND EXPAND COMMON BIRD MONITORING

James HEYWOOD, Adham ASHTON-BUTT, Simon GILLINGS, Mark WILSON

British Trust for Ornithology

Acoustic monitoring has the potential to be a very effective method for monitoring birds, particularly in remote areas where survey coverage by traditional methods is limited by availability of appropriately skilled people. However, to enable this we need to be able to process and extract useful information from very large volumes of data, and to understand how this information compares with results from traditional monitoring methods.

The Breeding Bird Survey (BBS) is the UK's main scheme for monitoring common breeding birds, with fieldwork undertaken by skilled volunteers. For this comparative study, 28 volunteers in Scotland deployed an acoustic recorder on their BBS site during spring 2023. Recorders were deployed for 28–69 days, recorded one minute in every 15 and yielded 2,077 hours of recordings. The automated classifier BirdNET was run on all recordings to detect birds and identify them to species. Identifications were constrained by location and date and had a minimum confidence score of 0.1. A large sample (10,080) of randomly selected 3-second clips taken from these recordings was manually classified to assess BirdNET's performance.

BirdNET generated 750,945 detections of 196 species. Precision was generally high, with 79% of detections in the human-verified sample being confirmed as correct. Precision varied modestly with confidence score but differed more substantially between species. Only 27% of the calls detected and identified by a human expert were recalled by the classifier. Among 34 species for which 50 or more calls were manually identified, BirdNET recall varied from 0% to 73%.

We discuss the performance of BirdNET in the context of its suitability for acoustic monitoring in Scotland, comparing BirdNET outputs with recent Breeding Bird Survey data collected from the same sites, and contrasting some of the advantages and disadvantages of acoustic monitoring compared to more traditional approaches.

INTEGRATING POINT COUNTS AND PASSIVE ACOUSTICS IN BIODIVERSITY ASSESSMENTS

Matteo ANDERLE[a], Jarek SCANFERLA[a], Mattia BRAMBILLA[b], Ulrike TAPPEINER[a], Andreas HILPOLD[a]

[a]Institute for Alpine Environment, Eurac Research, [b]Università degli Studi di Milano

In 2019 the Biodiversity Monitoring South Tyrol (BMS) was launched. Using standardized protocols, it aims to survey taxa sensitive to climate and land-use changes, including breeding birds over 320 sites selected using a stratified sampling design to cover the most representative habitat types, from near-natural to heavily anthropogenically modified. Sites were divided into five subsets; each one surveyed every five years. Data on abiotic factors, landscape structure and land-use management are also collected. In addition to the scientific surveys, there is a strong focus on stakeholder engagement and communication.

Birds were surveyed during the breeding season using point counts within a 100 m-radius, starting after sunrise and ending before 11 a.m. In spring 2024, we also implemented passive acoustic bird monitoring within the BMS by placing an AudioMoth recorder at each site, active at dawn and dusk throughout the breeding season with 5-minute recordings every 10 minutes.

We present the results collected during the first complete execution of the bird monitoring (20192023), and the results from the first year (2024) of passive acoustic monitoring.

We investigate the main factors shaping bird communities in mountain landscapes, examining the effect of land-use composition/configuration and habitat heterogeneity on bird communities using different taxonomic and functional indices. We also assess the efficiency of different bird indices to describe diversity of other taxa. Passive acoustic data (with optimized bird identification by establishing species-specific confidence thresholds to improve automation) are compared with point counts to assess similarities and differences between the two methods, and to identify the main implications for optimizing monitoring protocols.

We discuss the lessons learnt from the project in terms of monitoring strategy integrating different methods, stakeholder involvement, and collaborations fostered both in international scientific consortia and with local citizens and associations, which allowed us to significantly broaden the impact and outreach.

AUTOMATIC BIRD SOUND CLASSIFICATION POWERED BY NEURAL NETWORKS

Patrik LAUHA, Otso OVASKAINEN, Meeri RANNISTO, Panu SOMERVUO

University of Helsinki

Cost-effective passive acoustic recorders have revolutionized the field of bioacoustic monitoring. Due to enormous amounts of data, the species classifications are typically produced with AI-based species identification models. Current neural networks are fairly reliable and accurate, but in order to recognize bird species from untargeted recordings, training data from the particular domain is crucial. Best results are obtained, when the audio data used to train the recognition model has been collected in a similar manner as the audio data that is analyzed with the model.

We have developed an online platform called Bird Sounds Global for producing high-quality annotations for bioacoustic data. The platform contains audio recordings collected with passive acoustic recorders from different locations across the world. On BSG experienced birders list all species they can identify from 10-second audio clips and indicate the parts of the spectrogram image where the birds vocalize. Currently there are over 35 000 annotated clips globally containing 47 000 occurrences of more than 800 bird species.

The data collected in BSG is used for training neural network -based species classifiers. We utilize the convolutional base of BirdNET-Analyzer, which is a global identification model trained with large data bases. Using a pre-trained model in the background enables efficient training of accurate classifiers with limited amount of training data.

Our fine-tuned species classifiers are used to analyze audio recordings from sampling sites across the world as well as in Finnish “Muuttolintujen kevät”- mobile phone application. More than 250 000 users have downloaded the application and produced 9 million recordings with 20 million bird observations in less than two years.

MAKING SENSE OF THE GLOBAL SOUNDSCAPE USING AUTOMATED RECORDINGS

Panu SOMERVUO[a], Tomas ROSLIN[b], Bess HARDWICK[a], Deirdre KERDRAON[b], Patrik LAUHA[a], The LIFEPLAN NETWORK[c]; Otso OVASKAINEN

[a]University of Helsinki, [b]Swedish University of Agricultural Sciences, [c]Global

The world is filled with a blend of biological (biophony), geophysical (geophony), and human (anthropophony) sounds. Semi-autonomous recording stations now allow us to generate millennia of audio recordings. To make sense of these data we still need to convert them into sensible conclusions regarding ecological patterns in nature. Where the other contributions to this workshop will discuss methods for sampling and classification of sound, I will turn to a case study regarding current imprints on soundscapes around the world. In project LIFEPLAN, we recorded soundscapes at 139 sites across six continents. We then characterised these soundscapes by 15 metrics, and quantified the seasonal, diurnal, climatic, and anthropogenic drivers of variation in the focal metrics. Across the globe, we found a consistent and predictable rhythm in biophony. Latitude, time of day, and day of year predict a substantial proportion of the variation in both the activity and species richness of animal sounds. Against this backdrop, we found that anthropophony is invading environments across the world. The soundscape of urban green spaces proved generally noisier and less diverse than the soundscape of nearby natural sites – even though more animal species contributed to the soundscape of urban green spaces. We conclude that the global soundscape is formed from a highly predictable rhythm in biophony, with increasing noise from poorly-predictable geophony and anthropophony. As global biological soundscapes are ubiquitously invaded by anthropogenic sounds, both humans and other animals across the world are experiencing and communicating against a drastically different sound background than ever before.

ACOUSTIC MONITORING TO REVEAL BREEDING STATUS OF SECRETIVE SPECIES

Thomas SATTLER[a], Maciej CHYLAK[b], Sabrina CLÉMENT[a], Pierre HENRIOUX[c], Tetiana KORNIIENKO[a], Marc KÉRY[a], Sébastien LAGUET[d], Ludovic LONGCHAMP[a], Yves MENETREY[e], Janusz RAFAŁKO[b], Pierre-Alain RAVUSSIN[f], Przemyslaw ZDROIK[a]

[a]Swiss Ornithological Institute), [b]Faculty of Mathematics and Information Science, Warsaw University of Technology, [c]Groupe d'étude sur les rapaces nocturnes de l'Ouest vaudois, Payerne, Suisse, [d]Office national des forêts, co-coordinator of the national network «LPO/ONF Petites Chouettes de Montagne», La Motte-Servolex, France, [e]Groupe Tengmalm Vallée de Joux, L'Orient, Suisse, [f]Groupe ornithologique de Baulmes et environs, Baulmes, Suisse

Acoustic methods to study wildlife experience a rapid development worldwide. In population monitoring, both active (i.e. provoking reactions through playback) and passive acoustic monitoring (i.e. with autonomous recording units, without playback) are increasingly applied, especially for species that are difficult to study owing to their secretive lifestyle or due to logistical difficulties. Both challenges are encountered when surveying the Boreal Owl (*Aegolius funereus*) and the Eurasian Pygmy-owl (*Glaucidium passerinum*), as their courtship period is in winter, and they often inhabit remote mountain forests. Long-term nestbox studies of Boreal Owl in Switzerland (since

1985) found high year-to-year fluctuations with substantial long-term decreases at the Southwestern margin of the otherwise mainly boreal distribution. These losses are suspected to be related to climate change. Populations of the Eurasian Pygmy-owl fluctuate less and are increasing in most areas of its distribution. Site occupancy analysis of the species-specific French national monitoring (153 transects surveyed since 2017) show that playback increases detection probability for Eurasian Pygmy-owl, while it may leads to a decreased detection for Boreal Owl. Additionally, and based on the OpenSoundscape software, we developed call-type specific algorithms that allow us to identify different call types for each species, and which are indicative for their respective breeding status (solitary male, pair, pair with fledged young). This is a crucial step on our endeavour to obtain information on yearly breeding status including reproduction on unprecedented spatial scales, in addition to simple species trends. We expect that passive acoustic monitoring only improves the monitoring of these secretive and nocturnal mountain species but we also learn about selected demographic parameters thanks to this innovative method.

BIRD SONG IDENTIFICATION APPLICATIONS ARE A WIDESPREAD BUT NON-SYSTEMATIC ACOUSTIC MONITORING NETWORK

Wesley HOCHACHKA, Tom AUER, Cynthia CROWLEY, Daniel FINK, Orin ROBINSON, Andrew WHETTON

Cornell Lab of Ornithology

The data collected during bird surveys reflects the actual occurrences of birds and the probabilities that individual birds were detected and identified. Because of this, changes in the detection process could incorrectly suggest changes in patterns of distribution and abundance of species. Smartphone applications designed to identify the vocalizations of bird species, such as Merlin Sound ID and BirdNet, have the potential to cause changes in the rates at which birds are detected. The size of any impact will depend on two things: (1) the frequency with which sound identification applications are used, and (2) the magnitude of the change in detection rate for a species. We examined these two patterns from one combination of bird-portal data (eBird) and sound identification application (Merlin Sound ID). We found that observers differed in the frequency with which they ran Merlin Sound ID while making eBird observations. Similarly, we found the effects of running Merlin Sound ID on reporting rates to vary among bird species. Taken together, these results indicate that the potential impacts of sound identification applications will be complex and varied.

16:30 – 18:00 *Auditorium 223*

POPULATION TRENDS OF URBAN BIRDS – INSIGHTS FROM EUROPE AND CZECHIA

Jan GRÜNWALD

Institute for Environmental Sciences, Charles University

Despite numerous studies on bird populations in forests, farmlands, and wetlands, urban bird population trends have been largely overlooked. This gap is due to a lack of long-term data on urban bird abundances, often caused by observer bias. Volunteers in monitoring schemes typically avoid

urban areas, viewing them as less important for birds. However, cities undergo significant changes, and urban bird populations are dynamic, warranting closer study.

We analyzed the long-term trends of 93 bird species breeding in urban areas across 16 European countries to understand the factors influencing these populations. Using generalized linear mixed models, we found that species that have bred in urban areas for longer periods had more negative trends compared to recent colonizers. Species adapted to urbanization in open landscapes showed more positive trends than those less urbanized. Ground-nesting species also fared better than those nesting in trees, shrubs, or buildings. These patterns may reflect changes in urban land cover over recent decades, though national trends may introduce bias by reflecting broader ecological processes.

We then compared the population trends of 48 species in urban and rural areas of Czechia, finding that most species had consistent trends across both environments. A greater number of species showed positive trends, suggesting favorable urban conditions, possibly due to more green spaces. Larger-bodied species, such as corvids and birds of prey, also exhibited positive trends, potentially due to reduced hunting pressure. While most species had similar trends in both settings, this discrepancy presents an intriguing area for future research.

USING OPPORTUNISTIC DATA TO TRACK CHANGE IN WINTERING TERRESTRIAL BIRD POPULATION

Thomas DUCHESNE, Jean-Yves PAQUET

Natagora, Belgium

Estimating population trends for wintering bird species is essential for effective conservation in the context of climate change, but structured monitoring programs targeting terrestrial birds in winter are lacking in many regions, such as in Wallonia (Southern Belgium). Since 2010, however, in Wallonia, millions of opportunistic data are collected throughout the year on the portal Observations.be. These unstructured data are, however, subject to a significant temporal and spatial bias due to the increasing number of observations but partial coverage of the territory. Multiseason site-occupancy models may offer efficient opportunities to track species occupancy trends over multiple year. By explicitly accounting for detection probability and temporal variability, this approach separates true occupancy dynamics from imperfect detection, making it particularly suitable for analyzing unstructured data.

Multi-season site-occupancy models were applied to a dataset of opportunistic observations of wintering bird species in Wallonia over a 14-year period. More precisely, detection/non-detection events are implemented using data from the 30 bird species most often co-observed with the target species. This ensures that the site visits were conducted in an appropriate detection condition by the observer (time of day, visited habitat…). For each detection/non-detection event, we reconstitute the list of species co-observed within the same kilometer square, on the same date and by the same observer. The list length is then used to calculate the species detection part of site-occupancy models. Furthermore, the multi-season framework captures colonization and extinction events at individual sites, providing insights into local population turnover across years.

Results indicate clear interannual variability in occupancy rates, with some species showing significant declines and others maintaining stable or increasing trends. These trends are not always mirroring regional breeding population trends, suggesting an important impact of changes in larger scale migration patterns. These findings highlight the potential for using opportunistic data to monitor phenomena that would otherwise be neglected due to the absence of structured survey programs. The multi-season approach proves effective in addressing the challenges of an observed

trend in increasing records per visit, possibly related to the progressive generalisation of mobile application recording.

THE STATUS OF BREEDING HEN HARRIERS *CIRCUS CYANEUS* IN THE UK AND ISLE OF MAN IN 2023

Leah KELLY[a], Stephen DOWNING[b], Patrick LINDLEY[c], Wendy MATTINGLEY[d], Neil MORRIS[e], Stephen MURPHY[f], Duncan ORR-EWING[a], Ronan OWENS[g], Eimear ROONEY[h], Marc RUDDOCK[h], Andrew STEVENSON[i], Mark THOMAS[a], Irena TOMÁNKOVÁ[a], Simon WOTTON[a]

[a]RSPB, [b]Northern England Raptor Forum, [c]Natural Resources Wales, [d]Scottish Raptor Study Group, [e]Manx BirdLife, [f]Natural England, [g]Department of Agriculture, Environment and Rural Affairs, [h]Northern Ireland Raptor Study Group, [i]NatureScot

The sixth national survey of breeding Hen Harrier *Circus cyaneus* aimed to estimate the size of the population in the UK and Isle of Man, constituent countries, Scottish regions, and UK Special Protection Area (SPA) network for breeding Hen Harrier in 2023 and calculate population changes since 2016. Surveys were conducted in all 10-km squares likely to be occupied by breeding birds in England, Northern Ireland, Wales, and the Isle of Man, using standard methods. In Scotland, a stratified random selection of 10-km squares within the known breeding range was surveyed alongside squares selected by volunteers. The UK and Isle of Man breeding Hen Harrier population was estimated at 691 territorial pairs (95% CL, 593–802), a near significant 20% increase since 2016. Populations increased to differing degrees in all countries and the Isle of Man, except Northern Ireland where they declined. Scotland held 77% of the population with 529 (431–640) pairs, alongside tens of pairs in other areas. Overall abundance within SPAs scarcely changed since 2016, but Scottish and Northern Irish SPAs held fewer pairs (−28% and −17%). As in 2016, most Hen Harriers in the UK and Isle of Man were found on heather-dominated moorland. In Scotland, abundance declines on grouse moors continued between 2016 and 2023 (−23%), following a significant 67% decline between 2010 and 2016.

PALEARCTIC RAPTORS WINTERING IN WEST AFRICA: RECORDS, TRENDS, AND THREATS

Nico ARCILLA, Abiola Sylvestre CHAFFRA, Lin-Ernni Mikégraba KABOUMBA, Yendoubouam KOURDJOUAK

International Bird Conservation Partnership

Millions of raptors that breed in Europe and Asia migrate to Africa during the non-breeding season and spend the winter in African savannas, wetlands, and forests. Many Palearctic raptors winter in protected areas that are under unprecedented anthropogenic pressure, especially in West Africa, where wildlife populations have steeply declined but ecological studies remain relatively rare. We assessed wintering Palearctic raptor occurrence, distribution, and threats in Benin, Togo and Ghana, West Africa, using recent field data and historic records collected over the past century. We conducted field surveys between 2020 and 2024 at two Ramsar convention sites and two national

parks, including the Lac Ahémé Complex and Bas-Ouémé Complex in Benin, FazaoMalfakassa National Park in Togo, and Mole National Park in Ghana. We documented 10 wintering Palearctic raptor species at these protected areas, including the Osprey (Pandion haliaetus) and Western Marsh Harrier (*Circus aeruginosus*) in Benin, and the Lanner Falcon (*Falco biarmicus*), European Honey Buzzard (*Pernis apivorus*) and Booted Eagle (*Hieraaetus pennatus*) in Togo and Ghana. Comparing recent survey data with historic data suggests that numbers of Palearctic raptors have declined and their wintering ranges have significantly contracted in this region, due to both habitat loss and persecution. Moreover, raptors in West Africa are highly threatened by poaching for a burgeoning and lucrative wildlife trade for belief-based uses in West African Vodun (commonly known as voodoo). Unfortunately, raptors and their carcasses and heads fetch some of the highest prices in the market, and the Osprey is one the most persecuted species for use in voodoo due to the local perception that it commands supernatural powers. We recommend increased conservation awareness, law enforcement, and ongoing monitoring to understand and mitigate negative human impacts on Palearctic raptors wintering in West Africa.

TWENTY YEARS OF COMMON BIRD CENSUS IN SLOVAKIA: ANALYSIS OF TRENDS AND NEW APPROACH

Soňa SVETLÍKOVÁ[a], Jozef RIDZOŇ[b]

[a]Comenius University, Faculty of Natural Sciences in Bratislava, [b]Slovak Ornithological Society/BirdLife Slovakia

Common Bird Census in Slovakia, which is part of PECBMS started in Slovakia in 2005. Point counts were carried out at plots selected by free choice. In this study, population trends of a total of 122 birds were analysed using data of the Common Bird Census in Slovakia.

We found that more than a half of all bird species analysed (64 %) indicated a reliable trend estimate. Number of species indicating reliable trend increased in comparison with last complex analysis of data from years 2005-2020, when only 52 % of species indicated reliable trend.

The greatest share of all species analysed had a stable population trend (28%), indicating almost no change in bird numbers across the study period. Regarding the species with increasing or decreasing trends, 25 % and 9% of all species revealed a moderate decline or increase, respectively. However, a steep decline in bird numbers has been found only in three species (2%) and that was case of River Warbler, Common Grasshopper Warbler and Ring Ouzel. Only one species, Mute Swan, showed strong increase in numbers.

Species with moderate increasing trends dominated mainly among forest or hole-nesting birds. In contrast, the majority of birds with moderate decline were among open-nesters, typical in farmland, human settlements or ecotones.

Number of sites included into this analysis varied between 22-85 in years 2005-2022 and total number of sites used for trend calculations reached 255. However spatial distribution of counted sites in Slovakia was uneven in this period, what influenced quality of data, therefore new scheme with new stratified random selection of sites was started in 2023 in cooperation of SOS/BirdLife Slovakia, State Nature Conservancy of Slovak Republic and Technical University in Zvolen. Together 190 sites were counted in framework of Common Bird Census in Slovakia in 2023, including 50 plots monitoring since 2005. In addition to being used for the evaluation of the common agricultural policy in Slovakia, the data from this monitoring will be key for creating estimates of new populations and modeled maps for the new national bird atlas of Slovakia.

FROM BIRD OBSERVATIONS TO TRENDS – THE SWISS BIRD INDEX

Sylvain ANTONIAZZA, Nicolas STREBEL, Niklaus ZBINDEN, Verena KELLER, Thomas SATTLER, Tetiana KORNIIENKO

Swiss Ornithological Institute

The Swiss Bird Index (SBI) offers a robust measure of bird population trends across Switzerland, serving as a vital tool for understanding biodiversity and ecosystem health. Population trends from almost all native regular Swiss breeding bird species form the basis for the SBI, thus it synthesizes several millions of mostly volunteer-recorded bird observations over 35 years. Each of the specieswise population indices is based on the best data available for the corresponding species, analyzed with an approach fitting to that data. These indices are subsequently aggregated by statistical models inspired by the geometric mean, but allowing for the inclusion of newly appearing as well as disappearing species, without requiring arbitrary data manipulation. The index transforms into a single metric summarizing the population trends of all considered species, as well as trends for species selections according to habitat, ecological traits or conservation status. Being annually updated and publicly available, the SBI provides up-to-date information that can influence policy decisions, conservation strategies, and public awareness.

In contrast to other indices, the Swiss Bird Index is based either on a comprehensive set of species or a complete set of species that meet specific criteria. This provides a significant advantage over multi-species indices that rely on a more limited species list, e.g. resulting from a niche-based approach and thus ignoring both redundancy that is inherent in nature, but also small ecological differences between species that are ignored when selecting species based on a limited number of traits. Additionally, the index also includes rare species that are often ignored due to scarcer data, what would lead to a sample that is biased according to species rarity. This makes the Swiss Bird Index a robust indicator of environmental change, a driver for informed conservation decisions and a tool to measure success of conservation efforts.

Friday April 4, 2025

10:30 – 12:00 *Auditorium Magnum*

MODELLING BIRD HABITAT SUITABILITY FOR NATURE CONSERVATION PLANNING

Andris AVOTIŅŠ, Ivo VINOGRADOVS, Jekaterīna BUTKEVIČA, Ainars AUNIŅŠ

Department of Ecology, Faculty of Medicine and Life Sciences, University of Latvia

Species distribution modelling (SDM) is a powerful tool that can inform not only about species distribution and its ecological needs but also contribute to nature conservation planning. In this study, we employed SDM to assess the countrywide distribution of over 70 forest, farmland, and wetland bird species at a pixel resolution of 1 ha. The species list includes well-known biodiversity indicators, umbrella species in nature conservation, as well as red-listed and protected species. We then used the results for multi-species site prioritisation for conservation.

We categorised the species according to their home-range size based on a comprehensive literature review. We described the environment at the site, home-range and landscape scales. We collated all available species observations since 2016 and filtered them to retain only reliable breeding-related observations at locations where no significant changes in land use and land cover occurred since the observation.

We employed maximum entropy analysis as a SDM tool and used resulting habitat suitability maps to prioritise sites for conservation with a weighted multi-species approach. We created species specific weights, which were based on the national population size, the proportion of the European population breeding in Latvia, the annual (multiplicative) slope of the population change, the lifetime reproductive output, the extent and area of occurrence, the level of association with protected areas and the ecological niche breadth.

Finally, we related the results of species-specific and multi-species site prioritisation to evaluate species conservation levels and the condition of the existing nature conservation network, thus identifying gaps in it.

APPLYING PECBMS DATA IN CONSERVATION: TURTLE DOVE POPULATION DECLINE AND RECOVERY

Carles CARBONERAS[a], Eva ŠILAROVÁ[b], Jana ŠKORPILOVÁ[b], Beatriz ARROYO[a]

[a]Instituto de Investigación en Recursos Cinegéticos (IREC), [b]Czech Society for Ornithology

The European Turtle-dove (*Streptopelia turtur*) has become a priority for conservation action, following decades of population decline. The 2018 Species Action Plan, agreed internationally, recommended regulating hunting through an adaptive harvest management mechanism (AHMM), an evidence-led system designed to facilitate decision making through continuous learning. The turtle dove AHMM was set up in 2020 overseen by the European Commission. In our role as scientific advisors to the AHMM, we applied the PECBMS dataset to provide flyway-specific estimates of key parameters that contribute to decision making: indices, trends and breeding population size variation over time, covering the periods 1998-2023 and 2000-2023. The persistent decline in both flyways supported the recommendation of a complete hunting ban from 2021 (western) and a 50% reduction (2021) followed by complete ban from 2022 (central-eastern). PECBMS data allowed tracking the population response to such policy decisions. In the western flyway, numbers reached a historic low of 1.56 million bp in 2021, then increased by 25% in the following two years, to 1.96 million bp in 2023, i.e., 400,000 new breeding pairs. During this time, adult survival increased but productivity was below average, so the observed growth was most likely the direct result of the hunting ban. In the central-eastern flyway, hunting effort was reduced but not eliminated, and no population response could be detected. Numbers continued to decline to an all-time low of 0.56 million bp in 2023, a 15% decrease in the last two years. Our study demonstrates the value of applying the PECBMS dataset in conservation for the management of priority species. It further provides empirical evidence of the speed of population response in this quarry species, and the timeframe needed for change to occur and to be detected.

