Abstract

Farmland biodiversity is under significant threat from agricultural intensification, with bird populations being among the most affected taxa. While these patterns have been extensively studied in Western Europe, less is known about the dynamics of farmland bird populations in Central and Eastern Europe (CEE), a region characterized by large monocultural fields, legacies of collectivization, and distinct agricultural practices. This dissertation aims to fill this knowledge gap by investigating the mechanisms driving farmland bird population dynamics in intensively cultivated landscapes in Slovakia and neighbouring regions. It examines the roles of vegetation structure, food availability, field size, crop type, and landscape heterogeneity in shaping bird abundance and species richness. Drawing on eight interrelated studies, this research highlights several ecological and management insights. The results reveal that vegetation structure and invertebrate food supply are key determinants of bird habitat suitability, but their effects are strongly influenced by crop type and field size. Winter wheat provided favourable nesting conditions but was limited by reduced food availability due to pesticide use. Maize and rapeseed, while richer in invertebrates, had dense vegetation that hindered accessibility for ground-nesting birds. Small fields with diverse crops supported higher species richness and abundance compared to large fields, emphasizing the importance of landscape heterogeneity. Organic farming practices and conservation measures, such as buffer strips, proved effective in enhancing bird populations. Organic fields supported higher abundance due to reduced pesticide use and more suitable vegetation structures. Buffer strips in large fields provided suitable nesting and foraging habitats, particularly for threatened and ground-nesting species like the Eurasian Skylark (*Alauda arvensis*) and Yellow Wagtail (*Motacilla flava*). However, the research also found that CEE countries have experienced accelerated farmland bird declines following EU accession, driven by agricultural intensification under the Common Agricultural Policy (CAP). Despite the inclusion of agri-environmental schemes, their implementation in CEE has been insufficient to offset the negative impacts of intensification. Moreover, a cross-national analysis revealed that long-term farmland bird population trends diverge significantly between CEE countries, depending on historical land use and current agricultural structure, with the steepest declines observed in countries dominated by high-input farming systems. This dissertation underscores the urgent need for region-specific conservation strategies tailored to the unique socio-political and agricultural contexts of CEE. Recommendations include reducing field sizes, expanding buffer strips, promoting organic farming, and increasing landscape heterogeneity. These measures

should be supported by CAP reforms that prioritize biodiversity conservation alongside agricultural productivity. By addressing these challenges, this research contributes to a deeper understanding of farmland bird ecology and provides a roadmap for integrating biodiversity goals into sustainable agricultural practices in Central and Eastern Europe.