

## Summary

The hereby presented „Atlas of the Breeding Birds of Upper Austria 2013-2018“ is the third publication, which illustrates the actual situation of the breeding birds of our federal state on the base of distribution maps. This latest project was developed in close collaboration with the mapping works for an „Atlas of the Breeding Birds of Austria“ that were conducted during the same period of time. In Upper Austria the survey data were collected by members of the Ornithology Working Group at the Biology Centre of the Upper Austrian Museum and/or by members of BirdLife Austria. The goal was to receive a data basis as comparable as possible to that of the last atlas project 1997-2001 in order to be able to ascertain any changes of the avifauna during the period of these 17 years.

Once more grid mapping was used as a method of collecting data. In addition, quantitative data were recorded for selected species. With a few exceptions all data were raised voluntarily. The mapping unity was clearly finer in comparison to the last breeding bird atlas: instead of the geographical minute field (2.3 km<sup>2</sup>) one sixth of it (0.38 km<sup>2</sup>, „sextant“). Nevertheless, the mapping units were uniformly defined as 3x5 geographical minute fields (34.2 km<sup>2</sup>) to ensure comparability. In addition to grid mapping the breeding birds were recorded in selected sextant groups by means of a half-quantitative procedure („frequency method“). After five years of mapping as was originally planned, the coverage of this frequency recording was still insufficient. Hence a sixth year was added throughout the country. The immediate comparability of both surveys in Upper Austria was thereby slightly curtailed, but recording efficiency could be improved significantly.

An essential tool for data input and data management was the registration platform „ornitho.at“, installed by BirdLife Austria at the beginning of the mapping works in 2013. All observation data were gathered using the international EOAC code. After the field research had been successfully conducted, all Upper Austrian data stemming from the period between 2013 and 2018 were transferred to the data bank „ZOBODAT“ of the Biology Centre in Linz, where corrections, editing processes and evaluations

were made. In total, bird observations derived from 1.692 people, however, the better part of the data was collected by about 300 people. 695.369 records from Upper Austria, almost 50% of which were related to breeding, provided the basis for distribution maps and other evaluations. 409 grids (3x5 minute fields) were installed all over the country, of which 274 are located entirely within the federal state, 135 are intersected by state or federal borders. From the border grids only data from Upper Austria were considered. On average 63.85 breeding bird species per grid (34.2 km<sup>2</sup>) were ascertained – incl. the border grids – with minimum values in the Alpine regions and the highest values with up to 110 species per grid in the river depressions of Inn, Danube and Enns. The mathematical expectation of 68 species per grid was exceeded in 146 grids (36%).

During the mapping period 182 species were ascertained as breeding birds (breeding proved or presumed), 10 of them were only sporadic breeders, 2 species have become extinct since the last atlas project. 190 taxa (189 species) were treated extensively in single species chapters. Distribution maps, altitude diagrams and height distribution graphs allow the comparison with the data from the atlas project 1997-2001. Each species chapter contains two photos, information about distribution, population development, habitat requirements, breeding numbers and population density, endangerment and protection and a comparison to the situation in 1997-2001. Population estimates, endangerment categories and grid frequency complement the text. In addition to the species texts chapters about geology, climate, vegetation, natural landscapes, former and potential future breeding birds, bird protection and an updated red list complete the overview of the breeding birds of Upper Austria.