USING MODELLED DISTRIBUTION MAPS TO CREATE SENSITIVITY MAPS FOR WIND TURBINES AND RECREATION ZONATION

Henk SIERDSEMA, Christian KAMPICHLER, Juan GALLEGO-ZAMORANO

SOVON Dutch Centre for Field Ornithology

Modelled distribution maps are a valuable tool for planning and impact assessments. By combining information on the known impact of human pressures like wind turbines and recreation with distribution maps an assessment can be made how existing and planned pressures may influence bird populations. By combining bird data from various sources with environmental data detailed distribution maps at a scale of 250x250 m are available for both breeding and non-breeding birds in The Netherlands. We combined these distribution maps with known information of the impact of wind turbines and recreation on birds to create sensitivity maps. This process starts with converting the distribution maps, ie abundance maps, into so-called hotspot maps by defining the smallest possible areas where x per cent of the population occurs. These are referred to as 'quantile maps' that transform abundance maps into binary maps that are comparable between species. Information on the impact of the pressure and policy status like Red List status is used to give different weights with respect to the pressure to each species. The weighted quantile maps are then combined into sensitivity maps, either for all species combined or for example for different habitat groups. These sensitivity maps are used by both policymakers and civilians to preventing or mitigating the effects of these pressures on bird populations.

TOWARDS THE 30X30 TARGET IN MARINE PROTECTED AREAS IN THE NORTH ATLANTIC

Diego PAVÓN-JORDÁN[a], Tyler HALLMAN[b], Yanjie XU[c], Brett K. SANDERCOCK[a]

[a]Norwegian Institute for Nature Research, [b]Bangor University, [c]Finnish Museum of Natural History, University of Helsinki

The European Commission and the UN Global Biodiversity Framework have set international targets to protect 30% of the land and sea without loss of critical habitats or species by 2030, with at least 10% under strict protection. Currently, less than 15% of sea area is protected across EU/EEA countries and the UK. Spatial planning and prioritisation requires an evaluation of the coverage and integrity of current networks to advise responsible authorities on gaps and new opportunities. Detailed information on species distributions and abundance in the different seasons is essential to ensure that sea areas included in any site-safeguard networks are located in ecologically relevant sites now and into the future. We use season-specific abundance distribution maps of the six most abundant species of pelagic seabirds in the North Atlantic to compare their habitat needs and requirements during breeding, wintering, spring and autumn seasons with the current network of Marine Protected Areas (MPAs). Taking into account the current network of MPAs as well as areas that are already unavailable for protection (e.g. oil platforms, offshore windfarms), we show different scenarios for efficiently protecting 30% of the North Atlantic based on the abundance of the six species considered here (these species account for more than 80% of the total abundance of seabirds in the region). Resources available for conservation are often limited and this study will provide valuable information to maximise biodiversity gains with the existing or expanded networks to achieve the post-2020 goals.

SEABIRD SENSITIVITY MAPS AS USEFUL TOOLS SERVING MARINE SPATIAL PLANNING

Volker DIERSCHKE, Leonie ENNERS, Nele MARKONES, Verena PESCHKO

Dachverband Deutscher Avifaunisten (DDA)

Marine areas in Europe and thus the habitats of many seabirds are under strong pressure from human activities. To support an integration of seabird sensitivities into marine spatial planning, we have developed maps showing the sensitivity of seabirds to different activities in the German North Sea and Baltic Sea. The maps are derived by combining distribution patterns determined by long-term surveys of seabirds at sea with species-specific sensitivity indices. The sensitivities of the individual species are determined for each human activity using three components. Firstly, the reaction to the respective activity (e.g. avoidance of offshore wind farms, escape behaviour in front of moving ships) is taken into account. Secondly, we rated the costs incurred by the individual, considering for example the costs of compensating loss of habitat or the energetic costs of escape behaviour. Finally, the costs at population level are included, e.g. the threat status or the adult survival rate as a parameter reflecting the demography of a species. The parameters are scaled to five levels and summarised to form a Species Sensitivity Index (SSI). This allows a ranking of species from insensitive to highly sensitive for each human activity. With respect to sensitivity to offshore wind farms resulting from avoidance, loons and auks show the highest sensitivities, while various gull species rank as most sensitive regarding collision with offshore wind turbines. Regarding ship traffic, loons and sea ducks are particularly sensitive due to their strong disturbance reactions to moving ships. In addition to informing marine spatial planning, our sensitivity maps are a versatile tool for conservation management, for instance for placing fisheries measures appropriately, to plan mitigation measures at offshore wind farms or for minimising effects of oil spills on seabirds.

CONTINENTAL-WIDE PRIORITIZATION OF PROTECTED AREAS TO APPROACH GLOBAL AND HABITAT-SPECIFIC GOALS FOR AVIAN BIODIVERSITY CONSERVATION

Yanjie XU, Aleksi LEHIKOINEN

Finnish Museum of Natural History, University of Helsinki

The United Nations and European Union have set conservation goals to halt declines in biodiversity by protecting 30% of land and sea by 2030. Effective planning for conservation areas requires spatial prioritization to ensure optimal coverage of biodiversity. We applied the Zonation algorithm to select key areas that maximize the coverage of 442 breeding bird species within a fixed extent of protection across Europe. The optimal selection of 30% of Europe's terrestrial area covered on average 50% of the range and 63% of the population per species. Stratifying prioritization based on habitat criteria greatly enhanced the conservation efficiency, enabling coverage of over 80% of species populations for species breeding in tundra, Mediterranean, and coastal habitats with optimal selection of 10% area each. Therefore, tailoring conservation strategies to address unique ecosystem requirements of species allows us to more effectively target conservation action. Our prioritisation supports global biodiversity goals and provides insights for key areas, guiding further finer-scale efforts in area-based conservation planning.

10:30 – 12:00 *Auditorium 223*

THE VALUE OF SEAWATCH COUNTS: AN EXAMPLE HOW SEAWATCH COUNTS CAN BE USED IN NATIONAL SEABIRD TRENDS

Gerard TROOST[ab], Martin POOT[c], Leo SOLDAAT[c], Hans SCHEKKERMAN[a], Menno HORNMAN[a], Erik VAN WINDEN[a]

[a]SOVON, Dutch Centre for Field Ornithology, [b]Trektellen.org, [c]Statistics Netherlands (CBS)

From 2020 onwards, the seawatch data from The Netherlands in Trektellen.org are used to describe the development of seabird numbers in the North Sea, as an addition to the systematic monitoring by North Sea wide transect counts made from aircraft. Seawatches carried out by an impressive number of voluntary observers provide useful additional data for species with a mainly coastal distribution and for more pelagic species that are observed in low numbers during the aerial counts. The data are combined in trend calculation for the national Network for Ecological Monitoring (NEM). Data quality in the NEM is assured by describing the measurement methods in protocols and through annual quality reports.

In this talk we introduce you to the seawatching world. We explain how we coordinate and standardize the counts done by volunteers, and how we correct for variation in observer effort and (weather) conditions to obtain annual indices of species' abundance. We also describe how the different data sources are combined in the trend calculation, and give some examples of the results. We also provide an overview of the current European network of seawatch posts along the European coasts, and discuss the potential and future perspectives of analyzing these data on a connective, European scale.

LIMAT : A NEW SCHEME TO ESTIMATE BREEDING POPULATION SIZE OF WATERBIRD IN FRANCE

Jérémy DUPUY[a], Philippe AUBRY[b], Alain CAIZERGUES[b], Laurent COUZI[a], Charlotte FRANCESIAZ[b], Matthieu GUILLEMAIN[b], Emmanuel JOYEUX[b], Gwenaël QUAINTENNE[a]

[a]LPO – BirdLife France, [b]OFB

The effectiveness of conservation policies can be measured through the use of Essential Biodiversity Variables like demographic tendency, distribution range or breeding phenology. Furthermore, species population size is one of the key information to define the conservation status of a species. On a national scale, locally endangered or range-restricted species can be monitored through comprehensive counts or targeted surveys. Conversely, common species population size is generally estimated through expert opinion. In France, of the 44 species of waders, ducks, geese, swans, coot and grebes that breed regularly within the country, only 19 species are subject to exhaustive or regular censuses of their breeding population. The Office Français de la Biodiversité (OFB) — a french government agency — and LPO - BirdLife France, have implemented a new scheme in order to estimate national breeding population size of 25 widespread species of waterbirds. The scheme is based on the prospection of 500 m x 500 m grid squares, selected from a stratified two-stage sampling. In 2021 and 2022, more than 132 000 individuals have been counted in close to 2500 squares by 764 observers. As might be expected, Mallard was the most common species with an

estimated population of 265 000 pairs [IC 90% 235 000 - 295 000], followed by European Coot [IC 90% 50 000 - 69 000 pairs] and Great Crested Grebe [IC 90% 22 500 - 31 000 pairs]. Among the waders, the most common species was the Black-winged Stilt with 7 600 pairs [IC 90% 3600 - 11 600]. With this unique sampling design, LIMAT offers an opportunity to produce national breeding population size estimates for various waterbird species through a single survey process, albeit these have different ecologies and habitats, which will be used for Bird Directive reporting or Red List updates.

CAN IT BE A PROBLEM TO USE APPARENT SURVIVAL ESTIMATES IN MODELS OF POPULATION VIABILITY? INSIGHTS ON HOW TO INTERPRET POPULATION PREDICTIONS, ADAPT MONITORING STRATEGIES, AND UNDERSTAND CONSERVATION IMPLICATIONS

Jaume A. BADIA-BOHER

Swiss Ornithological Institute

Monitoring programmes typically focus on relatively small areas that do not cover the range of whole biological populations or species distributions. Due to this, monitored individuals in animal populations may often emigrate from the study area towards unmonitored parts of the range. The issue of emigration has often posed a challenge to population modellers due to its potential to bias demographic estimates. This is also the case of survival estimation from mark-recapture or mark-resighting data. In particular, when individuals that are marked in the study area leave permanently towards unmonitored sites, they cannot be resighted anymore, leading conventional mark-recapture analyses to confound emigration with mortality. This fact results in underestimated survival probabilities known as apparent survival. Given the restricted nature of most study areas, apparent survival is the most obtained survival estimate, and hence, it is also very often used in subsequent population models such as population viability analyses (PVAs). Nevertheless, the implications and potential biases generated by apparent survival in population models are rarely discussed at the stage of result interpretation. Here, we will do so using the intensively surveyed Bonelli's eagle population in Catalonia (NE Iberian Peninsula) as a study case. Specifically, we will show 1) how projections of population viability from population models may be affected by apparent survival use, and to which extent this may represent a concern for management and conservation decision-making; 2) how monitoring may be adapted to generate data that better disentangles the effects of mortality and emigration, and 3) how novel modelling approaches may deliver more reliable population estimates and projections. The presentation will elaborate on our recent publication at Biological Conservation: 10.1016/j.biocon.2024.110550

COMPLEX MONITORING OF BIRDS IN SLOVAKIA – CONCEPT, PRELIMINARY RESULTS, SUSTAINABILITY

Peter LEŠO[a], Ján ČERNECKÝ[a], Andrej SAXA[a], Dušan KARASKA[b], Jozef RIDZOŇ[b], Miroslav DEMKO[b], Jozef CHAVKO[c], Roman SLOBODNÍK, Anton KRIŠTÍN[d], Rudolf KROPIL[e]

[a]State Nature Conservancy of the Slovak Republic, [b]SOS/BirdLife Slovakia, [c]Raptor Protection of Slovakia, [d]Institute of Forest Ecology of the Slovak Academy of Sciences, [e]Technical University in Zvolen, Dept. of Applied Zoology and Wildlife Management, Faculty of Forestry

The State Nature Conservancy of the Slovak Republic (SNC SR) has launched a complex monitoring of all wild living bird species in Slovakia since 2022 in cooperation with important national partners. The goal of the complex monitoring is the systematic collection of data on the abundance, habitat quality, population and area trends, and the most significant threats, pressures, and management measures affecting the populations of 236 breeding, wintering and migratory bird species. The information will be used especially in regular reporting obligations on the status of wild living birds according to Art. 12 of the Birds Directive, setting appropriate management measures to improve or maintain the favourable conservation status of individual bird species and their habitats. Experts from the most important professional, scientific, and non-governmental organisations dedicated to ornithology participated in the preparation and implementation of the monitoring. More than 300 professional and amateur ornithologists, employees of nature protection and forestry organisations, as well as students, carried out the monitoring in the field. For the purpose of monitoring, 43 methodologies were developed, taking into account the specifics of certain species or groups of species. A total of 1737 unique permanent monitoring sites were established by using a statistical approach. During 2022–2023, a total of 4,970 records of field visits of birds were obtained with hundreds thousands of individual observations. These data represent pilot results that will form an essential basis for evaluating population and area trends during the next monitoring period. In 2024, the SNC SR, in partnership with the administration of national parks, received another grant, which is a prerequisite for ensuring the continuity of comprehensive monitoring of birds for the period 2024–2029. The contribution was supported by the project Monitoring of habitats and species of European importance in Slovakia, co-funded by the European Union within Programme Slovakia.

25 YEARS OF MONITORING COMMON BREEDING BIRDS IN SWITZERLAND: HISTORY, EVOLUTION, PERSPECTIVES

Roman BÜHLER, Samuel WECHSLER

Swiss Ornithological Institute

The Swiss Ornithological Institute's Monitoring of Common Breeding Birds (MHB) has completed 25 successful field seasons, making it a cornerstone of biodiversity monitoring in Switzerland. Launched in 1999, the MHB aims to track population trends of common breeding bird species across various habitats. This long-term dataset has provided critical insights into bird population dynamics and environmental changes, informing national conservation policies and research. Covering a wide range of ecosystems, the MHB plays a vital role in assessing the potential impacts of factors such as habitat loss, agricultural practices, and climate change on bird populations. Over the years, the MHB has undergone a significant digital transformation. Initially, data were collected using paper maps, and analysis was done manually, a labor-intensive process. Today, fieldwork is conducted

using digital tools such as mobile apps to collect observation data and the analysis relies on algorithms. This shift enabled faster, more objective analysis, but posed challenges, such as maintaining the continuity and comparability of historical datasets. Despite these difficulties, digitalization has streamlined the workflow, facilitated data management and significantly accelerated the pace of analysis.

Central to the MHB's success is the involvement of a large network of volunteers, who are responsible for collecting data across the country. Managing and training this diverse group, particularly during the transition to digital methods, has been a challenge. Ensuring consistency in data collection, providing ongoing support, and fostering engagement have been critical to maintaining data quality. Volunteer engagement remains a core strength of the program, allowing us to monitor bird populations on a national scale.

This presentation will explore the development of the common breeding birds monitoring in Switzerland, from its inception to its digital transformation, and discuss strategies for effectively managing and motivating a large volunteer network in a long-term biodiversity monitoring program.

THE NEW FLEMISH BIRD ATLAS (2020-2024): METHODOLOGY AND RESULTS

Wouter COURTENS[a], Koen DEVOS[a], Olivier DOCHY[a], Gerald DRIESSENS[b], Simon FEYS[b], Henk SIERDSEMA[c], Filiep T'JOLLYN[a], Gerard TROOST[a], Glenn VERMEERSCH[a]

[a]Research Institute for Nature and Forest, [b]Natuurpunt vzw, [c]SOVON-Dutch Centre for Field Ornithology

From 2020 to 2024, more than 500 dedicated volunteers conducted fieldwork for the new Flemish Bird Atlas. Unlike the previous atlas project from 2000-2002, this edition included counts of both breeding and wintering birds. The methodology followed the same approach as both the previous Flemish and Dutch atlases, allowing for direct comparison, and was based on a structured spatial scale using 645 squares of 5x5 km as the primary framework. Within each square, eight 1x1 km grid cells were selected and surveyed twice for 55 minutes – once during the breeding season and once in winter. Additionally, one or two 5-minute point counts were performed at the centre of each square.

Beyond these timed counts, volunteers were given the flexibility to spend as much time as necessary in the 5x5 km squares to record breeding territories or wintering populations of select species, ensuring accurate estimates of bird numbers in these areas. A newly developed app and website by SOVON (NL) were instrumental during the fieldwork, allowing seamless data entry and efficient post-processing. For example, an automatic clustering module helped calculate the number of territories.

Species maps were enriched with additional observations from other sources, such as observation.org and waterbird counts. Altogether, almost 62,000 counts were conducted, and 1,5 million records were entered into the atlas database. These data enable fine-scale modelling of population density and distribution changes, incorporating environmental covariates.

We will demonstrate how the app and website facilitated data entry in the field and the creation of distribution maps and population estimates. Additionally, we will present some of the most notable findings from the atlas work.

13:30 – 16:00 *Auditorium Magnum*

THE ROLE OF BUFFER STRIPS IN ENHANCING FARMLAND BIRD ABUNDANCE AND DIVERSITY IN LARGE-SCALE ARABLE LANDSCAPE: INSIGHTS FROM SLOVAKIA

Adriana HOLOŠKOVÁ[a], Jozef RIDZOŇ[b], Jiří REIF[a]

[a]Institute for Environmental Studies, Faculty of Science, Charles University, [b]SOS/BirdLife Slovakia

Slovakia, characterized by the largest average field size in the European Union, faces significant challenges in maintaining biodiversity across its expansive arable landscapes. In response, a voluntary whole-farm eco-scheme including buffer strips was introduced within the framework of the Common Agricultural Policy in 2023. With over 85% of agricultural land enrolled in its first two years, this scheme has achieved one of the highest participation rates in the EU. Despite this success, scepticism about its effectiveness in supporting biodiversity persisted among some stakeholders. To address this, we conducted a field study in 2023 and 2024 to evaluate the benefits of buffer strips for farmland bird populations. We monitored bird counts in spring and summer across 14 farms, covering 43 study sites in a paired design. The dataset included more than 6,800 bird observations, representing 69 species. Our results show that buffer strips significantly increased both bird abundance and species richness compared to conventional arable fields. The most pronounced effects were observed among ground-nesting species, with positive impacts also noted for threatened species. Higher abundances of granivorous, folivorous, and insectivorous birds were recorded in the buffer strips, underscoring their role as diverse habitats that support nesting and foraging. These findings suggest that buffer strips are a crucial agri-environmental measure in large-scale arable landscapes, particularly in regions with oversized fields. We recommend continued support for buffer strips under the CAP, with a focus on reducing administrative barriers and increasing financial incentives to enhance biodiversity outcomes. Our study highlights the importance of such measures for the conservation of farmland bird species in intensively farmed landscapes.

EBBA LIVE FARMLAND: DISTRIBUTION AND CHANGE MAPS BASED ON PECBMS DATA

Guillem POCULL[a], Sergi HERRANDO[bcd], Sara FRAIXEDAS, Dani VILLERO[ab], Anna GAMERO[e], David MARTÍ[cb], Verena KELLER[d], Petr VOŘÍŠEK[de], Alena KLVAŇOVÁ[cd], Gabriel GARGALLO[c], Lluís BROTONS[bfa]

[a]CTFC, [b]CREAF, [c]ICO, [d]EBCC, [e]CSO, [f]CSIC

Updating species distribution on a regular and frequent basis in a harmonised manner at the European level has proven difficult. This is particularly important for farmland birds, which are known to be in overall decline in Europe. Therefore, we aim to boost the capacities of the European bird monitoring network by updating farmland bird distributions every five years and assessing their changes. To achieve this, we utilised site-level data from 50 farmland species provided by the PanEuropean Common Bird Monitoring Scheme (PECBMS) to generate comparable maps of species occurrence between two periods (2013–2017 and 2018–2022). We did this by fitting, predicting, weighting, and calibrating six correlative Species Distribution Models, accounting for species detectability and reducing spatial autocorrelation in the data. We used a total of 35 site

covariates, including static geographical predictors and climatic, land use, and vegetation indices that varied for each period. For detectability, we used two observational variables: the sampling method and survey time effort. We then generated maps of change by calculating the difference in occurrence between the two periods and calibrated the change maps using gain, loss, and stable observations with a novel technique. We evaluated the performance of the distribution maps and assessed the reliability of the change maps by comparing them with test data of observed gains and losses, as well as with PECBMS trends for each species. Distribution maps performed satisfactorily for all species at the European scale and for most at the regional level. Change maps were also evaluated as satisfactory for most of the analysed species. This study reveals the complex spatial dynamics of farmland bird populations, with emerging subnational and transboundary patterns at species and community levels.

DRIVERS OF FARMLAND BIRD POPULATION DECLINES IN CENTRAL AND EASTERN EUROPEAN COUNTRIES FROM NATIONAL TO LOCAL SCALE

Jiří REIF

Institute for Environmental Studies, Faculty of Science, Charles University

Central and Eastern European (CEE) countries are one of the farmland biodiversity strongholds, but it is threatened by land use changes occurring since the second half of the 20th century. Birds represent an important farmland biodiversity component that can be used to study consequences of these changes across scales. For this purpose, we studied farmland bird populations in intensively used agroecosystems of different CEE countries. At the national level, we found that farmland bird populations decline, and the decreasing trend magnifies after countries' involvement into the Common Agricultural Policy of the EU, likely due to higher agrochemical inputs. Downscaling the focus on open agricultural landscapes, farmland birds preferred areas with a high habitat heterogeneity represented by presence of untarred roads, pools, dunghills and a few woody plants. In addition, farmland bird species richness benefitted from small field size, but not from a high crop diversity: respective crop types were probably not so different from each to host different bird species, but smaller fields created a mosaic providing edge habitats for birds that avoid large continuous fields. However, high crop diversity was important locally to improve abundance of the two most iconic farmland birds, Eurasian Skylark and Yellow Wagtail. The relationship was driven by food availability that greatly varied across respective crops: if the crops were locally diverse, it increased the chance that the site will contain one or more food-rich types and support higher abundances. At the same time, the relationship to food supply was context dependent: in landscapes with small fields birds preferred sites with the highest invertebrate abundance, but in large-field landscapes birds did not respond to variation in food availability across parcels because the food-rich sites were inaccessible. Reduction of field size looks like a key measure to improve conditions for farmland birds in CEE countries.

DO BIRDS AND BUTTERFLIES SHOW SYNCHRONY IN THEIR ABUNDANCE CHANGES IN FINNISH FARMLANDS?

Sarella ARKKILA, Laura BOSCO, Johan EKROOS, Janne HELIÖLÄ, Mikko KUUSSAARI, Aleksi LEHIKOINEN, Markus PIHA, Tuomas SEIMOLA

Agriculture has been developing and adapting to meet the needs for affordable food and its intensification is one of the main drivers of climate disruption and biodiversity erosion. Farmland biodiversity declines are a major concern not only to the protection of biodiversity as such, but also from the perspective of maintaining functionally important species contributing to food production through e.g. ecosystem services. Existing long-term monitoring programmes have shown that population declines of farmland birds have been particularly strong since the 1970s, which has been attributed to intensive farming practices and more recently also climate change. Solutions regarding a fair transformation toward ecological farming are urgently needed.

Birds and butterflies have commonly been used as indicator species for farmland biodiversity, but little is known about how changes in their abundances show similar temporal and spatial trends. I am analysing if birds and butterflies show synchrony in their local abundance changes in Finnish farmlands, using bird and butterfly monitoring data of the last 20 years in Finland. Preliminary results suggest that synchronicity of bird and butterfly abundance trends are more strongly related to farmland region than to other factors such as species guilds. This indicates a need for different management actions in varying regions to support farmland biodiversity.

