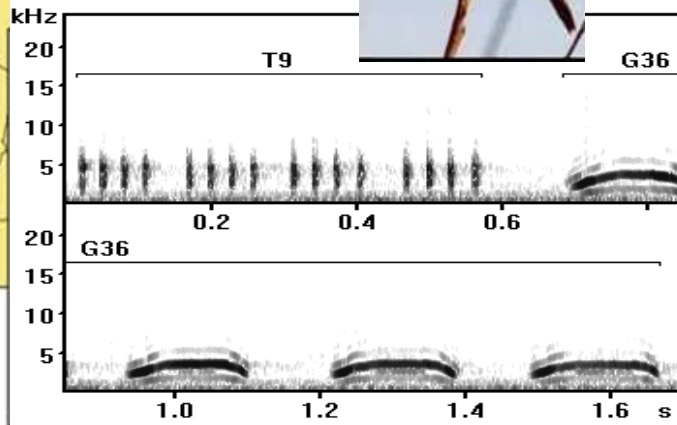


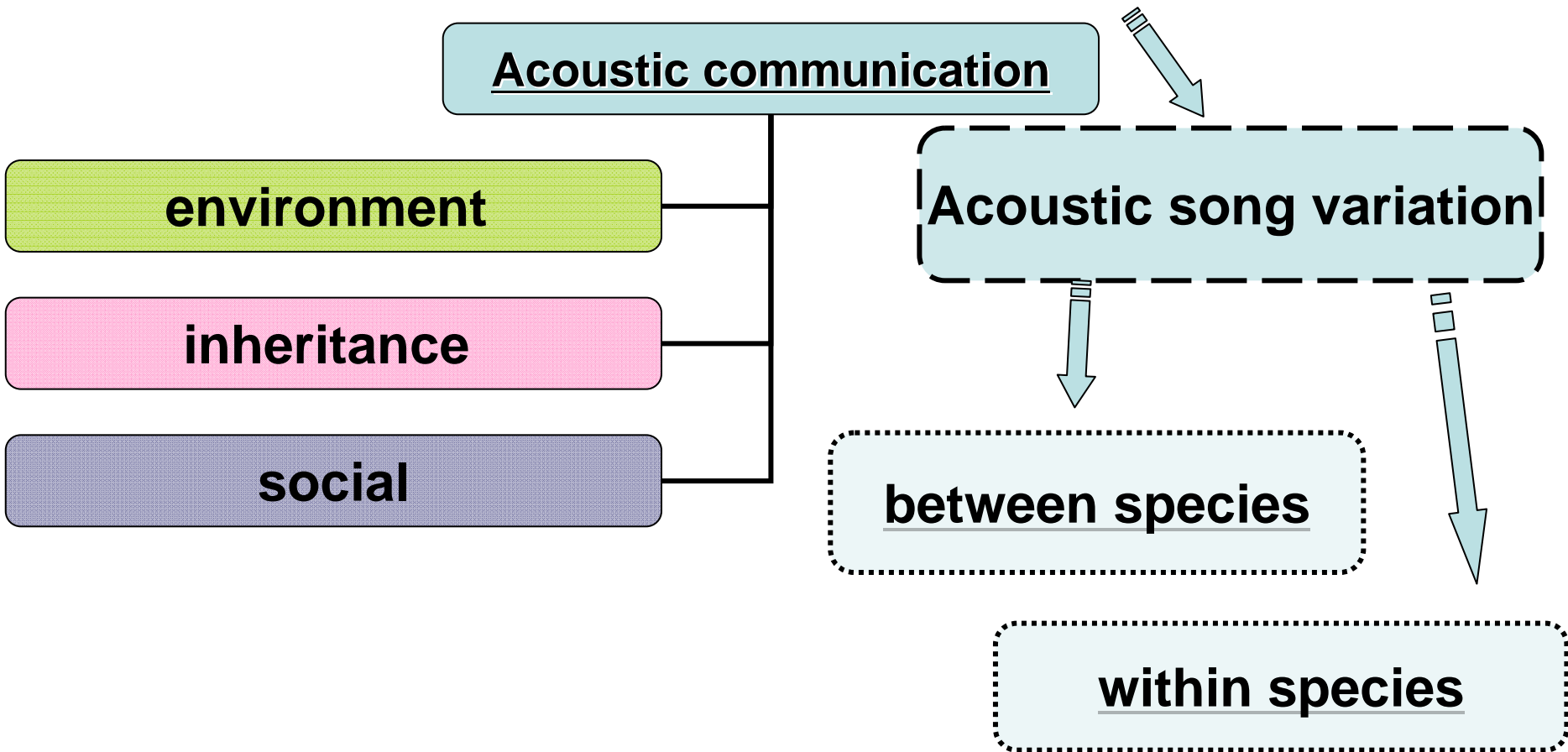
Geographic song variation in *Acrocephalus paludicola*

