Bird Numbers 2022

Beyond the Atlas: challenges and opportunities

Programme and Abstracts

22nd Conference of the European Bird Census Council
4–9 April 2022, Lucerne, Switzerland

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of radar technologies and citizen observations can provide a real-time monitoring of migratory birds for small groups of species. This will allow to target conservation actions during migration.

Spatio-temporal models to estimate the dynamic distributions of European waterfowl

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Migration of wild birds, particularly waterfowl, constitutes one mechanism by which Avian influenza (AI) is spread geographically. Good quantitative measures of the seasonal distribution of waterfowl can be useful in predicting the potential spread of AI outbreaks. Here we present European-scale modelling results for five species of duck, five species of goose, and two species of swan, using data collected by the EuroBirdPortal (EBP) project. These quantitative analyses complement a new online migration mapping tool developed jointly by EURING and EBP for the European Food and Safety Authority, which provides visualizations of the distribution and movement of 50 bird species relevant to the control of AI.

Modelling with EBP data requires robust procedures at different steps of the process to provide accurate maps of species distributions, while taking into account several factors related to data collection and structure. Specifically, given that, currently, only one-third of the EBP data provides non-detection information (data collected as complete lists), novel ways to make use of the whole dataset needed to be developed.

We modelled the distributions of bird species using presence/absence information, environmental predictors (similar to those used for the Second European Atlas, EBBA2), and proxies of sampling effort, while including spatio-temporal autocorrelation in patterns of species records. Our approach is the result of an intensive project comparing the accuracy of estimates from Spatio-Temporal Exploratory Models (STEM) and Integrated Nested Laplace Approximation (INLA) spatio-temporal models in predicting dynamic bird distributions.

We believe that our approach could be useful, not only in the context of AI monitoring, but to develop dynamic spatio-temporal bird distribution models in general. We discuss our findings, the limitations encountered, and the potential for future developments.

Traditional atlases are out of date? How online platforms can help when the resources available are scarce

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Time has changed, online portals for biodiversity, and for birds in particular, are widespread and responsible for collecting millions of records annually around the world. This has multiple implications on the data availability and quality. On one side we have huge up-to-date datasets to be analysed, but on the other side, concerns about data quality and data standardization are common. Can part of this data be used to improve atlas design and make the most of the few resources available? Are the future atlases ongoing works that only need censuses in low surveyed areas from time to time? To evaluate the potential of eBird data to plan a wintering atlas for Continental Portugal we analysed eight years of data (2013–2020 winters), focusing on the coverage of the country at ETRS 10 × 10 km, using as minimal sampling effort ten complete checklists and at least 3 h of census (identical to the first national wintering atlas). From the c. 1,000 squares 946 had at least one checklist for this period and 465 (~49%) had

records in 6 years provided by 1,666 different observers. Additionally, 685 squares (~68%) had more than 3 h of surveys; by overlapping these maps we were able to identify not only low coverage areas (e.g. south west part of the country, the mountain areas) but also specific squares. These results, together with the number of species detected by square, and compared with the results of the first wintering atlas (2011–2012) provide a useful tool to efficiently plan future atlas.

16:45–18:00 Seminar Hall

Trends and indicators 2

Changes in waterbird breeding populations as the result of changing feeding conditions in Czechia

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The large-scale changes in waterbird populations have been documented since the end of the 19th century well reflected the trophic level of fishponds, the most important waterbird breeding habitat in Czech landscape. A decrease in breeding numbers was recorded in 18 of 27 waterbird species using data from 293 fishponds monitored in Czechia in 1981–2021. On the contrary, increasing numbers were confirmed only in seven species. The diet was found as the dominant driver of change in numbers of individual species. The numbers of all invertivores and four of five omnivores were decreasing. Regardless, increase in numbers was found among all herbivores and more than half of piscivores. The decrease in breeding numbers even nearly led to local extinctions (e.g. Black-necked Grebe, Eurasian Teal, Garganey, Shoveler, Black-headed Gull). It should be pointed out that more than 75% in total numbers of breeding waterbirds were lost in Czechia between 1981 and 2021 likely as a result of intensive fishpond management.

More recently (2004–2021), male-skewed changes in duck populations were found. The numbers of males began to increase in contrast with decreasing or stable numbers of females in four of six duck species (Mallard, Gadwall, Red-crested Pochard and Common Pochard). Furthermore, negative correlation between numbers of females at the beginning of the breeding season and numbers of broods per female was found in four of six duck species (Mallard, Red-crested pochard, Common Pochard, Common Goldeneye). The productivity seems to be limited by (1) availability of suitable invertebrate food for ducklings which is affected by high density of Carp stocks and (2) loss and degradation of breeding habitats (flooded littoral vegetation, fishpond islands).

Acquiring information regarding changes in breeding numbers as well as population structure and productivity is crucial for effective conservation measures.

Bird population trends in the Slovak Republic in 2005–2020: a complex analysis from the past to the present status

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In this study, population trends of a total of 129 birds were analysed using data of the Common Bird Census in Slovakia, which is part of PECBMS. We found that more than half of all bird species analysed (52%) indicated a reliable trend estimate. 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, 10% and 9% of all species revealed a moderate