MANAGEMENT OF NATURA 2000 SITES FOR FARMLAND BIRD CONSERVATION

Giorgio ZAVATTONI[ab], Jon BROMMER[a], Elie GAGET[b]

[a]University of Turku, [b]Tour du Valat

Bird conservation in the European Union strongly relies on the Natura 2000 (N2K) protected area network. However, the N2K network is under combined pressures of land use and climate changes, and the implementation of effective management is often challenging. One of the taxonomic groups that are suffering the most from these pressures are common farmland birds, some species of which are included in the Farmland Bird Index (FMI), a widely-used indicator of the health of agricultural ecosystems. At present, our understanding of to what extent management of N2K sites can respond to the combined challenges of land uses and climate changes is primarily based on information on conservation measures carried out at the level of EU member states. However, local information on conservation management is necessary to improve the effectiveness of conservation, even if challenging to collect. Here, we conducted a pan-European survey for protected areas managers to collect information on N2K site threats and conservation measures at site-specific level. Among the 490 protected areas documented, a majority (67 %) reported the implementation of conservation measures related to agriculture targeting birds, especially in order to maintain or reinstate non-intensive traditional practices. On the other hand, intensive agricultural practices were the main reason behind unaddressed threats, especially due to unsuitable grazing practices (18 % sites) and the use of pesticides and fertilizers (14 % sites). Regarding climate change, 58 % of the protected areas have already implemented adaptation strategies, with lack of funding, stakeholders' conflict, and lack of appropriate knowledge reported as the main barriers to implementation. This study shows how managers are dealing with the combined challenges of climate and land uses changes, highlighting the role that beneficial agricultural practices can play in bird conservation and the difficulties in implementing climate change adaptation strategies.

FORCED INDOORS: CHANGING HUSBANDRY PRACTICE CAUSES A RAPIDLY DECLINING BIRD SPECIES TO BECOME A PEST

Henning HELDBJERG, Anthony D. FOX

Department of Ecoscience, Aarhus University

Lowland southwest Denmark annually hosts spectacular roosting flocks of Common Starling *Sturnus vulgaris* on autumn passage from breeding sites in Scandinavia and the Baltic states, to their wintering areas (mainly the British Isles, France and the Netherlands). The Starling is currently almost entirely confined to feeding on artificial agricultural habitats. Although predominantly grassland invertebrate feeders in summer, the species' omnivore nature has enabled it to shift its diet between food sources.

Traditionally, farms in the area managed extensive grazed grassland areas for cattle, highly profitable for the foraging Starlings. In recent decades, farming practices have changed from many small and closed farms into larger cattle herds in open cow sheds, and to the production of maize silage to feed them. The cattle are increasingly totally kept and fed indoors, instead of the former daily movements to forage on pasture.

Maize has increasingly replaced grass as primary cattle fodder and the structure of the dairy farming has also changed considerably to fewer, much larger and open dairy farms. The combination of easier accessible cow sheds and the use of energy-rich maize silage as fodder has attracted large numbers of starlings to forage inside the cow sheds, where they feed on the maize that was intended for the cattle.

This creates conflict with farmers, because Starlings deplete the nutritional and energetic value of the food and their droppings are thought to contaminate the cattle feed. Because of the loss of grassland associated with such farms, Starlings increasingly resort inside such large cow sheds, where this rapidly declining species is increasingly seen as a pest.

We studied the magnitude and trends in time and scale of Starlings foraging in cow sheds and what consequences the recent changes in dairy farming practices have had for Starlings, farming and the landscape. emphasized text

THE USE OF AGRI-ENVIRONMENTAL MEASURES BY THE EUROPEAN SKYLARK (*ALAUDA ARVENSIS*) IN GERMANY

Jannik BENINDE, Philip HUNKE

Michael-Otto-Institut within NABU

The Eurasian Skylark (*Alauda arvensis*) underwent a strong population decline across Europe and Germany over recent decades. In Europe a large proportion of the population breeds in agricultural fields. Due to the intensification of agricultural practices the many fields are no longer suitable for Eurasian Skylarks over the complete breeding season. Agri-environmental measures are used to support species that occur in agricultural landscapes. Agri-environmental measures vary strongly in their implementation, from an annual extensification of crops with intent to harvest to perennial fallows or flower strips. The effectiveness of 12 different agri-environmental measures for agricultural fields were tested on ten farms from 2017-2024 in Germany within the F.R.A.N.Z.Project. European Skylark usage of agri-environmental measures and crop fields was

monitored with seven rounds of monitoring between March and July. Most agri-environmental measures had higher number of sightings than the reference crops. Annual agri-environmental measures had higher usage later in the breeding season than perennial ones. Extensification of cereals as well as intercropping maize with beans had little to no effect. Strips of extensive cereals within maize and pea plots, 40 x 40 m plots of peas within winter cereals, had the highest increase in sightings in comparison to the control. The influence of multiple environmental factors, including soil quality, precipitation, temperature and surrounding crop diversity, were analysed. The effects of the farms themselves was typically stronger than that of environmental variation within farms.

MONITORING OF URBAN INVASE NON-NATIVE PARAKEETS IN THE NETHERLANDS

Jip LOUWE KOOIJMANS

SOVON, Dutch Centre for Field Ornithology

Introduced, non-native species can have a profound impact on local wildlife populations, for example through increased competition for resources (food, nesting sites). Therefore, it is important to evaluate whether they may pose a risk to native biodiversity. The Netherlands hold the highest number of non-native bird species in Europe, including three parakeet species that can show explosive population growth: Rose-ringed Parakeet (*Psittacula krameri*), Alexandrine Parakeet (*Psittacula eupatria*) and Monk parakeet (*Myiopsitta monachus*). These parakeet species are highly urban, roosting in large aggregations, making counts at roost sites a reliable method to obtain numbers on population size and growth. We organized nation-wide simultaneous counts at known roost sites, in December and in January, to obtain information on population size. After the establishment as breeding bird in the late 1960's, the Rose-ringed parakeet population was stable at a low number until the turn of the century. The subsequent increase and range expansion has continued, but is restricted to the highly urbanized areas in the west of the country (Randstad). The population size doubles roughly every four years. Alexandrine Parakeet established a population mainly in Amsterdam since 2000. The population stayed below 100 individuals until 2013. Since then the population has grown rapidly and counted more than 700 individuals in 2024. Unlike other parakeets, Monk Parakeet only has a small self-sustaining population at one site. The explosive growth known form other European countries, has not yet occurred in the Netherlands. The increasing populations of these introduced species is not without consequences for native bird populations. This presentation will focus on the interaction with and the influence on populations of native bird species.

13:30 – 16:00 *Auditorium 223*

WATERFOWL HARVEST STATISTICS IN LATVIA - DEVELOPMENT, GAINS, PITFALLS.

Antra STĪPNIECE[a], Andris STĪPNIEKS[a], Ainārs AUNIŅŠ[a], Toms ENDZIŅŠ[a], Ilgvars ZIHMANIS[b]

[a]Faculty of Medicine and Life Sciences, University of Latvia, [b]Latvian State Forest Service

Bird Directive Article 12 reporting foresees information related to Annex II species – hunting status and number of individuals taken. In most cases, this data source is information given by hunters

themselves. Although hunters are recognized as an important citizen science force (Cretois et al. 2020), also cases of response error due to species misidentification are recognized (Christensen et al. 2017).

In several countries besides the official statistics wing surveys or similar platforms have been established able to provide exact species of the bird as well as age and sex data.

In Latvia till 2013 waterfowl bag data reported by hunters to authorities (State Forest Service) was summarized and published as "Ducks total" and "Geese total". As sources of species composition and demography data since1993 bag checking by ornithologists at 5 NATURA territories (Vīksne, Janaus, Stīpnieks 2008, Janaus, Keišs 2018) and since 2004 reports to ornithologists by selected hunters have taken place. Unfortunately, the first refers only to 2 habitats and recently only to the season opening and for the second number of participants was comparatively low. In order to increase the sample size since 2019 reporting to ornithologists via special site www.nomeditie.org, Facebook and WhatsApp with pictures of the bag content was advertised. In 2023 also a phone based application for reporting game photos to the State Forest Service was launched. In 94% of cases birds reported by hunters had been identified correctly. Gadwall *Mareca strepera* was the most unsuccessful – only 84% correct cases.

Since 2024 reporting to the State Forest Service of all the unlicenced game species with an attached game photo via a phone application "Mednis" is mandatory. Results of the first year and gains (high territory coverage, known site and time, possibility to correct misreported species) and the possible drawbacks of this reporting platform (higher non-response error) are discussed.

IMPACT OF MODEL SETTINGS TO ESTIMATE WATERBIRD POPULATION SIZE

Elie GAGET

Tour du Valat

Bird population size is a key parameter influencing environmental policy applications, but estimating it is challenging. Exhaustive monitoring is not realistic for populations distributed at a large spatial scale, preventing the opportunity to get the true population size. Instead, statistical frameworks can be used to estimate bird abundance with confidence intervals. Several recommendations have been made to model population sizes and failing to address them risk, among others, biased estimations of population size or overconfidence in estimated numbers. Population sizes of wintering waterbird are needed at regional scales to inform policy makers, but waterbird counts are exposed to statistical issues, such as zero-inflation, over-dispersion and spatial autocorrelation, potentially affecting estimations. Using counts from the International Waterbird Census, I benchmarked 50 statistical models applied to each of the 110 waterbird species wintering in the Mediterranean region, in order to estimate annual population size from 1995 to 2020. The tested models used different error distributions and spatial components, exploring a large range of possible settings to face classical issues when estimating population size. Results show that most of the models failed to address zero-inflation, over-dispersion or spatial-autocorrelation, resulting in biased estimations of population size and confidence intervals. Most importantly, the ability of the models to deal with the statistical issues, as well as consequences on population size estimation, greatly varied between species. The main conclusion of this study suggests that applying one unique model setting for different species can result in biased estimations of population size and confidence intervals for many species.

HOW DIFFERENT SET-UPS OF WATERBIRD MONITORING SUPPLEMENT EACH OTHER

Marc VAN ROOMEN

SOVON Dutch Centre for Field Ornithology

When designing monitoring programmes for non-breeding wterbirds choices need to be made about when and where to count. In this presentation we will show that different aims require different setups in time and space but also that these different set ups can supplement each other. It will be about monitoring on local, national and flyway scales and about January, seasonal or monthly counts. Examples of these different options will be shown and how they differ and how they supplement each other.

CHALLENGES IN MONITORING MIGRATORY AND RESIDENT GREYLAG GEESE IN THE UK

Neil A. CALBRADE, Hálfdán H. HELGASON, Jessica M. SHAW

British Trust for Ornithology

Monitoring migratory and resident Greylag Geese (*Anser anser*) in winter in the United Kingdom presents significant challenges due to their expanding populations and overlapping distributions. Greylag Geese have expanded their range, with reintroduced birds in southern England spreading northwards and native birds from the west coast of Scotland spreading eastwards, where they now share the same habitats in winter as migratory birds from Iceland and are indistinguishable from one another in the field.

The expansion of the resident population necessitates effective management strategies, particularly on Orkney. Culling is implemented to balance the ecological and economic pressures posed by these birds, which can lead to overgrazing and damage to crops. To ensure sustainable management, measures are taken to set quotas that consider both the increasing resident and declining migratory populations, which relies on effective monitoring of both populations. This involves census surveys, age assessments, monitoring seasonal movements, and collaborating with local stakeholders to align conservation goals with agricultural needs.

This talk will present an overview of current monitoring efforts and new approaches aimed at assessing the distribution, abundance, and behavioural patterns of both migratory and resident Greylag Geese. We will discuss the methodologies employed, including satellite tracking, professional field surveys, and citizen science initiatives, which collectively enhance our understanding of their populations.

THE DRIVERS OF POPULATION DYNAMICS OF DIVING DUCK SPECIES IN EUTROPHIC WATERBODIES

Petr MUSIL[a], Diego PAVÓN-JORDÁN[b], Dorota GAJDOŠOVÁ[a], Monika HOMOLKOVÁ[a], Zuzana MUSILOVÁ[a]

[a]Department of Ecology, FES, Czech University of Life Sciences, [b]Department of Terrestrial Ecology, Norwegian Institute for Nature Research (NINA)

The diving duck species exhibit very dynamic changes in numbers and distribution across Europe. Common Pochard (*Aythya ferina*) and Tufted Duck (*Aythya fuligula*) have shifted their breeding range from north and northeast Europe to West and South in the last 150 years. They started to breed also on eutrophic freshwater wetlands (fishponds and fishpond systems) in Central Europe where they had expanded and dramatically increased in population size between the 1930s and 1970s. Subsequently, a rapid decline in the breeding population size of these species has been recorded since the early 1980s. This decline seems to be similar to population changes of these species recently reported in other parts of Europe. The recent analysis of adult survival did not confirm increasing mortality in adult birds. Nevertheless, the male-skewed adult sex ratio shows an increasing trend, especially due to increasing numbers of unpaired males. These changes could not be explained by predation of breeding females. Moreover, breeding females exhibit increasing body condition and females in better body condition lay larger eggs and hatched eggs with a higher hatching probability. Therefore, the main driver of the population dynamic of the Common

Pochard and Tufted Duck could be (1) the proportion of breeding individuals in given years and (2) the survival of reared ducklings. The availability of suitable invertebrate food seems to be the main factor affecting duck survival when they prefer low density (i.e. low competition) of fish and high water transparency (higher than 75 cm in brood rearing period). The proposed Actions aimed at improving the non-secure status of these species include ensuring food availability for adults and ducklings and reducing unsustainable nest predation. The efficiency of these actions should be monitored, including the census of adults at the start of the breeding season and brood survival in the later stage of the breeding season.

DEVELOPING THE UK SEABIRD MONITORING PROGRAMME

Sarah J. HARRIS, Nina J. O'HANLON, Dawn E. BALMER, Niall N.K. BURTON

British Trust for Ornithology

The BTO/JNCC Seabird Monitoring Programme (SMP) aims to ensure that sample data on breeding abundance and productivity are collected both regionally and nationally, for 25 species of seabird that regularly breed in Britain and Ireland, to enable their conservation status to be assessed. Data are collected by both volunteers and professional fieldworkers. At present we cannot produce robust trends for all those species. Having taken the lead in coordinating this programme in recent years, alongside partner JNCC and associate partner RSPB, we present plans to improve coverage of sites/species and data submission. This includes approaches to prioritise sites to ensure an adequate proportion of populations are monitored, quantify uncertainty (i.e. in site occupancy and observer error) and build on the programme's engagement with the UK's network of dedicated seabird surveyors, often needing to reach relatively remote locations. We also consider enhancements and modernisation of monitoring methods and data recording capabilities of the programme, such as

incorporating data from remote technologies (e.g. time-lapse photography, audio monitoring, UAV surveys) to improve coverage and data collection. Challenges to achieving these aims will be addressed.

VARIATION IN HABITAT TRENDS IN UK WINTERING WATERBIRDS

Blaise MARTAY[a], Graham E. AUSTIN[a], Philipp H. BOERSCH-SUPAN[a], Niall, N.K. BURTON[a], Teresa M. FROST[a], David NOBLE[a], James W. PEARCE-HIGGINS, Kirsi PECK[b], Simon R. WOTTON[c]

[a]British Trust for Ornithology, [b]JNCC, [c]RSPB

The United Kingdom (UK) is host to internationally important numbers of waterbirds in winter, including migratory populations breeding in northern and arctic regions. The UK wintering waterbird composite indicator of species indices shows waterbird use of UK wetlands rose from the early 1970s to mid-1990s, but has since declined. Broadscale factors driving wintering waterbird trends are known to include climate change, water quality, lead pollution, hunting policies, and habitat change.

For most waterbird species, winter numbers are best monitored by the national BTO/RSPB/JNCC Wetland Bird Survey (WeBS). WeBS is a site-based survey, with volunteer counters making monthly counts of all waterbirds at predefined locations. Sites are categorised into a broad wetland habitat type: open coast, estuarine, river or marsh, natural inland still water, gravel pit, and reservoir.

Our study compared the period where the waterbird indicator was rising, 1970/71 to 1994/95, and the more recent period 1995/96 to 2019/20, where the indicator was falling. As part of a wider analysis, which also considered spatial distribution and phenology, we found differences between trends of species groups between the habitat classes. Increasing trends were most apparent in the early period of estuaries out of the six habitat types. In the later period, diving duck populations declined, but declines were less apparent on reservoirs and gravel pits. We will discuss these and other results, and some of the potential drivers that are consistent with the patterns observed.

SHIFTING THE BASELINE FOR WATERBIRD AND SEABIRD CONSERVATION IN EUROPE

Elie GAGET[a], Jon E. BROMMER[b], Thomas GALEWSKI[a]

[a]Tour du Valat research institute, [b]University of Turku

European waterbird and seabird populations have been threatened by anthropogenic activities for decades, mainly because of habitat loss and degradation, overexploitation of natural resources, and harvesting. Effective strategies are needed to restore both populations and their habitats. However, the temporal period used to define the state of reference when setting restoration targets requires careful considerations to avoid the risk of shifting baseline. A high risk of shifting baseline occurs if a population decreases before the time period used to set a baseline. In Europe, most bird monitoring schemes started after the 1970s, yet significant changes in population trends were already reported earlier in the 20th century. In the absence of early monitoring schemes, historical

ecology can help to document population trends from a range of sources. In this study, we assessed the risk of shifting baseline for 170 waterbird and seabird species breeding in Europe. We reconstructed population trends between 1900 and 2012 from information collected in both historical literature and monitoring scheme reports. We defined the risk of a shifting baseline as low, probably low, probably high, high or uncertain, based on the direction of population trends before and after a baseline set in 1970. Historical trends suggest a general decline in waterbird and seabird populations over the period 1900-1970, with 49 species showing a decrease, 53 species fluctuating, 26 species increasing and 42 species with unknown trends. From 1970 to 2012, despite the rise of international conservation efforts, 52 species were decreasing while 22 showed an increase. A high risk of shifting baseline was identified for 16 species, for which restoration targets must consider historical trends spanning at least a century. Then, the risk was low for 3 species, probably low for 65 species, probably high for 15 species and uncertain for 71 species. Further investigations are needed to quantify the magnitude of historical trends, to set relevant baselines for the European Union's regulation for nature restoration.

Posters

1

POPULATION OF AQUATIC WARBLER IN BIEBRZA VALLEY, NE POLAND

Krzysztof STASIAK

Ogólnopolskie Towarzystwo Ochrony Ptaków

Natura 2000 Ostoja Biebrzańska PLB200006 site including Biebrzański National Park is one of the most important Aquatic Warbler *Acrocephalus paludicola* breeding areas in the world. In 2024 the census (full count) of the area was made by Polish Society for the Protection of Birds (OTOP BirdLife Poland), within the project LIFE NAT/LT/001024, covering all suitable habitats. It was divided into 100 census sites, each checked once, with large areas controlled whole at once by teams of experts and volunteers. The similar counts were made by OTOP in 1995-1997, 2003, 2009 and 2012. Since 2012 the annual Aquatic Warbler national monitoring is held at the same area by OTOP on behalf of the Chief Inspectorate for Environmental Protection, using 80 transects of 1000 m each to estimate the population trend and number. Each transect is controlled twice a year by experienced experts.

The census count in 2024 revealed 2411 singing males (SM) at the whole area of 22506 ha, while during the monitoring 424 SM were found on the 80 test areas of 20 ha each in 2024. The range of occurrence of SM changed between counts in 2012 and 2024 mostly due to changes in the habitat structure, e.g. overgrowing with reed or shrubs. It can be followed partially using the habitat data gathered within the monitoring, while the census results showed the scale of those changes. It is also shown, that the number of birds slightly decreased between 2012 and 2024 (the detailed monitoring results suggest fluctuations during this period), but in some parts of the area the local number and density of singing males increased. The combined results of the species monitoring and censuses are very important base for conservation actions proposed to the National Park Authorities and allow us to follow the status of the population.

2

A MOBILE APPLICATION–INSPIRED CITIZEN SCIENCE INITIATIVE TO COMPILE BIRD OBSERVATIONS

Ossi NOKELAINEN[a], Patrik LAUHA[b], Ari LEHTIÖ[a], Otso OVASKAINEN[a]

[a]University of Jyväskylä, [b]University of Helsinki

Citizen science encompasses various initiatives, yet differences in terminology, project goals, and cultural contexts often limit its effectiveness. Our study demonstrates how citizen science can support large-scale avian wildlife monitoring using a mobile app-based campaign (*Muuttolintujen kevät*), an automated bird sound classifier for Finnish birds. Over 250 000 users have downloaded the application and obtained 9 million recordings with 20 million bird observations in less than two years. We analyzed the spatial and temporal distribution of the data, user behavior, and the reliability of AI-based species identifications. To ensure data quality, raw audio is stored for ongoing validation. Citizen science may not only enhance public engagement and education, but also aid conservation efforts. Future expansions will incorporate advanced analytics to further support conservation strategies.

3

RECORDS OF AVIAN DEFORMITIES IN NEPAL

Nikeet PRADHAN[a], Mohan Bikram SHRESTHA[b]

[a]Agriculture and Forestry University. [b]Bird Conservation Nepal

Avian deformities have been reported in a wide range of bird species worldwide. However, they have not been studied in Nepal, although there are increasing sightings of these deformities. Injuries, genetic mutations, environmental causes, infections, radiation, and other factors can all contribute to abnormalities. In our study, we gathered data from multiple field excursions, discussions with bird watchers and researchers, and social media posts from Nepal. We found 24 abnormal avian defects in 16 distinct bird species across 12 districts in Nepal, indicating that some anomalies exist in a large proportion of previously unstudied birds. We detected many forms of color abnormalities, five cases of avian keratin disease (AKD), and one case of combined leucism and AKD. The bulk of these instances included corvids and other birds that periodically live and nest near human settlements, indicating that causative factors such as anthropogenic toxicants and environmental degradation might play a crucial role. There is a lack of study on avian deformities and diseases in Nepal; thus, more research on avian abnormalities, such as AKD pathophysiology and genetic investigations, should be conducted.

4

FIRST BIRD RINGING IN PAPE, LATVIA, IN SPRING: FROM COMMON BREEDERS TO RARITIES

Annika PETER[a], Jannis LEISTIKOW, Jule KOCH, Melanie SCHRAMMA, Elza Marija ZACMANE, Oskars KEIŠS[b], Heiko SCHMALJOHANN[a]

[a]University of Oldenburg, Germany, [b]Latvijas Universitātes Bioloģijas institūts

Each year, millions of birds migrate thousands of kilometers between the Arctic and Africa along the East Atlantic flyway. On this flyway, many birds pass Pape in Southwestern Latvia. Since the 1960s, about a million birds of more than 130 species have been captured and ringed there during the autumn migration. The reasons for bird ringing are manifold and include to monitor population dynamics, totrack migratory movements, to assess survival and also to discoverspecies that are difficult to detect with other methods. During autumn migration, many migratory birds are captured in large Heligoland traps in Pape. However, there was so far only little bird ringing activities during the spring, when most birds probably migrate northwards to their breeding areas or even breed at the Lake Pape. Here, we show for the first time the potential of catching birds during spring migration and breeding season in Pape. In spring 2024, we set up mist nets in the reed beds of the Lake Pape and around the Ornithological Station. Overall, we captured 989 individuals of 66 species, most of which were songbirds. Interesting recaptures include a Reed Warbler (*Acrocephalus scirpaceus*) ringed in Spain the previous autumn. Unexpected was the first record of the Cetti's Warbler (*Cettia cetti*), which was the 377th species recorded in Latvia, as well as the tenth record of the Paddyfield Warbler (*Acrocephalus agricola*) only 24 hours later. In respect of breeding birds, we captured 70 first-calendar-year birds of 13 species, including birds typically associated with reed beds or urban areas. We expect recaptures in subsequent seasons and in foreign places of birds hatched in Pape, but also of migratory birds, which will provide insights into the spatiotemporal extent of spring migration and breeding season in Southern Latvia.

5

HOW CHANGES IN BIRD FEEDING AFFECT BIRD NUMBERS? - A CASE STUDY FROM FINLAND

Aleksi LEHIKOINEN

Finnish Museum of Natural History, University of Helsinki

Supplementary feeding of birds especially during winter is a common habit for humans in many European countries. Millions of kilograms of seeds are provided for birds on national level, e.g. in Finland. In recent years there has been more discussions about the potential population level impacts of feeding. However, the topic has been relatively little studied. In this study, I used Finnish winter bird count data to examine how changes in feeding intensity have affected abundance of birds. Furthermore, I studied does the species' traits explain the species responses to changes in feeding intensity?

