Individual acoustic monitoring - a tool to study local cultural evolution of song and its functions

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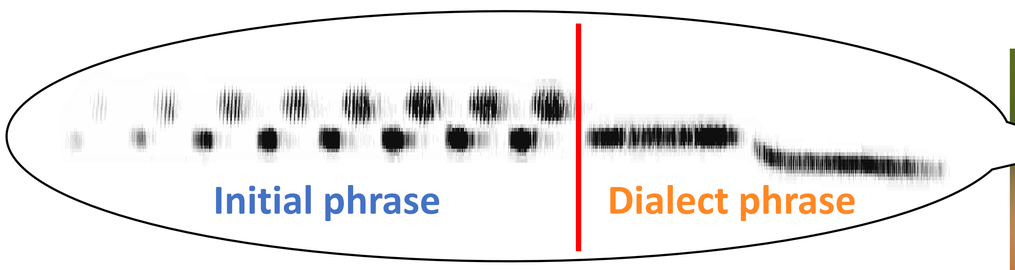
Background

- Yellowhammer (*Emberiza citrinella*) song:
  - highly variable **initial phrase**
  - uniform **dialect phrase** (shared by all males at a locality)
- Combination of initial phrases is **individually unique and stable in time**
  ↳ allows to identify males by their songs only (individual acoustic monitoring)
- Initial phrases show very high variability **independent on location or dialect**
- Sharing of an initial phrase between two males is **common both locally and over large distances across Czechia** (van Boheemen et al. 2019, *The Auk*)



Main questions

1) How does initial phrase pool within the population change in time?
2) Is sharing of the same phrase type more common at the local scale?
3) Do neighbours share phrases more often than distant males?
4) Does initial phrase sharing play role in territorial interactions between males?

Field work

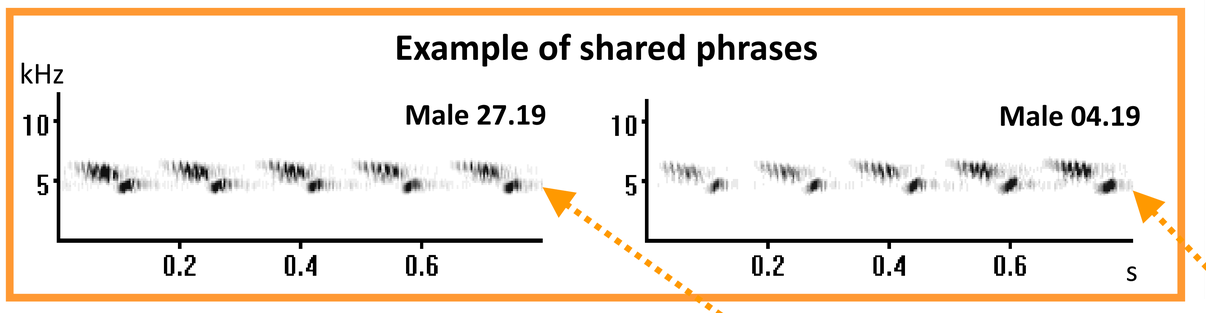
- locality Brdské hřebeny
- all singing males recorded repeatedly during the seasons 2013 to 2019

Song analysis

- recordings analysed in Avisoft SASLab and Raven software
- repertoires determined to identify males

First results

- In 128 recordings from 2019, at least 35 males determined with certainty
- 13 of those 35 males (~37%) shared some initial phrase
- 65 distinct initial phrases were detected, 6 (9%) shared between males



First conclusions

- **At a small locality, the extent of initial phrase sharing is similar as in the whole country.**
- **Sharing was observed among neighbours as well as among distant males.**

Future plans:

- use of acoustic monitoring to study natural territorial interactions of males sharing the same initial phrase
- identify males on recordings from 2015 – 2021 to reveal changes in repertoire at the population level
- estimate the male annual survival rate based on individual acoustic monitoring