

## Abstract

The presented thesis exploits the introduction of the yellowhammer (*Emberiza citrinella*) to New Zealand to study the cultural evolution of birdsong dialects in exotic populations after 140 years of complete isolation from the original source populations in Great Britain. The data are interpreted with detailed knowledge of yellowhammer past in New Zealand and of the global (Europe) and regional (Czech Republic) distribution of yellowhammer dialects.

Yellowhammer song is simple and males have very limited repertoire. Since the 19th century it is known that despite its simplicity the song exhibits fascinating geographical variation; the males share the terminal notes to create mosaic-like distribution of dialects. Although this phenomenon has been known for decades and thoroughly studied, many questions remain. One of them is a suspected border between “western” and “eastern” groups of dialects. By combining information about the dialect distributions obtained from works of previous researchers with recordings from online repositories and archives we demonstrate that these groups do not create macrogeographical patterns (Chapter 6).

The citizen-science project “Dialects of the Czech Yellowhammers” involved Czech citizens in mapping the distribution of yellowhammer dialects in the Czech territory. The resulting dataset of more than 4000 recordings, unique both in terms of geographical extent and fine level of detail, made it possible to test various hypotheses about dialect origin and maintenance. This dataset also allowed us to test the relevance of several dialects which were suspected to be part of the continuum. In total, we have identified six previously reported dialects distributed in typical mosaic-like distribution, few males alternating between two dialect types and few singing rare dialects (Chapter 7).

Good knowledge of dialect distribution in Europe and Czech Republic, and gained experience from Czech citizen-science project motivated us to extend the research abroad and explore the evolution of yellowhammer dialects after introduction to a distant island country. The recordings provided by British and New Zealand citizens were combined with recordings from online repositories, archives and our own field recordings (Chapter 9).

To interpret the observed dialect patterns correctly, a detailed historical information about the invasion of yellowhammer to New Zealand was needed. For that we analysed the original documents of New Zealand acclimatisation societies and archives of old newspaper articles. Between 1864 and 1879, 25 ships with yellowhammer on board departed from London to several New Zealand harbours. The species quickly established and spread all over the country. (Chapter 8)

Although we expected lower dialect diversity in the invaded range due to initial bottleneck effect associated with low numbers of transported individuals, the opposite was true; New Zealand harboured almost twice as many dialects as Great Britain. The “additional” dialects likely did not originate in New Zealand, as these can be found in various localities in continental Europe, including Czech Republic. Instead they probably only persisted since the 19th century, whereas the same dialects disappeared from Great Britain due to recent rapid population decline (Chapter 9).