Both the amount of bird feeder sites and birds have been surveyed in Finnish winter bird counts for decades. I studied the changes based on data during 2001–2023 using data of 27 most abundant

species (>10,000 bird individuals counted) along 155 routes. Route-specific changes in bird abundances were positively connected with corresponding changes in feeder numbers, especially in species preferring urban habitats such as Great Tit *Parus major* and Blue Tit *Cyanistes caeruleus*. The declining feeding intensity in Finland in recent years may have influenced population trends of several bird species and thus the overall winter bird community in the country.

6

WHITE STORKS GUARDING WETLANDS IN ARMENIA

Karen AGHABABYAN

BirdLinks Armenia NGO

Thanks to the citizen science monitoring of White Storks *Ciconia ciconia* in Armenia, a novelty threat to the wetlands of Ararat Plain was discovered in 2019-2021. The wetlands and storks were becoming contaminated with an agent of plant oil and/or fish fat nature, coming from a waste of over 300 fish farms and canned food producers. In response, a species-specific strategy and action plan were developed and implemented starting in late 2021. The strategy aimed at improving waste management of the identified producers of fish, chips, and canned food. The accompanying monitoring of the White Storks in the Ararat Plain that was conducted throughout 2019-2024 was aimed not only at identifying the scale of the issue but also at tracking the efficiency of the undertaken measures. The monitoring implemented in 35 villages showed that the average percentage of contaminated storks grew from 5% in 2019 to 21% in 2020 and to 55% in 2021, followed by a decline of contaminated storks to 34% in 2022, 22% in 2023, and to 19% in 2024. The number of strongly contaminated nestlings (taken as a percentage of all contaminated nestlings) declined from 18% in 2019 to 5% in 2020, then grew to 24% in 2021, followed by a decline of strongly contaminated storks to 17% in 2022, 16% in 2023, and to 12% in 2024. Thus, the country-wide monitoring of the White Storks helped in early warning of wetland pollution and informing the decision-making bodies about the urgency of developing response measures.

7

MONITORING BIRDS AND DROUGHT PHENOMENA IN JIJIA IAȘI WETLANDS RAMSAR SITE (ROMANIA)

Constantin ION[a], Vasile JITARIU[b], Valentin MIHALESCU[a], Alexandra-Cătălina MORARIU[b]

[a]Facultatea de Biologie - Universitatea "Al. I. Cuza" Iasi, [b]Facultatea de Geografie - Universitatea "Al. I. Cuza" Iasi

The waterfowl birds have decreased in Europe in the last decades. Also, the drought phenomena happens more often and could affect negatively the birds populations, which are crucial in maintaining the ecosystem balance of wetlands. The study examines the implications of drought on local avifauna, identifying changes in the distribution and behaviour of aquatic bird species, between 2018-2023. The laboratory phase involved the analysis of meteorological and hydrological data, while the field stage included the waterfowls observation during breeding period in the studied area. The data collected

was processed and analyzed using GIS software to create maps and patterns of species distribution. We used general linear model in statistical analysis to see which is the link between drought and birds' presence. The study reveals that the drought caused a significant reduction of aquatic areas in May, June and July during 2018-2023. This reduction of aquatic surfaces had direct effects on the avifauna, causing changes in the distribution of aquatic bird species. The concentration of water resources in smaller areas has led to an intensification of interspecific competition for food. Species were forced to concentrate in areas where water was still present, although reduced in area, which favoured access to food but intensified competition for scarce resources. The drought significantly influences the distribution of bird species in the Jijia Iasi Wetland, causing their movement and concentration in water areas. The reduction of aquatic areas and the concentration of food resources favour certain species but intensify competition for resources. Continuous monitoring and adequate management of these habitats for biodiversity conservation is essential.

8

ESTABLISHING A LONG-TERM BIRD MONITORING SCHEME IN ALBANIA: INSIGHTS FROM THE FIRST INTERNATIONAL CENSUS PLOT 2024

Erald XEKA, Besjana SHEHU, Klea DURO, Klajdi DURO, Kristi BASHMILI, Taulant BINO

Albania Ornithological Society

This study marks the initiation of the International Census Plot for breeding birds in Albania, conducted within the framework of the Common Bird Monitoring Scheme (CBMS). Implemented for the first time in Albania, this scheme aims to establish a sustainable, long-term framework for monitoring bird populations across the country. The 2024 data collection focused on seven randomly selected 2x2 km census plots, targeting breeding bird species during the nesting season. In each plot, a 1 km line transect was defined and monitored over two visits: the first between April 15th and May 10th, and the second between May 15th and June 10th. A team of six Albanian Ornithological Society (AOS) staff members was engaged in the monitoring, recording a total of 107 bird species across the surveyed plots.

Building on previous efforts by the Albanian Ornithological Society, which contributed and coordinated the efforts in Albania with regards to data provided to the European Breeding Birds Atlas, this study seeks to further enhance Albania's contribution to pan-European ornithological monitoring. By utilizing standardized methodologies provided by the CBMS, this research tracks population trends of common and key bird species, which act as indicators of ecosystem health. In the initial phase, data collection offered valuable insights into species distribution and habitat use across Albania's diverse ecosystems and habitats.

The outcomes of this census will contribute to broader European conservation initiatives, while providing essential baseline data for the development of national conservation strategies and policies. This research not only strengthens collaboration with international partners but also sets the foundation for the long-term monitoring of avian biodiversity in Albania.

9

RECOVERY AND RESILIENCE: POPULATION DYNAMICS OF HERON SPECIES IN DUTCH WETLANDS

Chiel BOOM, Joost VAN BRUGGEN

SOVON Dutch Centre for Field Ornithology

Over the past few decades, wetland birds across Europe have faced various pressures, including habitat loss, declining water quality, and diminishing fish stocks — factors which have impacted many species reliant on these ecosystems. However, recent population trends of heron species in the Netherlands are generally positive, with some species recovering and even new species establishing themselves. In this poster, we present an overview of the population dynamics of various heron species — highlighting differences and similarities — which can provide valuable insights into the environmental conditions influencing heron population dynamics. We compare the population trends of migratory and resident heron species to determine if their patterns of population development differed over time. Additionally, we discuss how habitat restoration, improved water quality, and changes in fish populations may have supported the observed positive population trends. By doing so, we intend to contribute to an improved understanding of the factors impacting heron populations.

10

DEEP LEARNING FOR MONITORING RAPTOR MIGRATION COUNTS

Raphaël NUSSBAUMER[a], Amédé ROY[b]

[a]Swiss Ornithological Institute, [b]France Energies Marines

Despite many years of continuous monitoring, accurately predicting bird migration counts remains a challenging task, even for the most experienced counters. Birds respond to a complex interplay of intrinsic and extrinsic factors, including seasonality, weather, geography, and social cues. This unpredictability is part of what makes migration monitoring so enjoyable and rewarding.

In this study, we explore the feasibility of applying deep learning models to analyse and predict raptor migration counts at the Défilé de l'Ecluse migration spot in France. Using ERA5 weather data from the study site and nearby proxy locations, along with temporal factors, we aim to explain the variability of the hourly counts of the six most common raptors. This approach allows us to evaluate how well deep learning can handle the complexity of these factors and improve the accuracy of migration count predictions.

Our deep learning model provides several key outputs. First, it enables temporal forecasting, offering predictions that can inform more effective monitoring strategies and serve as a public tool to raise awareness about raptor migration dynamics. By filling gaps in migration data—due to incomplete monitoring at certain sites or time periods—the model generates more accurate estimates, allowing for consistent comparisons across years and drawing more reliable trend estimates of the populations. Additionally, through the use of SHAP (SHapley Additive exPlanations), the model quantifies the relative importance of each variable, offering deeper insights into the factors driving migration, such as weather conditions and temporal cues.

Beyond the specific site studied here, this approach can be applied to other key migration monitoring sites with long-term data, offering more generalizable insights into raptor migration. Moreover, this method can be adapted to many shorter-term opportunistic migration count sites, such as those recorded on platforms like Trektellen, by training local models tailored to specific sites and conditions. This flexibility highlights the broad applicability of deep learning in bird migration research, from established long-term observatories to more localised monitoring efforts.

11

MONITORING BIODIVERSITY CHANGE IN KENYA USING HISTORICAL ATLAS DATA AND RECENT CITIZEN SCIENCE.

Raphaël NUSSBAUMER

Swiss Ornithological Institute

Bird atlases offer invaluable insights into long-term species distribution changes, crucial for conservation in an era of biodiversity loss. However, this is only possible if the atlas is reproduced the same way later. Almost half of the countries in Africa have historical atlases mostly collected in the 1970s and 1980s, yet very few have been reproduced since then. At the same time, citizen science data platforms have emerged as the alternative, offering data at finer spatial and temporal resolutions, albeit with less standardisation and structure. Comparing historical atlas data with recent citizen science observations thus makes it possible to unlock the full potential of past information and reveal long-term trends in bird distribution on a large scale. The main challenge in this approach is to appropriately account for changes in methodology between the different surveys.

This study leveraged Kenya's historical bird atlas data (1970–1984) and recent citizen science records from the Kenya Bird Map project and eBird to map the distribution changes of 1 088 bird species over 50 years. We generated maps showing whether species appeared, remained, or disappeared in each 27 x 27 km square of the country, accounting for varying survey efforts. Results showsignificantrangecontractionsforPalearcticmigrantsandscavengers, reflecting global trends in population declines, while introduced species have expanded their ranges. These findings, accessible on an interactive website, underscore the power of integrating historical and recent data to learn about long-term trends in species distribution.

Comparing citizen science with historical atlas data offers a scalable, cost-effective means to inform conservation policies and biodiversity monitoring programs at national and regional scales.

12

HIGHLIGHTS FROM THE 8TH INTERNATIONAL WHITE STORK (*CICONIA CICONIA*) CENSUS IN MOLDOVA

Vitalie AJDER[ab], Silvia URSUL[a], Mihail GHILAN[ac], Igor ROȘCA[a], Gheorghii ȚÎCU[a]

[a]Society for Birds and Nature Protection (SPPN), [b]Institute of Ecology and Geography of the Moldova State University, [c]„Alexandru Ioan Cuza" University in Iași (Romania)

The 8th International White Stork Census (2024) was an important opportunity for the Republic of Moldova to update the existing knowledge regarding the breeding and distribution of the White Stork (*Ciconia ciconia*).

Being a common, easily identifiable species which breeds near human settlements, the White Stork was subjected in Moldova to multiple counts during the last 60 years, with various results over the time. A census carried out in 1984 revealed 574 White Stork nests, while the official numbers during 1990-2010 pointed to 180 nests. A more recent census conducted in 2017 by the Society for Birds and Nature Protection (SPPN) showed 283 nests.

In 2024, we carried out a new White Stork census, which turned out to be very successful, with 683 nests registered across the country. The majority of them (501) were placed on concrete electricity poles, followed by trees (69) and wooden pillars (65). The rest of them (49) were found on other types of support, such as towers, water tanks, monuments and houses. Out of the total of 683 recorded nests, 90% were occupied, with a breeding success of 1.003 offspring per nest during the study period.

The nests were registered on a digital map with the help of 313 citizen volunteers. The data was collected on-site, using an online Survey123 form that could be easily opened from any browser, and managed on the ArcGIS Online Cloud service. The form contained detailed questions, thus providing additional information about the nests (type of support, condition, number of offsprings). The 2024 White stork nest census in Republic Moldova significantly improved the current knowledge regarding the breeding status of White stork. Compared to previous monitoring programs, this census showed the highest number of recorded nests for the past 60 years. We believe its success relied on the modern approach (online survey) and citizen-friendly dialogue carried out by SPPN.

13

CHANGES IN POPULATION OF A RESIDENT WATERBIRD SPECIES IN AN UNPROTECTED VERSUS PROTECTED WETLAND AREAS IN KENYA OVER 15 YEARS.

Irene-Rose MADINDOU

National Museums of Kenya

Protected areas are normally assumed as being the best refugia for resident waterbrd species and are expected to host rising numbers of the species with minimum anthropogenic disturbance, and minimum hazards normally experienced by migratory waterbird species. A resident waterbird species

was assessed to see if the numbers would drastically differ in a protected lake(Lake Elmenteita), a sewage treatment plant (Dandora Sewage Treatment Plant) in the outskirts of Nairobi city and an unprotected wetland on the outskirts of Nairobi city (Manguo Swamp).

Protected areas are normally expected to maintain populations of resident species, though their capacity to achieve this can be affected by land use outside the protected areas and by climate changes. To study the impacts of land use on species and the capability of protected areas to sustain populations of resident waterbird species, we compared trends in abundance of the Redknobbed Coot, a resident waterbird species for 15 years in three sites wherein it was monitored every January from 1992-2023.

In general, the sewage treatment plant seemed to be the stronghold for this resident species,with the lowest numbers being recorded at the protected lake. patterns of population changes differed significantly between the protected area and the unprotected area. The sewage treatment plants have become important refugia for waterbird species and this information is a prompt for research into how other waterbird groups may be using non-conventional wetlands to thrive.

14

50 YEARS OF WATERBIRD MONITORING IN THE NETHERLANDS: ONGOING COMMUNITY SHIFTS DRIVEN BY CLIMATE CHANGE

Menno HORNMAN, Erik VAN WINDEN, Chiel BOOM

Sovon Dutch Center for Field Ornithology

Birds are responding to climate change either by adapting to new conditions within their current range or by shifting the range itself. Wintering waterbirds are particularly likely to shift their ranges, as ice-covered waters limit access to food and safety, while the absence of frost may open up new suitable wintering areas. Long-term monitoring is essential for tracking these changes and understanding the impact of a warming climate on national bird populations. In the Netherlands, waterbird counts have a long tradition, with IWC counts organized since 1967. Each year, counts are conducted monthly from September to April, enabling the detection of long-term changes in wintering populations. After decades of increase, the average number of waterbirds in the Netherlands stabilized around 2000 and has declined in recent years. This decline is primarily driven by reduced numbers in certain goose and swan species, along with decreasing populations of species that traditionally overwinter to the northeast, as they now winter further north. Conversely, species that primarily wintered southwest of the Netherlands have recently increased, likely due to milder winters allowing for a northward range expansion. Such shifts are expected to continue, underscoring the need for sustained long-term monitoring to capture changes in waterbird populations.

15

RISING TEMPERATURES, RISING BIRDS: ARE PROTECTED AREAS STILL EFFECTIVE IN THE ALPS?

Riccardo ALBA, Dan CHAMBERLAIN

University of Turin

Mountains are biodiversity hotspots, yet they are increasingly threatened by climate change, with expected shifts in the distributions of mountain birds. In the Alps, rising temperatures and land abandonment have caused shifts in vegetation zones, particularly impacting bird species that rely on open alpine habitats. However, protected areas (PAs) could provide potential mitigation against such changes, in particular by buffering effects with targeted conservation strategies. In this study, we investigated whether bird assemblages shifted towards higher elevations in response to climate change in the Italian Alps over two periods in the last decade (2010-2022). Using the Community Temperature Index (CTI) as an indicator of communities' thermal tolerance, we compared shifts inside and outside PAs and conducted sensitivity analyses to identify species and elevational intervals contributing most to CTI changes. Results showed a significant increase in mean annual temperature (0.69 °C) over the last decade in the region, with PAs reporting a steep increase in CTI over time, indicating shifts from cold-dwelling species to more warm-dwelling ones. The most pronounced changes occurred in the 2000–2300 m elevational band near the treeline, highlighting this zone as a hotspot for ecological shifts. Species contributing most to CTI increases included mostly species tied to the treeline ecotone but also alpine grassland specialists. Additionally, we observed new colonization by thermophilic species such as the blackcap, alongside upward shifts in shrubland-associated species like the wren, rock bunting, and dunnock, as well as alpine specialists such as the water pipit and northern wheatear. These findings underscore the need for adaptive management within and outside PAs, including targeted management to maintain habitats for alpine specialists which could be threatened by vegetation upshift. Monitoring CTI shifts and species distributions can provide early warnings of ecological disruptions, guiding conservation strategies to support alpine biodiversity under climate change.

16

POPULATION STATUS OF EUROPEAN ROLLER (*CORACIAS GARRULUS*) IN ALBANIA

Mirjan TOPI

Center Birds of Albania

The European Roller (*Coracias garrulus*) is a migratory bird species widely distributed as a breeder, across Europe, North Africa, and Central Asia. It winters in sub-Saharan Africa. Albania lies within the species' breeding range. Between 2020 and 2023, searches for breeding sites were conducted along the Albanian Adriatic coastline, from the town of Vlora in the south to Buna River in the north. In the 2022 breeding season, 21 active nests were found, all within a 5,000-hectare area situated in the north of the Shkumbini River. This region is characterized by open hills and non-intensively cultivated agricultural plains, providing an abundant supply of orthopterans and other prey. Apart from 1 nest that was placed in a wall crevice, the 20 others were located in sandy cliffs and banks, including a small colony of six pairs at one site, while in the other sites there were single or up to

two nests. Additionally, foraging adults were observed in the plains on the south of the Vjosa River and near Lezha, suggesting the potential presence of 1–2 breeding pairs in each of these areas, although nests were not found. Based on these findings, the population of European Roller in Albania is estimated to range between 25 and 35 breeding pairs. However, the species faces significant threats from habitat destruction. In 2024, two key nesting sites were destroyed due to excavation activities, highlighting the urgent need for conservation measures to protect nesting habitats and protect this small and vulnerable population.

17

COMPARING NICHE MODELING OF BIRDS USING GPS TRACKING AND SURVEY DATA

Aleksi LEHIKOINEN[a], Andrea SANTANGELI[b], Valeria VALANNE[a], Yanjie XU[a]

[a]Finnish Museum of Natural History, University of Helsinki, [b]Animal Demography and Ecology Unit, Institute for Mediterranean Studies (IMEDEA), CSIC-UIB

Climate change is one of the major challenges that living organisms have to face, and species can respond for example by moving their distribution northwards. Migratory birds are facing a multitude of anthropogenic threats alongside warming climate and are experiencing large scale declines. Some declining migratory species are hunted in the EU, and are especially in need of improved protection. The Horizon Europe project HABITRACK seeks to generate new information for effective conservation of 14 huntable species of conservation concern, such as the Eurasian Curlew (*Numenius arquata*) and Black-tailed Godwit (*Limosa limosa*), and movement data across these species' full annual life cycles is collected with a large scale GPS tracking effort. To generate recommendations for habitat restoration and adaptive management it is important to determine where in their current and possible future range management actions would be the most effective, taking into account the changing land use and climatic conditions. Therefore, using the detailed satellite tracking data, we are modelling species range shifts under future climate and land use scenarios. However, GPS data have been rarely used so far to quantify the range and niche of species, especially across large scales, whereas bird monitoring data, such as data from the Pan-European Common Bird Monitoring Scheme or European Breeding Bird Atlas, has more often been used for modelling species distribution changes. We are therefore comparing these two data types and seeking to answer whether large-scale GPS tracking and long-term monitoring data yield differing results from species distribution models during breeding season. This research is generating important information for future species distribution and range shift modelling using different data types, as well as informing targeted conservation and restoration actions for declining huntable species under changing climate and land use.

18

SIGNIFICANT EUROPEAN POPULATION OF GULL-BILLED TERN *GELOCHELIDON NILOTICA* BREEDING IN NARTA LAGOON IN ALBANIA

Mirjan TOPI, Ferdinand BEGO

Faculty of Natural Sciences, University of Tirana, Albania

The Gull-billed Tern (*Gelochelidon nilotica*) is a medium-sized tern with a global distribution spanning Europe, Africa, Asia, Australia, and the Americas. In Europe, the species is primarily concentrated in Mediterranean wetlands, where it depends on undisturbed habitats for breeding and foraging. Albania lies in the breeding range of this species and breeding of it in small numbers has been reported in the past. Over the last 5 years in particular, an increase in the number of this bird is observed in some of the western coastal wetlands of Albania, particularly in Narta Lagoon. In the year 2024, an inventory of the number of breeding pairs of this species in the area of Narta Lagoon in southern Albania was carried out. A total number of 153 breeding pairs were counted. Nevertheless, the overall breeding population is estimated to be up to 175 pairs. The birds had formed two colonies. One with 140 pairs situated in the saltpans and another one in the remained embankments of the old fish farm within the Narta Lagoon. The figure represents, up to 1% of the European Population of this species, revealing once more the importance of the Narta Lagoon wetland complex for the breeding of water birds. Post-breeding surveys in the semi-agricultural plains around Narta Lagoon and the south of Vjosa River have shown gatherings of up to 450 individuals foraging on orthopterans, which are highly abundant in this period in these habitats. Despite its ecological significance for this species and other water birds, the wetland complex of Vjosë-Nartë faces growing anthropogenic threats, including habitat alteration and destruction, due to proposed development projects. Such pressures underscore the urgent need for enhanced conservation efforts in this area.

19

AESTHETIC VALUES ARE BOTH SUPPORTING AND DEGRADING OF BIRD CONSERVATION

Anna HAUKKA[a], Jon BROMMER[b], Simon BRUSLUND[c], Ricardo CORREIA[b], Leonie JONAS, Jacqueline JUERGENS[d], Aleksi LEHIKOINEN[a], Stefano MAMMOLA[e], Andrea SANTANGELI[f], Johanna STAERK[g]

[a]The Finnish Museum of Natural History, University of Helsinki, [b]University of Turku, Finland, [c]Global Development, Copenhagen Zoo, [d]Department of Biology, University of Southern Denmark, [e]CNR, IRSA: Water Research Institute, Verbania, [f]Animal Demography and Ecology Unit, Institute for Mediterranean Studies (IMEDEA), CSIC-UIB, [g]Department of Primate Behavior and Evolution, Max Planck Institute for Evolutionary Anthropology

Humans' value driven actions towards nature can be both supporting and degrading to biodiversity. Aesthetic values are associated with well-being impacts to humans, but also with threats to species

e.g. via wildlife trade. We used an international online survey to collect information on the aesthetic values of birds. This survey resulted in an open access database of aesthetic value scores for all the birds in the world. The data have thus far been used for several purposes such as understanding the links of wildlife trade of birds and the contribution, or lack thereof, of aesthetic value to conservation funding. In this poster I present the database, and how it has been used at the European level to find out connections of aesthetic value and bird trade in different product types. Aesthetic value is associated especially with the trade of live birds, mainly pets, and can at best serve as predictor of future trade. Also, I'll present results of another study, which show that aesthetic value is not associated with conservation funding allocation in the European Union's LIFE program's funding for bird conservation, but that funding is based on conservation needs and opportunities. There are still unexplored opportunities to use the bird's aesthetic value database to understand conservation issues, and I encourage others to think of further purposes for it.

20

LARGE GATHERINGS OF GREATER FLAMINGO (*PHOENICOPTERUS ROSEUS*) IN NARTA LAGOON, ALBANIA

Mirjan TOPI

Center Birds of Albania

The Greater Flamingo (*Phoenicopterus roseus*) is a widely distributed species found across Africa, southern Europe, the Middle East, and parts of Asia. It relies on wetland habitats for feeding, resting, and breeding. In Albania, this species was considered occasional during the early 1960s, with only one documented record from 1951. From the 1960s to the late 1980s, information about the species in Albania remained scarce, indicating its rarity and sporadic presence. However, in the early 1990s, the Greater Flamingo began to appear more regularly in Narta Lagoon, with observations reaching dozens of individuals. Currently, the Greater Flamingo is a resident species in Albania, regularly occurring in significant numbers across the country's coastal wetlands, with the highest concentrations in Narta Lagoon and Karavasta Lagoon. Despite multiple attempts to establish a breeding colony in Narta Lagoon, successful breeding of Greater Flamingo in Albania has yet to be recorded. On July 28, 2024, a sunrise census in Narta Lagoon recorded 5,100–5,300 individuals, representing up to 5.8% of the European population of this species. This finding highlights the critical importance of Narta Lagoon as a key habitat for the Greater Flamingo, particularly during the summer months when suitable feeding and resting sites are essential. The record underscores the urgent need for conservation efforts to protect this vital wetland, especially in the face of threats such as habitat degradation and development pressures.

21

UNDERSTANDING THE EFFECT OF HABITAT CONVERSION ON THE CURRENT STATE OF BIRD POPULATIONS IN THE NW MEDITERRANEAN BASIN

Elisenda PERIS MORENTE[a], Marc ANTON RECASENS[a], Lluís BROTONS[b], Sara FRAIXEDAS, Sergi HERRANDO[c]

[a]Catalan Ornithological Institute (ICO), [b]CREAF, [c]European Bird Census Council

Biodiversity indicators aggregate complex species trends to reflect the overall state of nature and its changes; however, assessing the specific roles of individual species within these indicators is essential fora comprehensive understanding of what they represent. It is therefore necessary to disentangle the environmental factors influencing the abundance of each species and to identify the traits that mediate these environmental responses. In this study, we aimed to analyse bird abundances across a gradient of anthropic intensity in the NW Mediterranean basin to understand how land use changes within major habitat types drive the abundance of 120 bird species. Given the current decline of the farmland bird index at the European level, we also evaluated whether farmland bird species exhibit similar responses to land use changesas compared to other bird species. Additionally, we assessed whether particular traits could help explain similar trendsamong farmland bird species. For this purpose, we fitted joint species distribution models to data from the Catalan long-term monitoring scheme, which includes over 300 sampling site sand spans more than 20 years. Our results provide a mechanistic understanding of the farmland bird index in the region, its sensitivity to the species it comprises, and the extent to which specific habitats drive the species trends.

22

LUVRE: 62 YEARS OF CONTINUOUS BIRD MONITORING IN SWEDISH LAPLAND

Martin GREEN, Åke LINDSTRÖM

Department of Biology, Lund University

Within the LUVRE-project (Lund University Vindel River Expedition), yearly bird surveys have been carried out since 1963 near Ammarnäs, just south of the Arctic circle in Swedish Lapland (~66°N, 16°E). Birds are counted using territory mapping and line transects in subalpine birch forest and on mountain tundra, according to strict protocols. Standardized trapping of passerine birds has been carried out in late summer in the birch forest since 1983, giving data on breeding success and phenology. Insect abundance has been surveyed since 1967, mainly to monitor bird food abundance. The field work is carried out by unpaid field workers, being a mixture of professional and “amateur” ornithologists. I will present results from the long-term surveys including species abundance trends, changes in community composition in relation to climate change, breeding success in relation to insect abundance, and breeding phenology. Scientific publications from the project can be found at: https://www.luvre.lu.se/publikationer.

23

THE ROMANIAN RED LIST OF BIRDS 2022

Ciprian FÂNTÂNĂ[a], Cristian DOMȘA[a], Emanuel BALTAG[ab], Zoltán BENKŐ[a], Gábor Máté BÓNÉ[c], Sebastian BUGARIU[a], Szilárd DARÓCZI[ca], István KOVÁCS[cd], Emil TODOROV[a], Judit VERES-SZÁSZKA[ad]

[a]Romanian Ornithological Society, [b]Alexandru Ioan Cuza University, Romania, [c]Milvus Group Association, Romania, [d]Juhász-Nagy Pál Doctoral School, University of Debrecen, Hungary

In 2022 we finalized the first Romanian Red List of Birds created following the IUCN Red List Categories and Criteria applied at a regional level. The assessment covers the breeding populations of all 253 species that breed or bred regularly in Romania between 1901 and 2021 and the wintering populations of 9 species threatened at the European level. Of the 259 species (262 populations) 12 (4.63%) have gone Regionally Extinct and 43 (16.6%) are threatened, of which 3 (1.16%) Critically Endangered/Possibly Regionally Extinct, 7 (2.7%) Critically Endangered, 11 (4.25%) Endangered and 22 (8.49%) Vulnerable. An additional 27 species (10.42%) were assessed as Near Threatened. Evaluating the main habitat types, we found that wetland species, being the most numerous, also have the most worrisome conservation status, 35.7% of them being either threatened (19 species) or Near Threatened (11 species), followed by grassland and farmland birds with 32.8%, having 11 and 8 species in the respective categories.

The results will not only help focus conservation efforts, but, being approved and published by a ministerial decree, provide a legal basis to influence local decision making.

24

UNTANGLING THE DAWN CHORUS: SHOWCASING A CLASSIFIER-DEDUCED SIGNAL EXTRACTION METHOD FOR WILDLIFE LOCALIZATION IN AUSTRIA

Leonhard BRÜGGEMANN[a], Nils ASCHENBRUCK[a], Mario DYCZKA[a], Daniel OTTEN[a], Frederik SACHSER[b]

[a]University Osnabrück, Distributed System Lab, Germany, [b]Austrian Research Centre for Forests

With the widespread adoption of low-cost autonomous recording units and reliable AI-based species classifiers, acoustic monitoring has emerged as a promising research field, yet automated localization remains a significant challenge. We developed a novel approach called Classifier-Deduced Signal Extraction (CDSE) that addresses the complex task of distinguishing and localizing species sounds in noisy, reverberant, and dynamic natural environments[1].

Applied on bird acoustics, our method seamlessly integrates with state-of-the-art classifiers like BirdNET and represents a significant advancement in automated localization. It offers a practical blind source separation solution that operates with single-microphone devices, handles an unknown number of sources, and demonstrates robust performance against interference. The CDSE approach

simultaneously extracts species-specific signals that can be used for multiple source localization through established methods such as generalized cross-correlation using phase transform. This enables accurate time difference estimation even in challenging acoustic scenarios like the dawn chorus of birds, making automated wildlife localization more viable while requiring only minor modifications to existing classifiers. We collected synchronized dawn chorus recordings from a passive acoustic monitoring at a natural forest reserve in Austria and apply our CDSE-approach to showcase its the limitations and demonstrate its effectiveness.

[1]Brüggemann, Leonhard; Dyczka, Mario; Otten, Daniel and Aschenbruck, Nils. A Classifier Integrated Signal Extraction Approach for Time Difference Estimation in Acoustic Sensor Networks (August20, 2024). Preprint available at SSRN: https://ssrn.com/abstract=4957052 or http://dx.doi.org/10.2139/ssrn.4957052

25

18 YEARS OF BIRD CENSUS IN SW PORTUGAL

Rui RUFINO, João Pedro PINA

Annual point count census (5 minutes) were carried out in 20 points located in one UTM 10x10km square of SW Portugal from 2006 to 2024.

Results suggest a small decline for the total number of species present as well as for the total numbers. This decline seems to be influenced by migratory species negative trends as for resident species the results suggest a small increase.

The species diet does not seem to have influence in the overall trend.

Furthermore data from the two sampling periods (April and May) suggest that, for some species, the date of the census can affect the results.

26

MITIGATING THE EFFECTS OF GRASSLAND AND ARABLE MANAGEMENT ON FARMLAND BIRDS: A NESTING ECOLOGY PERSPECTIVE

Nils ANTHES, Markus HANDSCHUH, Xenia SCHLINDWEIN, Julia STAGGENBORG

University of Tuebingen

Halting the continuous declines of farmland bird populations remains a challenge even in areas with targeted conservation management. This may be due to lacking or incomplete information on the degree to which farming practices compromise nest survival and thus local productivity. Taking a nesting ecology perspective for two conservation target species, Corn Bunting (*Emberiza calandra*) and Skylark (*Alauda arvensis*), we illustrate how data on local breeding performance inform conservation efforts. For the Corn Bunting, we characterize variation in nesting ecology between nest

habitats, years and agricultural landscape types in relicts of its critically endangered SW German population. Nest habitats varied substantially between landscape types and years; most nests, however, were placed in cultivated land and thus exposed to land use operations. By linking nesting phenology with patch-specific land use dates, we estimate nest failure rates from land use operations alone of 0.56 for mowing, 0.64 for clover harvest, and 0.38 for grazing. We derive adapted management of production farmland to improve local reproductive output and stabilize populations. For the Skylark, we focus on alfalfa and clover-grass leys, a central element of crop rotation in organic farming that serves weed control, nitrogen fixation, bioenergy and fodder production. This crop provides highly attractive nesting sites for several ground nesting birds, but is an ecological trap due to short harvest intervals. We report first insights on how unmown strips and elevated bar mowing may support Skylark nesting success.

27

WINTERING WATERBIRDS OF MOLDOVA: SPECIES DIVERSITY, POPULATION TRENDS, AND MONITORING PRIORITIES (MID-WINTER PROGRAM, 2013–2024)

Vitalie AJDER[ab], Emanuel Ștefan BALTAG[c], Mihail GHILAN[d], Silvia URSUL[e]

[a]The Institute of Ecology and Geography of the Moldova State University, [b]Alexandru Ioan Cuza University of Iași, ICI RECENT AIR Center, Laboratory of Interdisciplinary Research on the Marine Environment and Marine Terrestrial Atmosphere, "Prof. Dr. Ioan Borcea" Marine Biological Station, Agigea, Constanţa, Romania, [c]Alexandru Ioan Cuza University of Iași, "Prof. Dr. Ioan Borcea" Marine Biological Station, Agigea, Constanţa, Romania, [d]Society for Birds and Nature Protection (SPPN), „Alexandru Ioan Cuza" University in Iași (Romania), [e]Society of Birds and Nature Protection (SPPN)

Wetlands are among the most threatened ecosystems, affected by pollution, urbanization, invasive species, and climate change. As bioindicators, waterbirds provide essential insights into wetland health. However, in Moldova, limited resources have hindered extensive waterbird monitoring, despite their significant conservation value.

This study examines wintering waterbird populations in Moldova from 2013 to 2024, focusing on key wetlands: Beleu-Manta Lakes (Prutul de Jos), Nistrul de Sus, Costești-Stânca Lake, Găgăuzia Lakes, Dubăsari Dam, Sălaș Lake, Ghidighici Lake, and Sărata Nouă Lake. These represent the largest wetland areas from the Republic of Moldova. Mid-January surveys revealed annual fluctuations in waterbird abundance and species richness. Beleu-Manta supported up to 46,952 individuals in 2023 (about 54% of the total count), while Nistrul de Sus recorded 29,101 individuals in 2016 (about 73% of the total wintering count). Smaller sites, such as Lacul Sărata Nouă, while modest in scale, also have limited capacity for wintering birds, accounting for only 0.4% of wintering individuals in 2022 and a mere 0.01% in 2023 due to complete freezing. Costești-Stânca and Dubăsari Lakes are essential for species with specific habitat requirements.

The monitoring effort has expanded significantly since 2013, when only one site was surveyed. By 2014, five additional sites were included, and by 2023, the program encompassed a total of eight sites.

The findings identify temperature fluctuations, habitat degradation, human disturbance, avian flu, and other stressors as major drivers of waterbird population dynamics. Beleu-Manta and Nistrul de

Sus serve as vital refuges during harsh winters, while smaller wetlands face significant challenges due to insufficient research and conservation efforts.

This study emphasizes the urgent need for targeted conservation measures and enhanced monitoring to protect Moldova's wetlands and sustain waterbird populations in the face of ongoing environmental changes.

Acknowledgment: Special thanks to all participants who contributed throughout the observation period. In particular, we extend our gratitude to Gheorghe Țîcu, Alexandru Țurcan, Laurențiu Petrencu, Jonathan Hecke, Florian Klingel, Andrei Lazarchevici and Vlad Amarghioalei for their invaluable support and dedication.

28

URBAN WINNERS AND LOSERS: A SEASONAL PERSPECTIVE ON BIRD COMMUNITIES IN ITALIAN CITIES

Riccardo ALBA[a], Fabio MARCOLIN[b], Giacomo ASSANDRI[c], Luca ILAHIANE[d], Francesca COCHIS[e], Mattia BRAMBILLA[d], Diego RUBOLINI[d], Dan CHAMBERLAIN[d]

[a]University of Turin, [b]Forest Research Centre and Associated Laboratory TERRA, School of Agriculture, University of Lisbon, Lisboa, Portugal, [c]University of Eastern Piedmont, Alessandria, Italy, [d]Department of Environmental Sciences and Policy, University of Milan, Italy, [e]Department of Life Sciences and System Biology, University of Turin, Italy

Urbanisation is a major driver of global biodiversity decline, profoundly affecting animal communities. While most studies on bird communities have primarily focused on the breeding season, we aimed to identify species responses and their associated traits by adopting a stratified design and using a multi-season approach considering a gradient from highly urbanized city centres to the urban-rural fringe across six Italian cities. We found that bird assemblages exhibited different responses to urbanisation according to season. 'Winners' were characterized by traits such as colonial nesting, high productivity and longevity. In winter, these species displayed generalist foraging strategies and solitary behavior. 'Losers' tended to be insectivorous, ground-nesting and short-distance migratory species. Interestingly, intra-specific variations emerged, with wintering populations of some species exploiting highly urbanised areas despite not breeding there. 'Urban adapters', although not strictly winners, displayed resilience by navigating a range of urban conditions, effectively exploiting intermediate levels of urbanisation. This study provides novel insights into the complex ecological dynamics occurring within the urban matrix in different seasons. Our findings emphasize the importance of adopting a multi-season approach in research and urban planning to better understand species responses and develop more effective, sustainable strategies for biodiversity conservation in urban environments.

29

TRENDS IN BIRD POPULATIONS IN POLAND OVER 25 YEARS OF THE COMMON BIRD SURVEY

Tomasz CHODKIEWICZ[ab], Łukasz WARDECKI[b]

[a]Museum and Institute of Zoology PAS, [b]OTOP BirdLife Poland)

Common Bird Survey in Poland has been conducted since 2000 using the transect method with distance sampling on random 1x1 km plots. During the last breeding season (2024) 845 sample plots were surveyed, covering 0,26% of the country's area. Over 25 years, the following trends have been observed: 20 species were classified as stable, 49 showed an increase in abundance and 41 showed a declining trend. The largest increases were recorded for the Green Woodpecker, Common Crane, Common Redstart, Stock Dove and Common Firecrest, while the largest declines were found for the Black-tailed Godwit, Tawny Pipit, Northern Lapwing, Common Quail and European Turtle Dove. Analysis of short-term trends (2013-2024) revealed a deterioration in 12 species traditionally considered to be stable or increasing, including the Great Tit, Red-backed Shrike and Common Swift. Over the same period, an improvement in abundance was observed in 9 species, including the Common Buzzard. In addition to the species-specific indices, two multi-species indices are published annually: Farmland Bird Index (FBI) and Forest Bird Index (ForBI). The FBI, a key indicator of the condition of agricultural habitats (covering 63% of Poland) showed that populations of 22 farmland birds species have declined by an average of 21% over 25 years, reflecting the impact of agricultural intensification on the degradation of breeding habitats. The ForBI monitors changes in the abundance of 34 woodland species in habitats covering 31% of Poland. These species have increased by an average of 31%, potentially indicating good forest condition but the trends are strongly influenced by climate change, with mild winters favouring many resident species.

30

INSIGHTS FROM THE 2024 ICP PILOT SURVEYS IN BOSNIA AND HERZEGOVINA

Nermina SARAJLIĆ[a], Dražen KOTROŠAN[b]

[a]Ornithological Society "Naše ptice", [b]National Museum of Bosnia and Herzegovina

Over the past two decades, bird data in Bosnia and Herzegovina has been collected through various projects, providing valuable insights into breeding bird population dynamics. However, the establishment of a large-scale breeding bird monitoring program has been hindered by a lack of financial support from state institutions. The most extensive data collection effort to date was undertaken for the European Breeding Bird Atlas 2 (EBBA2), ensuring the country's inclusion in the European ornithological framework. The 2024 breeding season served as a pilot phase to evaluate the program's efficiency and identify improvements for future implementation. Census plots were semi-randomly selected, focusing on accessible locations for fieldworkers. In spring 2024, the first surveys under the International Census Plots (ICP) scheme were conducted in Bosnia and Herzegovina. Four fieldworkers carried out bird counts twice during the breeding season across seven designated census plots. This initiative marks the start of a long-term monitoring program aimed at addressing gaps in bird population data collection in the region. To support this effort, new observers are being trained in bird identification and survey methodology.

31

CHALLENGES AND PROGRESS IN DEVELOPING THE FIRST BREEDING BIRD ATLAS OF BOSNIA AND HERZEGOVINA

Dražen KOTROŠAN[a], Nermina SARAJLIĆ[b]

[a]National Museum of Bosnia and Herzegovina, [b]Ornithological Society "Naše ptice"

The first systematic effort to collect data for the Breeding Bird Atlas of Bosnia and Herzegovina began with the "EBBA2" project. During field research conducted between 2013 and 2017, a total of 217 breeding bird species were recorded. Although plans were made to commence work on the first BH Atlas immediately after the project ended, it was delayed due to financial, technical and other challenges. The work on the BH Atlas officially began in 2020, using a 10x10 grid framework for data collection. The project was initially disrupted by the COVID-19 pandemic and later hampered by natural disasters. Despite these setbacks, data collection is underway. Notable findings so far include new breeding sites for the White Stork and the White-tailed Eagle. Additionally, the breeding activity of Short-eared Owl and the Red-footed Falcon has been confirmed for the first time in Bosnia and Herzegovina. Given the ongoing challenges, it is highly likely that the data collection process will be extended by at least one year.

32

THE RECENT STATUS OF SHAG *PHALACROCORAX ARISTOTELIS* IN UKRAINE

Igor DAVYDENKO[a], Vitalii KAZANNYK[b], Valentyn SEREBRYAKOV[c]

[a]Institute of Zoology, Kyiv, Ukraine, [b]Taras Shevchenko National University, Kyiv, Ukraine, [c]Vinnytsia Academy of Continuing Education, Vinnytsia

Shag is a species of the Redbook Ukraine (2009) as well as of the Redbook of the Black sea (Annex I of Council Directive 2009/147/EC on the conservation of wild birds), Annex III of the Bern Convention and other nature conservation documents.

The border of species area lies in Ukraine, it breeds in Crimea (on rocky shores and islands near its south coastline, sometimes occur in the Syvash and Azov Sea, and near the Snake Island though the breeding area is still constant).

According to the literature data, there were 850-900 breeding pairs in the beginning of 21 century in Crimea. Now it is possible to estimate its numbers as 1000 pairs (according to some foreign sources – 1500-1700 pairs or 2% of European population). During the last years, the quantity of the birds fluctuates comparatively in small range though the longtime trend as in Europe goes down. In Karadag, Opuck and Cape Martian Reserves and other reserved areas there is about 15% of its numbers.

The main negative factors, which shift Shag numbers, are human disturbance, the oil pollution of the sea, large sea gulls and corvidae predators, fishing nets and military actions at the coast.

33

COMMON KESTREL (*FALCO TINNUNCULUS*) IN LATVIA POPULATION DECLINE AND CONSERVATION ACTIVITIES.

Imants JAKOVĻEVS, Aigars KALVĀNS, Edgars LEDIŅŠ

Latvian Ornithological Society

The Common Kestrel has experienced a significant population decline in Latvia during XXth century – a trend that continued also in beginning of XXI. This species, once abundant in our region, was observed in smaller numbers during the first breeding bird atlas of Latvia 1980–1984 (Priednieks et al. 1989) and has almost faced extinction later on, with numbers as low as 17 nests found during European Breeding Bird Atlas 2.

Nest boxes for Common Kestrel were first placed in Latvia in 2006, but it was only in 2011 that this species was proven to nesting in the nest boxes. The conservation work was started in 2014 when nest-boxes were installed in Grobina surroundings (first nesting case in nest box) and other places where nesting was proven in the area (Kalvāns, Lediņš 2014). Number on nest-boxes was continuously extended, mostly specializing on areas where nest-boxes were occupied by Kestrels – Liepaja, Ventspils and Skriveri. Most of the chicks were ringed using color rings, and trail cameras were increasingly used to monitor presence of ringed birds and the reasons of nests being destroyed. This conservation effort was done voluntarily by authors without any financing being received from outside.

In 2024, of the 76 Kestrel nest boxes installed, 26 were occupied by Kestrel. 21 nests were successful, 4,84 nestlings for successful nest and 3,83 nestlings for occupied nest. 92 chicks were color-ringed in 2024, and 23 trail cameras were installed.

It was observed in trail cameras that some nests are destroyed by Pine Marten (Martes martes), especially when nest-boxes were installed close to forests, tree groups, tree lines or farms. Therefore, an agreement with AS Sadales tikls – Latvian electricity supply and electricity network management company was signed, and special safety training received. In result the authors received permission to install nest-boxes at wooden electricity poles in the middle of field – in places less likely to be visited by Pine Marten. In 2024, 6 nest-boxes installed at electricity poles were used by Kestrel, and the collaboration with Sadales Tikls will be be expanded in the future.

34

TERRITORY SHIFTS IN A RESIDENT BIRD: PHENOLOGY AND BREEDING STATUS SHAPE GREY PARTRIDGE MOBILITY AND HOME RANGE DYNAMICS

Amelie LAUX[a], Eckhard GOTTSCHALK[a], Kathrin MAYER[b]

[a]Department of Conservation Biology, University of Göttingen, Germany, [b]Wildlife Sciences, Faculty of Forest Sciences and Forest Ecology, University of Göttingen, Germany

Grey Partridges (*Perdix perdix*) are generally considered to have high site fidelity and low dispersal distances. We present findings on home ranges and mobility of Grey Partridges based on an ongoing

analysis of telemetry data. Between 2009 and 2017, we radio-tagged 203 individuals in an agricultural landscape in Central Germany, tracking them twice weekly until they either died or the radio-tags ceased functioning. We calculated and compared home ranges using Kernel Density Estimation (KDE), focusing on: a) different biologically significant time periods throughout the year, e.g., pair formation, breeding season (egg laying, incubation, and chicks up to three weeks) and coveys in autumn or winter; and b) reproductive status, differentiating between breeding and non-breeding individuals, as well as post-nest-loss movements. Additionally, we analysed phenological changes in movement patterns.

Our results revealed substantial individual variation. For instance, the distance between tagging and nest sites varied from 44.4 m to 8.9 km (mean: 1.3 km). Home range sizes varied significantly over the year and were generally larger in males. Core area overlaps (50% KDE) between time periods were low, indicating territory shifts based on phenology, breeding activity and response to nest predation. Movement distances served as a clear indicator of breeding status: short distances were observed during egg-laying, incubation and early chick-rearing, while movements increased sharply following nest loss.

These findings demonstrate the flexibility of Grey Partridge home ranges, which shift throughout the year. Such shifts are likely driven by changing needs over time and responses to adverse experiences, such as nest predation. This has important implications for conservation strategies. For example, Grey Partridges are often counted during pair formation in February/March. However, these counts may not accurately reflect breeding distributions later in the year, emphasizing the need to account for home range shifts in management practices.

35

PRESENCE OF PLASTICS IN EGYPTIAN VULTURE (*NEOPHRON PERCNOPTERUS*) PELLETS

Ahmet Can TINAZ[a], **Kiraz ERCIYAS-YAVUZ**[b]

[a]Ondokuz Mayıs University, Graduate School of Education, Biology Department, Samsun, Türkiye, [b]Ondokuz Mayıs University, Ornithological Research Center, Samsun, Türkiye

Plastic pollution is a significant environmental problem that threatens both terrestrial and aquatic ecosystems globally. Currently, there is limited information available regarding plastic ingestion in raptors. To our best of knowledge, there is no study showing plastic ingestion in Egyptian vultures (*Neophron percnopterus*). To fill this gap and assess the level of plastic exposure we examined Egyptian Vulture pellets collected from roosting locations in Beypazarı (Ankara). This study aims to present the first data on microplastics, mesoplastics, and macroplastics ingestion of Egyptian vultures, to better understand the potential impacts of plastic pollution on this species. A total of 60 pellet samples were collected and samples were dissolved in 10% potassium hydroxide solution for 75 minutes to isolate plastic particles, and then filtered through 90-micron and 10-micron filters. Plastic particles were visually examined under microscope and classified as micro-, meso-, and macroplastics based on their size. In this study, plastic material was observed in 30 out of 60 samples. These plastics ranged in size from 0.03 mm to 55 mm. Multiple plastic materials were observed in some pellets, with more than 50 plastic material found in certain samples. A large portion of the plastics was associated with anthropogenic sources, particularly agricultural and livestock activities (e.g. bag fragments, threads). It is estimated that the plastic particles were ingested by the vultures while feeding on discarded chickens from the nearby poultry farms and from the rubbish dumps. Further monitoring studies are needed to understand the impact of plastics on these species within the ecosystem and to better understand health risks and conservation priorities

36

LIFE FOR LIFELINES: ENSURING SAFE ECOLOGICAL CORRIDOR FOR BREEDING AND MIGRATING BIRDS BETWEEN THE ALPS AND THE ADRIATIC

Davide SCRIDEL, Tomaž MIHELIČ, Primož KMECL

DOPPS-Birdlife Slovenia

Bird populations across Europe face significant threats from energy infrastructure, including electrocution on power lines, collisions with wind turbines, and conflicts with recreational airspace use. In Slovenia and along the Alpine-Adriatic flyway, these challenges impact several breeding and migratory species, such as the Eagle Owl (*Bubo bubo*), Griffon Vulture (*Gyps fulvus*), Redfooted Falcon (*Falco vespertinus*), and Curlew (*Numenius arquata*). Over the next five years, this project (LIFE23-NAT-SI-LIFE-FOR-LIFELINES/101148381) aims to mitigate these threats through targeted, innovative measures to safeguard bird populations and habitats. To reduce electrocution, 1,150 medium-voltage poles will be retrofitted with insulator caps, achieving an estimated 90% reduction in bird mortality within Special Protection Areas (SPAs). Scalable bird-safe pole designs will also be developed for broader regional adoption. The most migration-sensitive sections of high-voltage power lines in SPA Ljubljansko barje will be equipped with collision markers to prevent bird strikes. Additionally, an ecological corridor will be established, connecting SPAs Kras, Snežnik-Pivka, Ljubljansko barje, Vipavski rob, Banjšice, Breginjski stol, and Julijci. This corridor will exclude wind turbines in critical passage areas, minimize electrocution risks, and resolve airspace conflicts. It will be incorporated into the management plans of Triglav National Park and Škocjan Caves Park. To address the long-term impacts of energy infrastructure, the project will develop a handbook and technical guidelines for environmental impact assessments (EIAs) and Natura 2000 management plans. Dissemination activities, including a regional conference, will promote these best practices across the Alpine and Balkan regions. Furthermore, a new regional park of high biodiversity value will be established within the ecological corridor and SPA SnežnikPivka, enhancing habitat conservation. By integrating innovative solutions, policy development, and regional collaboration, this project will advance the conservation of vulnerable bird species and serve as a model for mitigating the impacts of energy infrastructure on wildlife across Europe.

37

STOPOVER ECOLOGY OF COMMON REDSTART (*PHOENICURUS PHOENICURUS*) IN KIZILIRMAK DELTA, TÜRKIYE

Ayşenur Esra OCAK[a], Kiraz ERCIYAS-YAVUZ

[a]Ondokuz Mayıs University

Birds need to stop at certain locations during migration to rest and replenish their energy stores, which are essential for continuing their journey. Common Redstart (*Phoenicurus phoenicurus*) is a very common passage migrant and summer migrant in Turkey, with main passage in midApril/mid-May in spring and in September/early October in autumn. In order to better understand the different migratory strategies of European trans-Saharan migrants, it is important to collect field data on their

body condition and stopover behavior. However, while there is a substantial amount of data from European stopover sites, very little information is available from the eastern migratory route. The aim of this study is to illuminate the stopover ecology of the Common Redstart by analyzing 23 years' data from Cernek bird ringing station (Kızılırmak delta, Samsun) on the southern coast of the Black Sea. In the ringing studies carried out between 2002 and 2024, a total of 8,769 Common Redstarts were ringed, 364 being in spring and 8,405 in autumn seasons. There were 24 recaptures in spring and 233 recaptures in autumn based on capture-recapture data from the same season. The ratio of retrapped birds to the rest was 6.59% in spring, 2.77% in autumn, and 2.93% combining both seasons. Mean weight of first capture birds was 14.9 g in spring and 14.6 g in autumn. The mean weight changes were +0.34 g in spring and +0.40 g in autumn. The stopover duration in spring was 2.96 days (max. 7 days) and, in autumn, as 2.85 days (max. 14 days). The low recapture rates indicate that this species stored just enough fat to reach the next available stopover sites, rather than to sustain a longer flight. The recapture rate of birds staying for more than one day, along with the fact that most of the recaptured birds were in relatively good condition when first caught, suggests that their extended stopover time was not due to poor body condition. Not accumulating too much fat could be a strategy related to foraging behavior of this species to prevent the bird from becoming overly heavy and sluggish. Further analysis will enable us to understand the basics of the stopover ecology of the Common Redstart.

Acknowledgement: The study has been funded by the Ondokuz Mayıs University, Project No: PYO.ORN.1915-A.23.001

38

KEY NESTING ISLETS AND FEEDING SITES FOR *GULOSUS ARISTOTELIS DESMARESTII* IN WEST CYPRUS

Antaia CHRISTOU[a], Nikolaos KASSINIS[b], Stalo LEONTIOU[a]

[a]BirdLife Cyprus, [b]Game and Fauna Service

Mediterranean Shag *Gulosus aristotelis desmarestii* is one of three breeding seabirds in Cyprus. Until recently, knowledge about the breeding locations of the Mediterranean Shags on the island was scarce, with just one colony, on the Kleides islets (northeasternmost part of Cyprus), being the subject of regular monitoring efforts. Under the project "LIFE IP Pandoteira", the Game and Fauna Service and BirdLife Cyprus have joined forces to fill gaps in knowledge about the distribution of this species. During 2022-2024, coastal boat surveys were carried out and GPS units were deployed on both adult and juvenile birds. Two additional breeding islets were confirmed, Kakoskali and Geronisos, both located within the Akamas Special Protection Area (SPA) (western part of Cyprus). A total of 25 active nests were recorded on both islets during the survey period. In order to identify important resting and feeding locations, GPS tags were deployed on 7 individuals (2 adults, 5 juveniles) and movement data was analysed using Kernel Density Estimation. Our results indicate that adult birds perform more targeted and consistent movements, compared to juvenile birds. Adults move mainly around the breeding islet, travelling a maximum distance of 39km away from it. Juveniles appear to have more exploratory tendencies, compared to adults, and travel further away from their nesting area, with a maximum distance of 72km. The information collected through these efforts has, for the first time, led to the identification of key breeding, resting and feeding sites for the Mediterranean Shag in Cyprus, as well as valuable insights on the survival and causes of mortality of the species. Our findings will be used to reinforce conservation measures for the species through concrete and targeted actions, including suggestions for the designation of new protected sites.

39

RAPTOR EXPOSURE TO SECOND-GENERATION ANTICOAGULANT RODENTICIDES IN CYPRUS

Nicolaos KASSINIS[a], Antaia CHRISTOU[b], Katerina LIVERI[c], C. COSMA[c], F. CHRISTOPHI[c], H. KRASSOS[c], Christina IERONYMIDOU[b], Melpo APOSTOLIDOU[c]

[a]Game and Fauna Service, [b]BirdLife Cyprus, [c]State Laboratory, Cyprus

Second-generation Anticoagulant Rodenticides (SGARs) have been widely applied in Cyprus for rodent control, usually for the protection of crops, agricultural trees, mostly Carob (*Ceratonia siliqua*), but also for public health purposes. SGARs affect various non-target wildlife species, including protected raptors, a priority group for conservation. In order to understand the degree to which raptors are exposed to and affected by SGARs, the Game and Fauna Service, in collaboration with the State General Laboratory and BirdLife Cyprus, carried out toxicological examination of raptor carcasses, mostly Common Barn-owls (*Tyto alba*) and Northern Long-eared Owls (*Asio otus*) mostly from road kills, targeting four commonly used SGARs (Bromadiolone, Brodifacum, Flocoumafen and Difenacum). These ongoing efforts are taking place both as part of Game and Fauna Service own initiative (2018-2020), as well as within the framework of the "Pandoteira" LIFE Integrated Project (2021-2023). Approximately 78% of raptors analyzed tested positive to at least one type of rodenticide, while 12% tested positive to all four substances. High prevalence of rodenticide in Common Barn-owl carcasses reflects the rodent-heavy diet of the species. High levels of SGARs were also detected in Northern Long-eared Owls but also in larger raptors, such as Northern Goshawks (*Accipiter gentilis*), Long-legged Buzzards (*Buteo rufinus*), Bonelli's Eagles (*Aquila fasciata*), and smaller species, such as Cyprus Scops-owl (*Otus cyprius*) and Little Owl (*Athene noctua*), whose diet only partly consists of rodents. Additional necropsies conducted on Bonelli's Eagles and Long-legged Buzzards revealed secondary poisoning from SGARs as the cause of death for two individuals, while SGARs were detected in carcasses of Griffon Vultures (*Gyps fulvus*) as well. The results show that rodenticide use in the Cyprus environment is widespread and affects protected species throughout the island. These findings enable identification of which SGARs are most toxic to raptors and provide evidence to support proposals for legal limitations to their application/use.

40

ATLASES OF BREEDING BIRDS ON LOCAL TERRITORIES OF THE WESTERN POLISSIA IN UKRAINE

Mykhailo KHYMYN

The territory of the Western Polissia lies on the NW part of Ukraine and occupies total square about 28,000 km² in Volyn and Rivne regions. In some separate model forest and forest-swamp areas, field works was carried out to compile atlases of breeding birds: in Buchyn and Svalovychi forests of National Park "Prypiat-Stokhid" in 2013-2016 (51°51' N 25°36' E, 3741.0 ha, where registered 95 breeding species of birds), in Cheremskyi Nature Reserve in 2011-2016 (51°32' N 25°32' E, 2975.7 ha, 102 breeding species of birds), in Rivnenskyi Nature Reserve: Biloozerske department in 2011-

2013 (51°31' N 25°53' E, 8051.0 ha, 109 breeding species of birds), Bilske and Grabunske departments in 2014-2018 (51°37' N 27°13' E, 9926.1 ha, 100 breeding species of birds) and in Tsumanske Forestry of Kivertsivskyi National Park "Tsumanska Pushcha" in 2021-2023 (50°53' N 25°54' E, 4691.0 ha, 88 breeding species of birds). The studied areas were divided into conventional squares, based on the existing quarter grid of forests. The area of individual squares (forest quarters) ranged from 30 ha (forest edge segment) to 462 ha (lake), on average – 116.5 ha (about 1x1 km). From 2 to 60 species of breeding birds were recorded in one square. In total, 135 breeding species of birds are registered on these model areas. Among them, 23 species is rare, listed in the Red Data Book of Ukraine and the IUCN Red List (without the LC category): Eurasian Curlew *Numenius arquata*, Black-tailed Goodwit *Limosa limosa*, Great Snipe *Gallinago media*, Great Grey Owl *Strix nebulosa*, Eurasian Eagle-owl *Bubo bubo*, Great Spotted Eagle *Clanga clanga*, Azure Tit *Cyanistes cyanus* and others. Based on the results of the accounts, the density of birds in different forests was determined and the relative number of breeding pairs in the model areas was estimated. According to the materials of these atlases and studies conducted in the relevant territories before the beginning of work on the atlases, slight differences in the species composition and number of most forest birds have been established. In Ukraine, economic (in our case, forestry) activities are prohibited in nature reserves and limited (felling of only individual trees is allowed) in national parks. This generally contributes to the stability of forest and forest-swamp ecosystems and populations of most forest birds. The most noticeable changes in number (decrease) among waterfowl and waders due to the shallowing of forest reservoirs and drying up of marshes in the studied areas during the last 10 years.

41

SPRING PHENOLOGY IS ADVANCING AT A FASTER RATE THAN ARRIVAL TIMES OF COMMON STARLING

Ivo DINSBERGS, Mārtiņš BRIEDIS, Oskars KEIŠS

Institute of Biology, Faculty of Medicine and Life Sciences, University of Latvia

Climate change exerts significant impacts on many migratory species, altering their breeding and non-breeding ranges, migration distances, and phenology. The ability of animals to track and adjust to changing environmental conditions is critical for the persistence of threatened populations. This study investigates changes in spring arrival phenology of a short-distance migrant, the Common Starling *Sturnus vulgaris*, in relation to changes in the onset of meteorological spring during the last century. Phenological data were confined to Northeastern Europe and were acquired from an open access database, Chronicles of Nature Calendar (https://doi.org/10.1038/s41597-020-0376-z), that held 4291 usable records of the 1st spring observation date of Starlings from 171 phenological network sites between 1922 and 2017. Air temperature data were obtained from the European Climate Assessment and Dataset database. Our analysis revealed a positive correlation between the timing of Starling arrivals and the onset of spring on both local and regional scales. The spatial progression of spring arrival exhibited a north-eastward gradient, averaging 1.6 days per degree of latitude (ca. 71 km/day) and 0.4 days per degree of longitude (152 km/day). Over the 96-year period, Starlings advanced their spring arrival by 4.7 days at a rate of 0.05 days per year. However, the onset of spring advanced more rapidly, with an average rate of 0.18 days per year during the study period. These results highlight the large-scale phenological adjustments of short-distance migrants to climate change-induced shifts in spring timing. Nonetheless, the slower pace of migration phenology adjustments relative to the rapid warming trend suggests a growing mismatch between bird arrival and the onset of spring, thus disrupting the earlier matching between bird arrival and spring onset.

42

NORTHWEST EUROPEAN BEWICK'S SWANS: A POPULATION IN PERIL

Sabine URBAN, Götz EICHHORN, Frauke MOHRWINKEL

Michael-Otto-Institut im NABU

An international census of Bewick's Swans in 2020 recorded a total of 12,900 birds, a 56% decrease on the peak count of 29,277 in 1995. At the same time a shift of the overwintering population from countries in the western part of their range, such as the Netherlands, to Germany has been observed. No single issue explains this combination of population decline and range shift. While it is known that Bewick's swans adjust their autumn migration and winter range in response to a warming climate, the swans' survival and productivity is probably more strongly affected by other factors such as habitat modification and illegal hunting.

The six-year project "BBV Zwergschwan", based in Germany, aims to identify the importance of the different factors contributing to the decline of the Northwest European population. For this a synchronized monitoring program was set up for Germany and 61 Bewick's swans were outfitted with GPS collars. Our results indicate that Bewick's swans roosting sites are more often situated within special protection areas (41 % of night roosts) while foraging sites are not (16.5%). Moreover, there is a shift from carbohydrate-rich (especially maize stubbles) to a protein-rich (grass) diet during the winter suggesting that the swans have adapted to agricultural landscapes. To look into the effect of this shift on body condition we suggest an improved method for abdominal profile indexing (API). Lastly, a national action plan for the Bewick's swan in Germany will be developed in which we will suggest habitat management options.

43

STATUS AND POPULATION DEVELOPMENT OF GREAT EGRET IN DENMARK DURING 1952-2024.

Henning HELDBJERG[a], Jacob STERUP[a], Rasmus Due NIELSEN[a], Preben CLAUSEN[a], Thomas BREGNBALLE[a], Timme NYEGAARD[b]

[a]Department of Ecoscience, Aarhus University, Denmark, [b]Birdlife Denmark

The status of the Great Egret (*Ardea alba*) in Denmark has changed significantly over the past century since the first national record in 1952, with few records in the 1990s rising to more than 1000 individuals in the peak season in 2024. Here, we present an overview of the species' historical and current occurrence in Denmark with an emphasis on the rapid changes over the last 20 years. We present data from multiple sources (e.g. Birdlife Denmark's National database) to show the timing of the rise in overall abundance and in the small but increasing breeding numbers, their regional distribution and phenology. We present data from the national monitoring programme (NOVANA) to show absolute numbers during winter and in peak season during autumn.

44

URBIO: A CITIZEN SCIENCE PROJECT

Riccardo ALBA[a], Enrico CAPRIO[a], Dan CHAMBERLAIN[a], Francesca COCHIS[a], Luca ILAHIANE[b], Irene REGAIOLO[a], Diego RUBOLINI[b]

[a]University of Turin / NBFC, [b]University of Milan

Urban biodiversity profoundly shapes environmental health, human well-being and ecosystem services within cityscapes. As urbanization advances, diverse species, notably birds and mammals, become integral components of urban habitats, fostering unique synanthropic communities. Species like the Common Swift and the Western House-martin exemplify species that thrive in urban habitats.

However, the rapid pace of urban development, characterized by structural environmental transformations, poses challenges leading to the decline of certain synanthropic bird species, such as the Italian Sparrow. Conversely, problematic species like the Hooded Crow, Yellow-legged Gull and Rose-ringed Parakeet show increasing population trends. Numerical estimates for several species are outdated, and the specific urban factors driving population trends remain unclear. Identifying key anthropic and environmental variables influencing species distribution and trends is crucial. The UrBio project, funded within the framework of two NextGeneration EU projects (NBFC and MUSA), stands out as a crucial initiative to evaluate and monitor urban biodiversity comprehensively throughout Italy. So far, this citizen science initiative has involved 1,101 naturalists, bird-watchers, and enthusiasts, encouraging their participation in understanding synanthropic species' distributions and population trends by documenting observations in 'Ornitho.it' and user-friendly tools like the Naturalist app. Preliminary results from 1102 cities include 272675 observations of 390 taxonomic units (species/subspecies).

Comparative analysis of data across cities aims to identify patterns influencing urban ecosystems, guiding effective biodiversity conservation and sustainable urban planning. This collaborative effort bridges academic–public gaps, fostering environmental awareness, and will contribute to the sustainable management of urban ecosystems.

45

SPATIO-TEMPORAL VARIATION IN SPECIES-SPECIFIC STRATEGIES FOR RESPONDING TO CLIMATE CHANGE

Rebecca RALSTON[a], Yanjie XU[a], Laura BOSCO[a], Emma-Liina MARJAKANGAS[b], Aleksi LEHIKOINEN[a]

[a]Finnish Museum of Natural History, University of Helsinki, [b]Section for Ecoinformatics and Biodiversity, Department of Biology, Aarhus University, Denmark

We are living in a period of rapid global climatic and environmental change, which has altered the spatio-temporal availability of resources required by birds across their annual cycle. Direct and indirect effects of these changes have led to population declines for many species. However, some species have also responded by different modes, i.e., shifting in space (changes in distribution) and time (phenology) and/or potential evolutionary adaptations (e.g., morphology), which may better enable them to adapt to changing conditions. Understanding the degree to which birds are responding

to climatic and environmental change is vital for informing current conservation measures and for making accurate future predictions regarding species populations. However, a comprehensive understanding requires examining how species show different response modes in tandem, determining how these responses interact with one another (i.e., compound or synergize), and identifying the degree to which each response varies among spatial gradients and among species. We will use European Breeding Bird Survey and ringing data from 12 countries across Europe to identify the relative importance of each mode of response for tens of common passerine and near-passerine species. We will analyse shifts in phenology, abundance distribution, and morphology during the breeding season. Our results will enable us to identify 1) which modes show the strongest and weakest response compared to the expected change due to climate change; 2) spatial patterns influencing the strength of responses (e.g., latitudinal variation); and 3) species traits driving differences in species-specific spatial patterns of response modes.

46

HOME RANGE OF ADULT FLOATER EASTERN IMPERIAL EAGLES (*AQUILA HELIACA*) AND IMPLICATIONS FOR CONSERVATION

Stoycho STOYCHEV[ab], Georgi POPGEORGIEV[ac], Volen ARKUMAREV[a], Dobromir DOBREV[a], Hristo DIMITROV[b], Ivaylo ANGELOV[ac], Dimitar PLACHIYSKI[ac], Dimitar DEMERDZHIEV[ac]

[a]Bulgarian Society for the Protection of Birds / BirdLife Bulgaria, [b]Plovdiv University „Paisii Hilendarski“, [c]National Museum of Natural History, Bulgarian Academy of Sciences

Populations of raptors include non-breeding sexually mature individuals. Those individuals, often referred to as “floaters” may be significant proportion of these populations. There is no much information about home range of floaters of most of the raptors. Even less is known about floaters that used to be breeders and later became floaters. We did not find such publications for any raptor species. We tracked two male Eastern Imperial Eagles that were injured/poisoned in their breeding territories in Southeast of Bulgaria. After the rehabilitation they were released and tracked with GPS-Argos transmitters until their death.

The eagle 1 (subadult) was tracked for 292 days and 1870 locations were obtained. The eagle 2 (adult) was tracked for 267 days and 1453 locations were obtained. We calculated 100% minimum convex polygons (MCPs) and 50 and 95% kernel density estimates (KDE).

The 100 % MKP of the subadult eagle ranged from 8,709 km2 in non-breeding season to 11,534 km2 in the breeding season while the adult has much smaller: 2,614 km2 and 2,437 km2 respectively. The core areas (50% KDE) and home ranges (95% KDE) for the whole study period were 972 km2 and 7,471 km2 for the subadult and 165 km2 and 1,666 km2 for the adult. Both birds did not breed and did not occupy permanent territories during the study period. They were visiting some of the existing imperial eagle territories but did not manage to occupy any of them. Even the eagle 1 visited the nest of eagle 2 while he was in the rehabilitation center and his partner was probably alone. Both birds used temporary settlement areas that were 30-40 km apart. As floaters they were exposed to higher mortality risks since they were visiting areas outside the breeding range and Natura 2000 sites where less conservation measures were applied.

47

UPDATED COMMON BREEDING BIRD POPULATION ESTIMATES FOR ESTONIA

Meelis LEIVITS[a], Margus ELLERMAA[b], Andrus KUUS[c]

[a]Environment Agency, [b]Mergus Birding, [c]Birdlife Estonia

Common breeding birds play a vital role in our world, providing numerous ecosystem functions. Knowledge about the status of our common breeding bird populations gives us many indications about the health of our environment and ecosystem services. Estimates from the common bird monitoring scheme indicate that the common forest bird index has declined by about 13% since the 2000s, and the common farmland bird index has declined by almost 50%. Population estimates are of fundamental importance to better understand the changes in bird communities of various ecosystems.

Producing national population estimates is a challenge in aspects of data collection, analysis, and interpretation, especially in conditions where resources are limited. Previous breeding population estimates date back to 2019. However, for this occasion, estimates were mainly obtained from "outdated" data by adjustments from recent trend estimates. In the light of approaching Article 12 reporting, urgent needs for fresh data were identified. Birdlife Estonia initiated a series of data collection projects. The field surveys took place in 2021-2024.

A total of 195 transects were surveyed from the previously surveyed transects in 2000-2001. 22 observers participated in the project, collecting 39103 observations. In addition to population estimates, the results will verify the common bird population trends produced by the voluntary-based common bird monitoring scheme.

48

KEY HABITATS OF WESTERN CAPERCAILLIE *TETRAO UROGALLUS* AND IMPLEMENTATIONS IN CONSERVATION PRIORITISATION

Meelis LEIVITS

TRINEB LLC

Planning protected areas is a task whose effectiveness largely depends on knowledge of the protected species' habitats, location and habitat use. Western Capercaillie is a species whose conservation has been recognised for decades. Thus, the most important habitats are protected by species protection habitats (microreserves) or nature reserves. However, in some places, it has not been possible to slow down the decline in the number and distribution of Capercaillie, so the question is constantly raised whether the protection regime has been sufficient and whether protection has been implemented in essential habitats. In the last decade, the geography of Capercaillie habitats has become significantly clearer thanks to species distribution models that have described both the distribution of lek sites and the distribution of nesting habitat.

This analysis aimed to rank the habitats of Capercaillie, considering the distribution of habitats, habitat quality, and the distribution of species that share the habitat with Capercaillie in some parts. The prioritisation is based on the Zonation software and its capabilities. As a result of landscape prioritisation, Estonian landscapes were zoned into three large and 19 smaller core areas and stepping-stone areas. Based on the agreed minimum levels for the conservation of Capercaillie (number of males), habitats were assessed as key habitats, having a ranking value of at least 0.75. The key habitats play an important role in breeding and preserving connectivity between leks. They form a network viable for maintaining connectivity between different metapopulations. The key habitats map identified significant gaps in the delineation of sites (registered habitat in the environmental registry). Current sites cover only 24% of the key habitats. On average, 29% of key habitats are covered with sites within the 3 km buffer of lek sites. And on average, 40% of key habitats are covered by sites within the 1 km buffer of lek sites. The concept of key habitat was implemented when updating site borders. As a result, the new sites delineated in the environmental registry now cover 4063 km^2.

49

MODELING RIPARIAN BIRD DISTRIBUTION IN MADJERDA RIVER, NORTH-EASTERN ALGERIA

Mohcen MENAA[a], Mohamed Cherif MAAZI[a], Abdelkrim SI BACHIR[b]

[a]Department of Biology, Faculty of Nature and Life Sciences, University of Souk Ahras, Algeria, [b]Laboratory: ''Biodiversity, Biotechnology and Sustainable Development" LBBDD, Faculty of Life and Nature Sciences, University Batna, Algeria

Riparian areas are among the most complex, dynamic, and rich ecosystems in terrestrial biomes. These landscapes are typically characterized by a long-lasting history of intensive land use and human disturbances, with major trends having been related to: river regulation, dams construction, and urban development. Protecting and promoting the rehabilitation of riparian areas throughout the world is crucial for maintaining the integrity of river ecosystems; consequently, it is a central issue in biodiversity knowledge and applied ecology. In this study, we carried up a first bird survey of bird communities of riparian forest habitats of Medjerda River. As part of the monitoring actions carried out by the wetland observatory ''Sebkhates des Aurès" and the network ''Oiseaux d'Eau Méditerranée (ROEM)", the bird censuses took place during the nesting period of 2022 and 2023 using the point count method in order analyze the spatial distribution of breeding species according to habitat conditions. 89 bird species have been recorded and species richness at each point-count ranged between six and 17 species. We noted 22 protected species, only three endangered species, and five endemic species to the Maghreb and/or to North Africa. A multivariate synecological approach was used to understand the relative contributions of environmental drivers in the distribution patterns of riparian birds. We used three complementary methods (Redundancy Canonical Analysis, a variation partitioning approach based on partial RDA, and a multivariate regression tree with indicator species). Multivariate synecological analysis showed that two major patterns of relationships among birds and habitat were traced : the first involved changes in tree structure during their growth (height of tree layer and large timber), the second was related to characteristics associated with shrub layer. According to GLM analysis with a Poisson distribution, we found that the largest timber diameter represent the initial key component in determining bird diversity, species richness, and abundance.

50

CHANGES IN ANNUAL CAPTURES OF 25 PASSERINES IN AN ANTHROPOGENIC HABITAT

László BOZÓ

Eötvös Loránd University, Department of Systematic Zoology and Ecology

In Europe, the populations of many bird species have changed in recent decades, mainly for anthropogenic reasons. In general, the population of species associated with wetlands and agricultural areas have declined, while forest species have increased. The population changes have been confirmed by surveys during the nesting and migration periods, but little information is available on breeding and migratory bird populations in the anthropogenic habitat islands between agricultural areas. In my study, I compared the annual number of captured individuals of 25 resident and migratory species in an oleaster-dominated forest and along an adjacent dried up channel in South-East Hungary. I used a total of 11917 bird ringing data from a 9-year period between 2016 and 2024. Data collection was standard during the whole period. Bird ringing took place every year between 1 August and 31 October, 2 days a week, 8 hours a day, using 13 Japanese-type mistnets. Species were selected on the basis that at least one bird was captured each year and the total number of birds captured reached 90. The total annual capture of the first year (2016) was set as 100 percent and a population index of change in captures was calculated. General Linear Model (GLM) was used to determine trends in the chain index rates. Analyses were also carried out by species and different groups: by habitat used by the species at breeding time, and by migratory distance. Capture rates of species nesting in reedbeds decreased for all four species, but the results were not significant in any of the cases. Capture rates were stable for the three species associated with farmland. The picture was more diverse for forest species. The number of captured Icterine Warblers (*Hippolais icterina*) decreased significantly, while the captures of Wren (*Troglodytes troglodytes*) and Lesser Whitethroat (*Curruca curruca*) increased significantly. There was also a strong increase in the numbers of the Wood Warbler (*Phylloscopus sibilatrix*) and the Common Nightingale (*Luscinia megarhynchos*). Overall, it is not possible to identify a clear trend for most species, the main reason being the strong annual fluctuations in the population depending on breeding success. Further field data collection is needed as some additional species with currently low sample sizes (e.g. River Warbler *Locustella fluviatilis*, Common Redstart *Phoenicurus phoenicurus*) have shown a marked decline in catches over the years, but statistical analysis is not yet possible.

51

STATE OF THE BIRD SPECIES OF THE FAMILY ARDEIDAE IN ALBANIA

Taulant BINO[a], Ardian KOÇI[b], Besjana SHEHU[c], Ferdinand BEGO[d], Erald XEKA[c], Fotjon PRENÇE[b], Ledi SELGJEKAJ[e], Mirjan TOPI[f]

[a]Polis University, Faculty of Planning, Environment and Urban Management, Albania, [b]National Agency of Protected Areas, [c]Albanian Ornithological Society, [d]University of Tirana, Faculty of Natural Sciences, Department of Biology, Albania, [e]University of Debrecen, Department of Evolutionary Zoology and Human Biology, Hungary, [f]Center Birds of Albania

Land use changes in Albania, particularly during the second half of the 20th century, have profoundly impacted bird species of the Ardeidae family in Albania. Wetland drainage, hydrological interventions, human disturbance, etc., led to the extinction of significant colonies, while the few remaining populations experienced considerable decline in size. In the very beginning of the 21st century all known colonies of Ardeidae ceased to exist until a late resurgence in the last decade. Today, the Ardeidae family in Albania is represented by nine species. Of these, five species have a confirmed breeding status including Common Little Bittern (*Ixobrychus minutus*), Black-crowned Night Heron (*Nycticorax nycticorax*), Cattle Egret (*Bubulcus ibis*), Squacco Heron (*Ardeola ralloides*), Little Egret (*Egretta garzetta*), and Grey Heron (*Ardea cinerea*). The Eurasian Bittern (*Botaurus stellaris*) is considered probable breeder while the Great White Egret (*Ardea alba*) and the Purple Heron (*Ardea purpurea*) are registered as possible breeders.

In terms of temporal occurrence, the Common Little Bittern, Black-crowned Night Heron, Squacco Heron and the Purple Heron are summer visitors. The remaining species are resident in Albania. This study presents the findings of research conducted over the past decade, offering a comprehensive assessment of the current status of Ardeidae species in Albania, with emphasis on population size, threats, breeding sites, and critical foraging habitats.

52

REPLACING A LONG-RUNNING MONITORING SCHEME A BY NEW ONE: WHAT PREDICTS THE CORRESPONDENCE OF BIRD POPULATION MEASURES BETWEEN THE SCHEMES?

Alena JECHUMTÁL SKÁLOVÁ, Zdeněk VERMOUZEK, Petr VOŘÍŠEK, Jiří REIF

In the common bird monitoring, the longer is the time series, the more interesting data are produced. The schemes that started in the 20th century are particularly valuable thanks to highly standardized data collected using unchanged field techniques for decades. However, progress in science, as well as the changing world, invoke new challenges that monitoring schemes need to consider. Consequently, methodological changes are sometimes inevitable. When the changes are too deep, it is reasonable to replace the original scheme by a new one, provided the data are comparable, so the information about the historical times is not lost. To assess comparability, it is important to run both

schemes side-by-side for several years. Under these circumstances, it is useful to ask what are the factors that influence the correspondence of data between the old and the new monitoring scheme. In this study, we tested such a correspondence using common bird monitoring data from Czechia. Here, a common bird monitoring scheme based on standardized point counts on sites selected by free choice has been running since 1982. In 2018, we opened a new scheme based on bird occurrence mapping along linear transects selected in stratified random design. Besides producing the annual data on population dynamics, the new scheme enables, among other things, calculation of density estimates corrected for detectability and expressing fine-scale habitat preferences. We calculated population trends and indices over the period of scheme overlap (2018-2024) for 104 bird species and tested their correspondence between schemes both within and across species. In general, the correspondence increased with increasing species abundance and time of scheme overlap. Interestingly, the rate of correspondence did not much improve after reaching five years of overlap suggesting that five years are sufficient for running two parallel schemes in order to achieve comparable datasets.

53

IMPACT OF FARMING PRACTICES ON FARMLAND BIRD DIVERSITY IN CROATIA

Vlatka DUMBOVIĆ MAZAL[a], Krešimir MIKULIĆ, Gianpiero CALVI[b], Sandra HODIĆ, Domagoj TOMIČIĆ

[a]Ministry of Environmental Protection and Green Transition - Institute for Environment and Nature, [b]Studio Pteryx

Farmland supports rich biodiversity, yet intensive farming practices can sometimes degrade these semi-natural habitats, turning them into biodiversity deserts. Agri-environment measures (AEMs) under the EU Common Agricultural Policy constitute the largest investment in farmland biodiversity conservation but their effectiveness is often uncertain.

The Croatian Common Farmland Bird Monitoring Scheme (CFBMS), established in 2015, serves as a key indicator of agriculture's impact on biodiversity, using population trends of common farmland birds as a proxy. Bird data are collected through point transects, each comprising nine survey points spaced approximately 300 meters apart. Surveys are conducted twice during the breeding season, from early April to mid-June, recording all bird species with a particular emphasis on 28 common farmland bird species that form the Croatian Farmland Bird Index (FBI).

In 2024, data for the CFBMS were collected from 134 point-transects, totalling 1206 survey points. Additionally, land use and habitats were mapped at each survey point and supplemented with data on the utilisation of AEMs from the Ministry of Agriculture.

Our analysis of the relationship between habitats, land use, and farmland bird diversity underscores the importance of preserving diverse agricultural landscapes with a substantial proportion of grassland habitats. Despite the limited implementation of AEMs along the sampled point transects—covering less than 10% of the surveyed area—certain subsets of these measures demonstrated positive impacts on farmland birds at the biogeographical region level. For instance, organic farming measures had notable benefits in the continental region, while measures targeting permanent crops positively influenced bird populations in the alpine and mediterranean regions.

54

LIMITED RECIPROCAL SURROGACY OF BIRD AND HABITAT DIVERSITY AND INCONSISTENCIES IN THEIR REPRESENTATION IN ROMANIAN PROTECTED AREAS

Henri THOMASSEN[a], Julia C. GEUE, Caspar GROSS, Ciprian FÂNTÂNĂ[b], Cristian DOMȘA[b], Emanuel BALTAG[bc], Gábor Máté BÓNÉ[d], Judit VERES-SZÁSZKA [eb], Paula J. ROTTER, Szilárd DARÓCZI[db], Viorel POPESCU, Zoltán BENKŐ[b], István KOVÁCS[de]

[a]Institute of Evolution and Ecology, University of Tübingen, [b]Romanian Ornithological Society, Romania, [c]Alexandru Ioan Cuza University, Romania, [d]Milvus Group Association, Romania, [e]Juhász-Nagy Pál Doctoral School, University of Debrecen

Because it is impossible to comprehensively characterize biodiversity at all levels of organization, conservation prioritization efforts need to rely on surrogates. As species distribution maps of relished groups as well as high-resolution remotely sensed data increasingly become available, both types of surrogates are commonly used. A good surrogate should represent as much of biodiversity as possible, but it often remains unclear to what extent this is the case. Here, we aimed to address this question by assessing how well bird species and habitat diversity represent one another. We conducted our study in Romania, a species-rich country with high landscape heterogeneity where bird species distribution data have only recently started to become available. First, we prioritized areas for conservation based on either 137 breeding bird species or 36 habitat classes, and then evaluated their reciprocal surrogacy performance. Second, we examined how well these features are represented in already existing protected areas. Finally, we identified target regions of high conservation value for the potential expansion of the current network of reserves (as planned under the new EU Biodiversity Strategy for 2030). We found that bird species were a better surrogate for habitat diversity than vice versa. Highly ranked areas based on habitat diversity were represented better than areas based on bird species, which varied considerably between species. Our results highlight that taxonomic and environmental (i.e., habitat types) data may perform rather poorly as reciprocal surrogates, and multiple sources of data are required for a full evaluation of protected areas expansion.

55

OVERVIEW OF THE TRANSBOUNDARY IWC ON SKADAR /SHKODRA LAKE

Andrej VIZI[a], Taulant BINO[b], Borut STUMBERGER[c], Denik ULQINI[d], Erald XEKA[e]

[a]Natural History Museum of Montenegro, [b]Polis University, Faculty of Planning, Environment and Urban Management, Albania, [c]The Stork Association CICONIA, Slovenia, [d]University of Shkodra "Luigj Gurakuqi", Faculty of Natural Sciences, Department of Biology-Chemistry. Shkodra, Albania, [e]Albania Ornithological Society

This presentation shows the joint results of the IWC counts on Skadar/Shkodra Lake as an example of a transboundary water body census. Skadar Lake is a shared water body of about 530 km2, with

roughly two thirds belonging to Montenegro and one third to Albania. The international waterbird census has been performed on both sides since 1993, but without any coordination between two countries up to 2015. The analysis of joint datasets for the whole period of 1993-2023 emphasizes for the first time the composition of data in terms of timing and methodology and their use for producing transboundary bird trends in the entire wetland ecosystem of Shkodra Lake. On a long time scale, the comparison can reveal significant differences in cumulative and individual species' numbers and point out the underlying factors with potential conservation importance.

56

PLAYBACK EXPERIMENTS TO ASSESS DETECTION PROBABILITY IN SURVEYS OF LONG-EARED OWLS

Tatiana KORNIENKO[a], Marc KÉRY[a], Mathias RITSCHARD[b], Thomas SATTLER[a]

[a]Swiss Ornithologica Institute, [b]Orniplan AG

Due to their cryptic behaviour, the distribution and abundance of many owl species is only approximatively known. For example, in Switzerland, despite a good knowledge for many other breeding bird species, assessing population status and trends remains a challenge for owl species. Currently, the Swiss Long-eared Owl *Asio otus* population is estimated at 2,000 - 3,000 territories. In the canton of Zurich, almost 60 breeding pairs had been forecasted in 2008, but standardized, comprehensive surveys are missing. The project aims to assess distribution and abundance of this species. Since 2020, fieldwork with more than 2,000 point surveys (2.3 surveys/km², half of the canton of Zurich covered) has been conducted by 90 volunteers from the Avimonitoring programme with the financial support of the cantonal nature conservation office (Fachstelle Naturschutz). Each point was visited twice, applying playback, in March and April. In total 207 Long-eared Owl territories were identified. This corresponds to a density of one territory per 3.9 km² and appr. 9% of the national population. Using occupancy models, we are to estimate detection probability per survey and its drivers, with special emphasis on the effects of playback. Preliminary results (not yet based on occupancy modelling) suggest that playback increases detection probability: only at 35% of all points with detections Long-eared owls were calling spontaneously. The rest of the owls were detected only by responding to playback. Males were more active in responding to playback, as well as in producing the spontaneous calls. There was no difference between March and April in the reaction on playback neither for males, nor for females, but in April spontaneous calling of females was recorded less. Considering all these results, the actual abundance of the Long-eared owl in the canton of Zurich is likely to be significantly higher than previous estimates.

57

INCREASE IN WINTERING NUMBERS OF STARLINGS (*STURNUS VULGARIS*) IN LATVIA: IS THE WINTERING BEHAVIOUR CHANGING?

Māris JAUNZEMIS, Oskars KEIŠS, Ivo DINSBERGS, Valts JAUNZEMIS, Ance PRIEDNIECE, Viesturs VĪGANTS, Elza Marija ZACMANE, Mārtiņš BRIEDIS

Institute of Biology, Faculty of Medicine and Life Sciences, University of Latvia

We used database of the Latvian Ringing Centre (Institute of Biology, University of Latvia) and portal for nature observations www.dabasdati.lv to analyse available data on winter occurrence of Starlings in Latvia. All records available for the period of December 1 to February 28 were analysed. The analyses showed that records of wintering Starlings in Latvia are increasing in recent years potentially indicating an emergence of a new migration behaviour – residency. We also analysed the number of starlings observed – single individuals vs. flocks of more than 10 individuals. A more detailed tracking study is underway to reveal the possible breeding origin of the wintering individuals.

58

DANISH WATERBIRD MONITORING: TOWARDS ESTIMATING TOTAL ANNUAL ABUNDANCE FROM REDUCED SITE NETWORKS

Heidi THOMSEN, Thomas BREGNBALLE, Preben CLAUSEN, Claus LUNDE PEDERSEN, Rasmus Due NIELSEN, Jacob STERUP

Aarhus University, Department of Ecoscience, Denmark

Since 1987, a reduced network of 48 sites has formed the backbone of Denmark's annual national waterbird monitoring. Over time, this network has been supplemented with additional sites monitored on a rotational basis due to funding constraints. In addition to annual monitoring, aperiodic complete national censuses provide comprehensive snapshots of waterbird populations. However, these diverse monitoring approaches make estimating total annual waterbird abundance challenging, especially in years without complete national censuses.

This study aims to develop methods integrating data from the annual reduced and aperiodic complete censuses to reliably estimate the annual abundance of inland and near-coastal waterbirds. Using statistical models, we intend to account for variation in sampling intensity across years, integrate data from newly added network sites, and bridge spatial and temporal coverage gaps, ensuring consistent and representative total annual abundance estimates across years and regions.

Our preliminary work has focused on analysing waterbird population trends based on these diverse monitoring data and evaluating strategies for weighing contributions from different census types, sites and periods. By presenting this work in progress at the EBCC conference, we hope to engage with the broader bird census community to refine and expand our methods. The outcome will strengthen Denmark's monitoring network, support evidence-based conservation decisions and serve as a model for countries monitoring dynamic site networks.

59

TWENTY YEARS COMMON BIRD MONITORING IN BULGARIA: 2005-2024

Iordan HRISTOV[a], Stoycho STOYCHEV[ab], Svilen CHESHMEDJIEV[a], Mihail ILIEV[a], Svetoslav SPASOV[a], Georgi POPGEORGIEV[ac]

[a]Bulgarian Society for the Protection of Birds / BirdLife Bulgaria, [b]Plovdiv University „Paisii Hilendarski“, [c]National Museum of Natural History, Bulgarian Academy of Sciences)

Data on trends of common birds is scarce for the Balkan peninsula. Bulgarian Society for the Protection of Birds is the first to start implementing a systematic common bird monitoring scheme on the Balkan peninsula in 2004. Since the first year of the implementation was a test year, data for trends are used after 2005. In 2024, BSPB marks 20 years from the beginning of the systematic data collection.

The methodology is based on 1km2 squares, randomly selected. Each square has 2 transects, one km long each. Data are recorded with an app for Android devices called SmartBirds Pro which includes every coordinate of every bird.

The data collected allows assessment of state of 94 species which were registered in more than 20 plots and the error of the trend slope is less than 0.05. The species assessment is based on 295 survey plots spread around the country and counted at least three years in the study period. Results suggest that 23% of the species assessed are declining, and those with increasing and stable trend category are 13% and 29% respectively. The remaining 35% are with uncertain trend. Farmland bird index in Bulgaria is declining with 37% since 2005. Some of the species with highest decline are Common Linnet (-78%), Calandra Lark (-75%), Corn Bunting (-70%), Northern Wheatear (-70%). Species with increasing rend are Woodpigeon, Common Pheasant and Grey Partridge. Funding is still a major issue for the existence of the monitoring scheme which is affected by the low participation of volunteers in 2024.

60

IMPLEMENTATION OF LOGGING RESTRICTIONS DURING THE BREEDING PERIOD IN ESTONIA FOR THE CONSERVATION OF FOREST BIRDS

Agu LEIVITS, Marko MÄGI, Tarmo EVESTUS, Meelis LEIVITS

Estonian Environment Board

Approximately half of Estonia’s breeding bird species (over 100) are associated with forests. Long term monitoring since 1984 has revealed a significant decline in these populations, with one key factor being the impact of spring-summer logging on breeding success.

Discussions on the need for “logging peace” began in 1999. Partial implementation on state-owned forests started in 2002, and legal provisions to prevent disturbances to birds during the breeding period were added to the Nature Conservation Act in 2009. Since 2019, the Environmental Board has informed forest owners of this need through the Forest Portal. In 2021, logging operations were suspended when nesting was detected in logging areas. These suspensions have led to court cases

concerning compliance with Article 5 of the Birds Directive with forest owners. Consequently, detailed guidelines were developed to enhance inspection processes.

Forest bird densities, derived from compiled territory mapping data from various Estonian sources, show significant variation by forest type and age. Older, more fertile forests support higher bird densities than younger, poorer ones. Forest management data allows the grouping of forestry plots based on expected bird densities, enabling targeted notifications to forest owners and focused inspections. National legislation requires proof of nesting to suspend logging. For this purpose, bird atlas breeding categories and codes are used during on-site inspections. Inspectors also receive annual training to identify birds and implement these guidelines effectively.

Recent data indicate that the decline in forest bird populations has stabilized over the past five years. However, their numbers remain below the levels observed before the early 2000s.

61

CHANGES IN THE AGE AND SPECIES COMPOSITION OF BIRDS RINGED IN LATVIA OVER 100 YEARS

Ilmārs BAUGA

Institute of Biology, Faculty of Medicine and Life Sciences, University of Latvia

Systematic bird ringing in Latvia began in 1925, when Nikolajs von Transehe founded the Latvian Ornithological Centre. Between 1925 and 2024, 2 million birds from 320 species were ringed in Latvia. In the first 3 decades, ringing was a public science (school and forestry workers). Mainly, nestlings were ringed in nests. In later years, the age and species composition of ringed birds were influenced by research conducted. Ecological studies of the populations of the Black-headed Gull *Chroicocephalus ridibundus* from 1962 to 1996. The method developed in Latvia for ringing newly hatched ducklings (Ecological studies of duck populations from 1960 to 2005, Common Pochard *Aythya ferina*, Tufted Duck *Aythya fuligula*, Northern Shoveler *Spatula clypeata*) allowed the ringing of about 100 thousand ducklings. As part of the monitoring of migratory birds, 1 million birds have been ringed in Pape Ornithological Station since 1966. Research projects on the Black Stork *Ciconia nigra*, the Whooper Swan *Cygnus cygnus*, and the Lesser Spotted Eagle *Clanga pomarina* are noticeably, during which a significant number of nestlings of these species were ringed.

The number of ringed birds has decreased significantly for several species. The population of the Whinchar *Saxicola rubetra* is due to a decrease in population. The population of the White Stork *Ciconia ciconia* is increasing, but the location of its nests has changed. In the 2014 census of White Storks, more than 75% of nests were located on poles. Since the 1980s, when nets for catching birds became more widely available, the number of ringed reed warblers has increased significantly. From a few dozen to several thousand per year.

62

WINTERING OF WATERFOWL ON LAKE ISSYK-KUL

Sergei KULAGIN

Lake Issyk-Kul was included in the list of the Ramsar Convention on Wetlands of International Importance in 1976. In 2002 the Government of Kyrgyzstan ratified the Ramsar Convention treaty, which took into account the global importance of the natural complexes of the Issyk-Kul Basin and the international importance of Lake Issyk-Kul as a wintering ground for waterfowl.

The first waterfowl surveys on Issyk-Kul were conducted by F.F. Pyatkov in 1944-1946. Systematic surveys on Issyk-Kul started only with the establishment of the Issyk-Kul Reserve (1948) and the organisation of its scientific department (1964).

The data of long-term surveys show that the main places of concentration of wintering waterfowl still remain shallow waters of the western part and bays of the eastern part of Lake Issyk-Kul. On average, from 40 to 50 % of all birds winter in the western part, from 25 to 30 % in the eastern part, from 10 to 15 % in the northern part, and about 5 % of all waterfowl winter in the southern part. The total number of wintering birds is subject to strong fluctuations, for example, in the 40‘s about

100 thousand birds wintered on Issyk-Kul, in the 60’s about 60 thousand, in the 70‘s 50 thousand, in the 80’s 35-45 thousand, in the 90‘s about 65 thousand, in the 2000’s 46-60 thousand. Such fluctuations in the number of waterfowl on Lake Issyk-Kul depend mainly on feeding grounds and degree of freezing of shallow waters, so in warm winters, freezing of shallow waters is insignificant and more birds stay for wintering.

Numerous during wintering are such species as Coot (*Fulica atra*) 35 to 50 thousand, Red-crested Pochard (*Netta rufina*) 5 to 10 thousand, grebes (*Podiceps*) (5 species) about 5 thousand, swans (*Cygnus*) about 1.5 thousand, river ducks 3-5 thousand. Rare in wintering are: Tundra Swan (*Cygnus columbianus*), Long-tailed Duck (*Clangula hyemalis*), Common Shelduck (*Tadorna tadorna*), Great Black-headed Gull (*Larus ichthyaetus*). During the wintering period, more than 40 species of waterfowl and waterbirds are found annually in Issyk-Kul.

The largest high-mountain lake Issyk-Kul, located on the main migration routes of birds of the Asian continent, has always played a significant role in the life of waterfowl.

63

ENHANCING TRANSBOUNDARY MONITORING OF SENTINEL BIRD SPECIES IN THE PYRENEES: CLIMATE CHANGE INDICATORS

Olatz AIZPURUA SAN ROMAN[a], Marc ANTON RECASENS[b], Juan ARIZAGA[a], Aurélien BESNARD[c], Virginie COUANON[c], Laurent COUZI[c], Sergio GARCÍA[d], Maite LASO[a], Alba MEIJIBE[e], Elisenda PERIS MORENTE[b], Annabelle ROCA[c], Juan TERRADEZ[e], Anne TISON[f]

[a]Aranzadi Science Society, [b]Catalan Ornithological Institute (ICO), [c]LPO - Birdlife France, [d]RBOV, [e]OPCC, [f]Ana Conservatoire d'espaces naturels Ariège

The INBIOPYR project, part of the Interreg VI-A Spain-France-Andorra (POCTEFA) program, aims to advance transboundary monitoring of sentinel fauna species across the Pyrenean region. By creating climate change-specific indicators tailored to the Pyrenees, the project seeks to elucidate the consequences of climate change on biodiversity. Integrating historical and contemporary data, it enables the identification of shifts in species distributions, population trends, and phenology, providing a comprehensive view of ecological transformations.

The project began with a thorough metadata survey, encompassing standardized fieldwork methodologies used on both sides of the Pyrenees for various taxonomic groups. Birds, as the dominant group, emerged as a focal point due to their ecological significance and data availability. This process revealed challenges in harmonizing protocols across regions with distinct ecological and administrative frameworks. Additionally, critical information gaps were identified and addressed from both geographical and taxonomic perspectives.

Following this groundwork, sentinel species were selected based on scientific criteria and public interest, ensuring both ecological and societal relevance. Climate change indicators were developed by correlating observed changes in species distribution, abundance, or phenology with climatic variables. Birds proved to be particularly effective indicators of climate change impacts. Resulting patterns highlight the pressing need for coordinated conservation efforts across the Pyrenean region.

The resulting indicators not only advance our understanding of climate change effects on biodiversity but also provide actionable insights for policymakers and conservation practitioners. By fostering evidence-based decision-making, the INBIOPYR project underscores the importance of collaborative, cross-border efforts in biodiversity monitoring. This initiative also contributes valuable perspectives to European-scale avian conservation and climate adaptation strategies in crossborder mountain bioregion specifically.

64

UNDERSTANDING BIRD MIGRATION IN EUSKADI: INSIGHTS FROM THE ARANZADI BIRD MIGRATION ATLAS

Maite LASO, Olatz AIZPURUA SAN ROMAN, Juan ARIZAGA, Ariñe CRESPO, Agurtzane IRAETA

Aranzadi Science Society

As part of the 75th anniversary (1949–2024) of the Aranzadi Ringing Scheme, this study presents the Bird Migration Atlas of Euskadi. Each year, millions of birds migrate from breeding areas to wintering grounds, where resource availability ensures their survival. The demography of migratory birds is shaped by conditions in their breeding, wintering, and migratory stopover areas. Mapping migratory routes is vital for conservation, as migration atlases provide critical insights into habitat degradation, human-wildlife interactions, and the conservation status of species listed in international directives and conventions.

Situated at a key crossroads of bird migration between northern and southern Europe, Euskadi is a critical region for avian conservation. Aranzadi's database contains decades of ringing and recovery records, enabling the analysis of migratory patterns. The atlas encompasses six decades of data (1950–2019), including earlier recoveries (dating back to the 1910s), integrating recoveries of birds ringed in or outside Euskadi. Recoveries include birds found dead, recaptured, or observed alive through ringing codes.

Key findings highlight that most species migrating through or wintering in Euskadi originate from western Europe along a SW-NE axis. Migration divides separate populations from northern Fennoscandia and southern Europe. Two peaks in recoveries emerged: the 1960s (high reporting of hunted birds, including protected species) and 2000–2019 (ringing efforts and recoveries of huntable species). Illegal hunting, while reduced over time, continues to affect non-huntable species, particularly passerines and shorebirds.

The atlas also identifies long-distance recoveries of threatened species, emphasizing the need for advanced tracking methods (e.g., GPS tags) to enhance the understanding of their spatial ecology. These findings underscore the importance of cross-border collaboration in data collection and analysis, advancing evidence-based conservation and policy efforts for migratory birds across Europe.

65

NEST-BOXES FOR SUPPORTING OWL POPULATIONS IN THE POST-FIRE DADIA-LEFKIMI-SOUFLI FOREST NATIONAL PARK

Sylvia ZAKKAK, Charalampos PAPALEXANDRIS, Dimitra GEZERLI, Georgios GIANNAKIDIS, Ioannis TZIAMPAZIS, Athanasios CHALIVELENTZIOS

Natural Environment and Climate Change Agency, Greece

The Dadia-Lefkimi-Soufli Forest National Park (DLS) hosts a remarkably rich raptor community, including six species of owls: the Eagle Owl (*Bubo bubo*), the Little Owl (*Athene noctua*), the Tawny Owl (*Strix aluco*), the Long-eared Owl (*Asio otus*), the Barn Owl (*Tyto alba*) and the Eurasian scops Owl (*Otus scops*). In summer 2022 and 2023, ca 26.650 hectares of forest were burnt within the DLS, affecting the availability of nesting sites for those species.

To enhance nesting site availability a total of 70 nest boxes were installed: 20 for Eurasian scops Owl, 10 for Little Owl, 15 for Long-eared Owl, five for Barn Owl and 20 for Tawny Owl. They were installed in early 2024, mainly in unburnt and low severity burnt areas. Next boxes that were installed in 2024 were complementary to those previously installed in 2018, resulting in a total of 146 nest boxes.

To monitor nest utilization, we visited each nest three times per breeding season. In 2021 owl breeding activity was confirmed in 15 nest boxes (11 by Tawny Owl, two by Little Owl, one by Eurasian Scops Owl and one by Long-eared Owl). In 2023, 12 out of 91 next boxes (13%) were occupied by owls: two by Little Owls, five by Tawny Owls, one by Barn Owls and four unidentified. In 2024, 19 out of 146 next boxes (13%) were occupied by owls: four by Little Owls, four by Tawny Owls, three by Eurasian scops Owls, four by Barn Owls and four unidentified.

Next-box occupancy post-fire was at the same level as pre-fire. However, an increase is expected within the next years, as burnt trees will start falling. Nest box occupancy monitoring will continue on an annual basis and the results will be compared to those of the species abundance and distribution monitoring in DLS.

66

THE STATUS AND POPULATION TRENDS OF THE BREEDING BIRDS OF PREY AND OWLS OF GEORGIA OVER HALF A CENTURY

Alexandre ABULADZE

Institute of Zoology, Ilia State University

Eight owl species nest in Georgia. One species was found to be declining, five species had stable trend, one species was assigned a positive trend, one species assigned an unknown trend. Population decline was observed for Eurasian Eagle Owl. Western Barn Owl is a new species in the avifauna of Georgia; first sightings and nesting cases were noted two decades ago. During this time population has increased significantly in range and numbers and estimated at least 200 pairs. There are no factual

data on the numbers and population trends of Tengmalm's Owl. Other five species, Little Owl, Eurasian Scops Owl, Long-eared Owl, Short-eared Owl, Tawny Owl had stable trends with annual fluctuations and generally minor local changes. 42 raptor species were recorded in Georgia since 1975. Breeding confirmed for 26 species. In addition, another species - Osprey extirpated as a regular breeding species in 1950's. Last occupied nest was known in 1958. Three raptor species are occasional/irregular breeders - Bonelli's Eagle, Lanner Falcon, Northern Saker Falcon and one, Red-footed Falcon, probably breeder. Species showing the most notable declines from 1975 to 2025 include the Lesser Kestrel (95%), European Honey Buzzard (90-95%), Black Kite (60-65%) and Booted Eagle (35-40%). During the last decades a slow decline has been marked for Egyptian Vulture, Griffon Vulture, Cinereous Vulture, Lesser Spotted Eagle and Eurasian Hobby (15-25% for each). Populations of Common Buzzard, Long-legged Buzzard, Common Kestrel can be considered relatively stable with certain annual fluctuations due to the abundance and availability of prey resources. Six species had positive trends - Short-toed Snake Eagle, Western Marsh Harrier, Montagu's Harrier, Levant Sparrowhawk, Eurasian Sparrowhawk, White-tailed Eagle. Due to the lack of modern data on the number of Bearded Vulture, Mediterranean Golden Eagle and Eurasian Northern Goshawk, it is difficult to assess population changes in these species.

67

MONITORING FARMLAND AVIAN BIODIVERSITY USING ACOUSTIC INDICES IN GÖDENCE, İZMİR

Irmak AKOĞLU[a], Caglar AKCAY[b], Pinar ERTÖR-AKYAZI[a]

[a]Boğaziçi University, [b]Anglia Ruskin University

Acoustic indices are emerging, cost-effective tools for monitoring biodiversity. However, recent studies in this field led to inconclusive results regarding their effectiveness, suggesting that further studies are needed to evaluate their performance across different regions and habitats. This study focuses on one of the relatively understudied regions and habitats, namely, agricultural lands in the Mediterranean, via acoustic data collected in two agroecological orchards in the Gödence Village, İzmir, Türkiye. Passive acoustic recorders (Audiomoths) were employed at five recording points each season in 2022-2023, recording the entire soundscape continuously from two hours before sunrise to two hours after sunset, delivering over 350 hours of sound data per recording point. Five widely-used acoustic indices (BI, NDSI, ACI, AEI, ADI) were calculated for each five-minute file. Two expert ornithologists listened to a subsample of 183 five-minute files and identified the bird species vocalizing in each file. The same files were uploaded to an automated tool for species identification, Merlin Bird ID, and detections were compared with those of the experts. Correlations were calculated for bird species richness and acoustic indices. In addition, the sensitivity of acoustic indices to seasonal variations and different sound compositions were evaluated. BI and ACI were positively correlated with bird species richness, however, acoustic indices were sensitive to different types of sonic conditions (e.g. cicadas and wind). The present study suggests that if cautions are taken for their effective use, acoustic indices are promising tools for monitoring farmland avian biodiversity in Mediterranean farmlands.

68

DIGITALIZATION UNDER REVIEW - 5 YEARS OF DIGITAL CBBS IN GERMANY

Friederike KUNZ[a], Gaëtan DELALOYE, Rainer DRÖSCHMEISTER[c], Patrick LINDEL[a], Sven TRAUTMANN[a], Johannes WAHL[a], Samuel WECHSLER[d]

[a]Federation of German Avifaunists (DDA e.V.), [b]Biolovision Sàrl, [c]Federal Agency for Nature Conservation, [d]Swiss Ornithological Institute

The Common Breeding Bird Survey (CBBS) is the most comprehensive component of Germany's breeding bird monitoring programs, currently tracking population trends for 99 bird species since 2004. With around 1,400 volunteers following a simplified territory mapping protocol across over 1,800 sample plots annually, the CBBS plays a crucial role in generating national and federal biodiversity indicators used by policymakers and stakeholders.

Despite its success, the CBBS has faced challenges in delivering timely trend data and conducting causal analyses, largely due to the workload for participants: recording data on paper, transferring the 4 visits into paper maps per species, deriving territories, attributing these to habitat types and finally entering them into a form which is sent to the federal state coordinator. To speed-up this time-consuming manual process, data collection and analyses have been digitized since 2020. The introduction of dedicated module in the NaturaList app enabled digital data collection in field. For volunteers preferring traditional paper maps, a user-friendly post-hoc digitization tool, Digibird, was integrated into the national data management system in 2021. Using the so-called Autoterri algorithm, originally developed by the Swiss Ornithological Institute, such digital observations are rapidly grouped into territories, enabling trend analysis immediately after the breeding season. This digital transformation aims to: 1) reduce the workload for both volunteers and coordinators by streamlining and automating processes, 2) enhance data standardization through consistent data formats and analyses, 3) speed up data analysis and reporting, and 4) provide digital raw data for in-depth causal analyses.

However, transitioning to digital tools brings challenges, such as ensuring consistency with predigital data and gaining volunteer acceptance of new technologies. The shift also requires adjustments in data workflows and responsibilities.

On our poster we will reflect on five years digital monitoring, evaluating whether the new tools kept their promises and share our 'lessons learned' from digitizing a large volunteer-based program.

69

WINTER BIRD COUNT: MONITORING WINTERING BIRDS IN CZECHIA

Filip TUHÁČEK, Alena JECHUMTÁL SKÁLOVÁ

The Winter Bird Count is a citizen science program that monitors wintering birds on birdfeeders, organised by the Czech Society for Ornithology (CSO), the BirdLife partner in Czechia. Its main objectives are to detect changes in the frequency of bird species' occurrence and reveal differences in their distribution across the country.

Data have been collected annually in the first half of January from 2019 to 2025 by tens of thousands of volunteers using standardised methods. Each year, observations of hundreds of thousands of birds are recorded, providing a robust dataset that allows detecting even small changes in bird distribution patterns on country level. For some species, there even seems to be a geographical gradient in terms of frequency of occurrence. Among the species with the most prominent differences in spatial distribution are for example the European magpie (*Pica pica*) and the European goldfinch (*Carduelis carduelis*).

These results underline the importance of long-term monitoring programs and public participation in citizen science programs.

70

WINTERING WATERBIRDS IN BELGIUM: AN NEW UPDATE ON POPULATION NUMBERS AND TRENDS

Koen DEVOS[a], Antoine DEROUAUX[b], Thierry ONKELINX[a], Jean-Yves PAQUET[b]

[a]Research Institute for Nature and Forest, [b]Department of Studies Natagora, Aves

Situated near the southern North Sea and privileged with a mild winter climate and rather low hunting pressure, Belgium offers some favourable wintering conditions for waterbirds. Despite the rather small size of the majority of Belgian wetlands, several species are recorded in internationally important numbers. Because monitoring of waterbird populations in Belgium is organised at the level of the three autonomous regions, it is sometimes difficult to obtain information about population size and trends on the national scale. However, within the framework of the reporting under Article 12 of the Birds Directive, experts from Wallonia, Brussels and Flanders join forces every six years to compile the regional information into national data (as is the case in 2025). This allows us to make population and trend estimates for the whole of Belgium. Most waterbird counts are conducted on a monthly basis between October and March and rely on the participation of skilled volunteers. In recent years, about 1,000 sites were counted on a regular basis. For some species (e.g. gulls), additional roost site counts are organised. Here, we present some new results of the waterbird monitoring programme in Belgium, based on the most recent data (updated until the winter 2023/24).

71

BREEDING POPULATION SIZE OF MANDARIN DUCK IN WARSAW IN 2016–2024.

Fatima HAYATLI[a], Łukasz WARDECKI[b], Radosław WŁODARCZYK[a]

[a]Department of Biodiversity Studies and Bioeducation, Faculty of Biology and Environmental Protection, University of Lodz, [b]OTOP BirdLife Poland

The Mandarin duck *Aix galericulata* is one of the most popular ornamental ducks. In Europe, the species has been introduced into the environment both by accident (escapes from private farms) and intentionally (e.g., introduction into urban parks). The first brood in Poland was found in 2001 in The

Royal Łazienki, Warsaw. This wild population gradually increased to 100 individuals during the next 12 years. The Royal Łazienki Park was the only place where females with chicks were observed regularly during that time. From 2013 onwards, a systematic increase began in the number of breeding pairs that was linked with colonization of new water bodies within the city. Regular counts of birds performed in years 2016–2024 revealed an increase from 75–80 pairs in 2016 up to 163 pairs in 2024. The average population growth rate was estimated at 9% per year.

The local population is characterized by male-biased sex ratio among adult individuals (66,9% in 2024). Currently, the species inhabits a wide range of water habitats and females with chicks are observed in 30 different locations within Warsaw. This is 9 more locations compared to 2021. In 2024, at least 50 females with chicks were observed at 24 sites. Distinguishing the females was possible due to their earlier ringing.

72

VERIFICATION OF BIRDNET 2.4 IDENTIFICATIONS USING MIGRATION PERIOD RECORDINGS IN LATVIA

Pēteris DAKNIS, Ivars BREDIKS, Helga GANSONE

SIA EU Temporalis

The study evaluates the performance of the BirdNET 2.4 model in identifying bird species during spring and autumn migration in Latvia. Recordings collected from various locations were analyzed using BirdNET, and the results were verified through manual listening of more than 60,000 recordings. Metrics were calculated to assess the model's accuracy across different species. Preliminary results suggest that identification accuracy varies significantly between species, with correction values calculated for species with sufficient sample sizes. These corrections provide insights into potential biases and help refine the interpretation of automated identifications. The findings provide a detailed overview of BirdNET reliability for avian monitoring during migration periods and highlight species-specific identification complexities. The manual verification database enables rapid assessment of future BirdNET versions and possibly other acoustic models.

73

RAPID CHANGES IN THE DISTRIBUTION AND ABUNDANCE OF URBAN BREEDING BIRDS IN BRUSSELS

Marius PAILHES[a], Simon FEYS[b], Antoine DEROUAUX[a], Jean-Yves PAQUET[a]

[a]Natagora, Departement of Studies, [b]Natuurpunt

A third breeding bird atlas was recently completed between 2022 and 2024 in the Brussels-Capital Region, the Belgian and European capital (160 km²). Using a field methodology similar to that of two previous studies (conducted in 1989–1991 and 2000–2004), this survey provides a detailed analysis of changes in the distribution and abundance of all breeding bird species over a 35-year period.

Several long-term trends are confirmed: many insectivorous and migratory species are in global decline. Some open-habitat species, which remain common in other parts of Belgium, are now confined to increasingly scarce open areas such as urban fallow land. However, the outlook is not entirely bleak for other species. Thanks to the relatively large extent of mature forests and parks in Brussels, many sedentary forest species show stable or even growing populations. There is also good news from wetlands, where positive trends have emerged due to habitat management with a focus on nature conservation. Furthermore, no new exotic species have joined the breeding bird community in the past 20 years.

This project was conducted by dozens of volunteers, coordinated by Natagora in collaboration with Natuurpunt and funded by Bruxelles-Environnement.

74

LONG-TERM MONITORING OF THE LESSER SPOTTED EAGLE *CLANGA POMARINA* IN LATVIA, IN THE CORE AREA OF ITS DISTRIBUTION RANGE

Uģis BERGMANIS[a], Ainārs AUNIŅŠ[b]

[a]Latvijas valsts meži, [b]Department of Ecology, Faculty of Medicine and Life Sciences, University of Latvia

The annual number of present pairs and breeding success (number of young birds in the nests at the time of nest controls) were determined in six sample plots in different regions of Latvia. The size of the sample plots is 100 km2, except for one plot in size of 460 km2. Two main censuses were carried out to determine the parameters – during the pre-laying and early incubation in mid-April/early May and during the presence of young birds in July/early August. The number of years of censuses in the sample plots is different, and it is 37, 31, 23, 18, 17 and 4 years. The trend of changes in parameters is overall stable. The decline in the number of pairs present and breeding success is observed in the sample plots with intensive agricultural activity, as a result of which the availability of food decreases.

75

WATERBIRD POPULATION ESTIMATES AND TRENDS IN GERMANY

Kim LINDNER[a], Kai BORKENHAGEN[a], Thomas HEINICKE[b], Kees KOFFIJBERG[a], Nele MARKONES[a], Anton MORKOVIN[a], Johannes WAHL[a]

[a]Federation of German Avifaunists (DDA), Germany, [b]Samtens, Germany

The national waterbird monitoring network currently covers c. 8.000 coastal and inland sites visited between September and April. Together with its extensive spatial coverage, the monthly counts facilitate the estimation of population sizes and trends for many waterbird species wintering and

staging in Germany. However, for rare species occurring only in a small number of count sites, assessments based on monitoring data alone remain challenging. Here, the increasing amount of citizen science observations allows for the application of additional tools, improving our understanding of rare species abundances and dynamics.

Population estimates and trends were calculated based on waterbird monitoring data using rtrim 2.0. To account for areas not covered by the network, we used regional correction factors for assessing population size, based on spatial distribution maps incorporating both monitoring data and casual observations from the citizen science platform ornitho.de. For species occurring offshore, additional data from the seabird at sea monitoring were included. We present updated population estimates together with short- and long-term trends during both wintering and passage in Germany.

For rare species insufficiently covered by the monitoring schemes, we retrieved casual observation maxima per week and observer on 5x5 km grid cells. For species with a high attraction factor for citizen scientists, we find this approach compares well to population estimates based on monitoring data. Nevertheless, without correcting for the increasing observation density in citizen science observations, we found it not yet suitable to assess trend estimates, which would require a further refining of our approach.

The national waterbird monitoring is conducted by more than 2.000 dedicated volunteers, supported by a large network of regional coordinators organising the counts, coordinated by the Federation of German Avifaunists (DDA). The coordination and EU reporting at the DDA are supported financially by the national and federal state governments.

76

EVOLUTION OF DATA QUALITY AND FIELD OBSERVER ENGAGEMENT WITH ONLINE PORTALS: THE CASE OF A MULTI-TAXA, MULTI-PURPOSE DATA PLATFORM

Jean-Yves PAQUET, Jean-Sébastien ROUSSEAU-PIOT

Natagora, Belgium

Understanding how field observers evolve in their engagement with online bird recording platforms, especially in the context of technological advancements, is essential for improving data quality and fostering long-term commitment. Observations.be, part of the Observation.org network, is the leading biodiversity portal in Belgium. It is widely used to collect both opportunistic observations and structured data from monitoring projects. While the platform gathers data on all flora and fauna, birds account for 50,8 % of all records (69% in 2010, 27% in 2024).

Since its launch in 2008, Observations.be has undergone significant changes. Mobile app submissions began slowly in 2012, eventually surpassing 70% of all entries in 2024. In 2020, bird monitoring projects migrated from a standalone system to dedicated modules within Observations.be. The same year, an AI-based tool called ObsIdentify was introduced to identify most European species from photos (1,3% of all bird Observations in 2024).

This study evaluates how these changes, alongside external factors like the COVID-19 pandemic, have influenced observer engagement in Wallonia. While the number of observers has steadily increased, there was a sharp rise following the release of ObsIdentify. However, many new users contribute only a minimal number of observations annually. The number of “high-volume recorders” and their entries, meanwhile, has remained stable or shows only modest growth. After peaking in

2021 at 800 000 records per year during the pandemic, the total number of bird observations is now fluctuating around 700 000 records per year.

Participation in structured bird monitoring projects has remained stable, with little evidence of opportunistic observers transitioning to these projects. These findings highlight the ongoing need for engagement efforts by local organizations involved in citizen science bird monitoring. While online portals are powerful tools, they alone are insufficient to ensure the collection of high-quality data. Field training, feed-back and specific animation of observer groups are still highly necessary.

77

THE CASPIAN GULL: A TWO-FRONT SUCCESS ACROSS POLAND

Marcin PRZYMENCKI[a], Klaudia LITWINIAK[b]

[a]The Polish Society for the Protection of Birds (OTOP), Warsaw, Poland, [b]Ornithological Society of Silesia, Wrocław, Poland

The Caspian Gull (*Larus cachinnans*) has experienced a significant expansion of its breeding range over the past century. This process is still ongoing, and in recent decades, the species has successfully established itself as a breeding bird across central and western Europe. Concurrently, the breeding population of the Caspian Gull in Poland has increased dramatically, with an average annual growth rate of 14.8% between 1989 and 2021, representing the highest rate of increase among all breeding bird species in the country. By 2024, the total population reached 6,602 pairs, including an urban population that first appeared in 2018 and grew to an estimated 466 pairs within just six years. Both natural and urban populations are expected to continue expanding, as numerous potentially suitable breeding sites remain uncolonised. The rapid rise of the Caspian Gull serves as a striking example of large-scale changes in bird populations during the Anthropocene in Europe.

Author Index