...state of the art



Jakub Glapan

Song variation

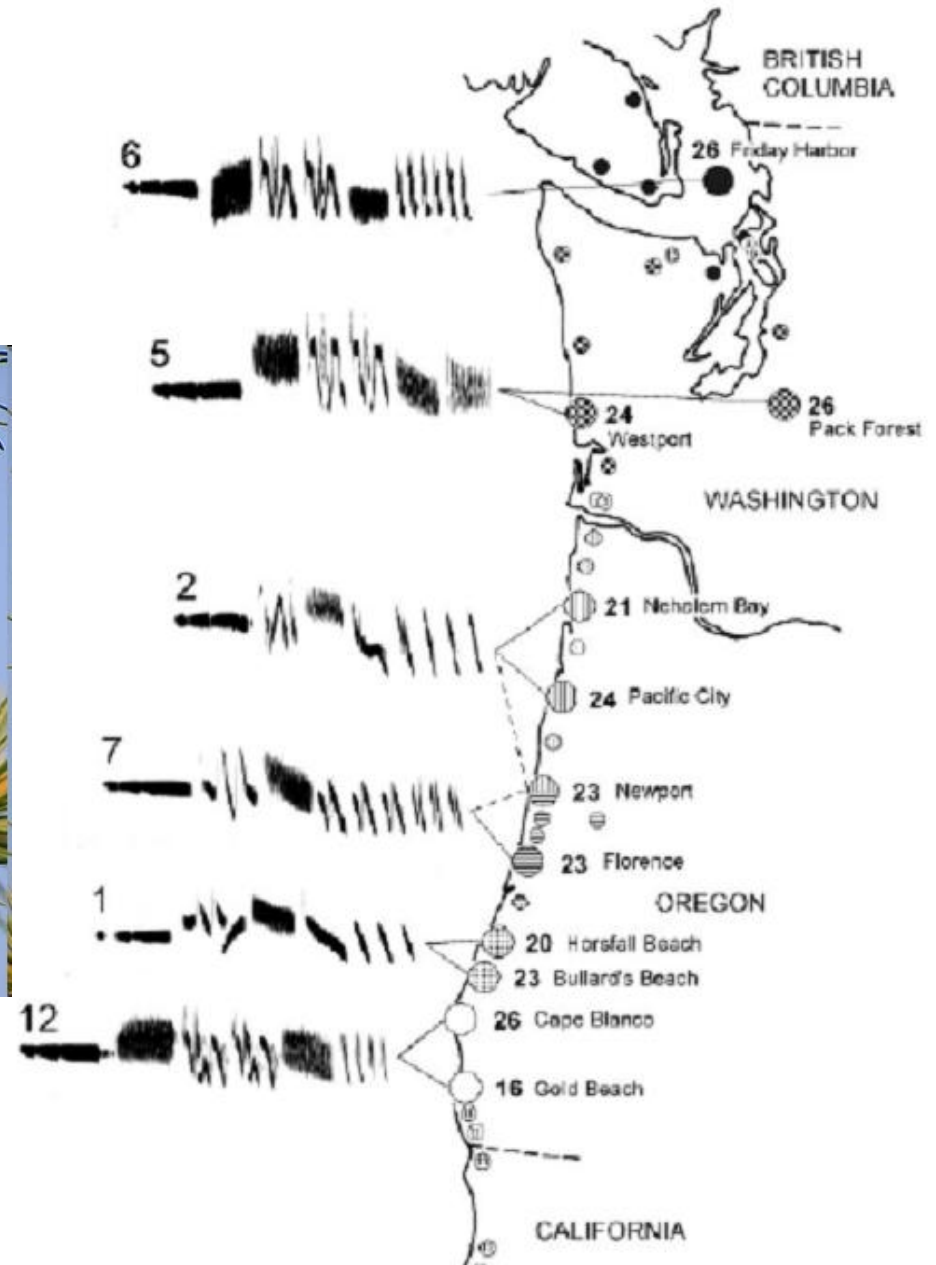


Song variation

1 song type

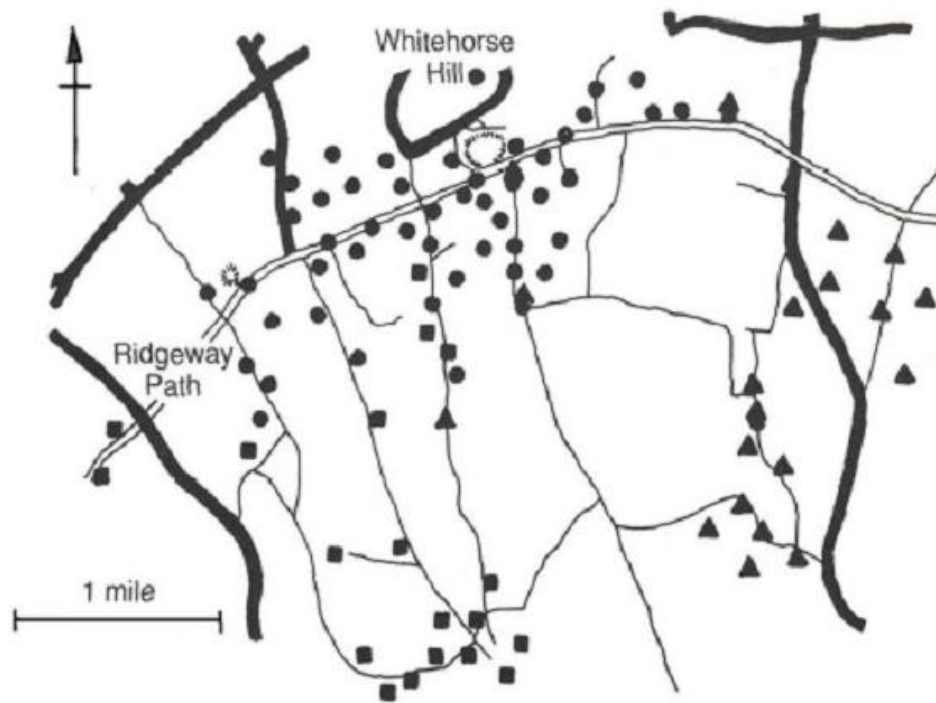


Zonotrichia leucophrys pugetensis



Song variation

Small repertoire - Several song types



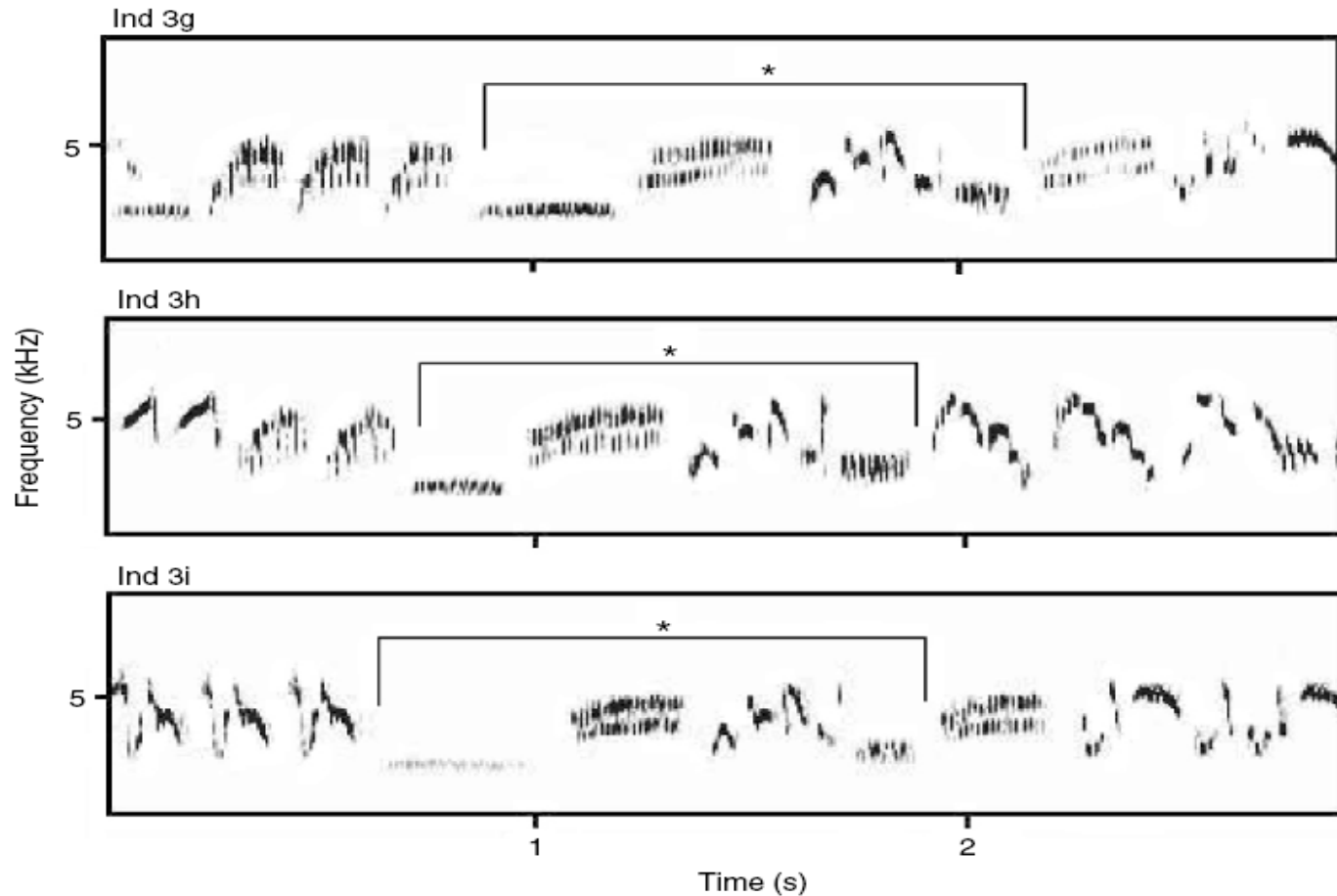
Emberiza calandra



Song variation

Large repertoire

Alauda arvensis



science and/or conservation?



"You are completely free to carry out whatever research you want, so long as you come to these conclusions."

Bioacoustics as a tool in conservation science

- all acoustic traits associated with aspects of reproductive success, survivorship and recruitment can indirectly affect population growth rates and are therefore relevant for population persistence and conservation
- sexual signals may have direct bearings on reproduction as they primarily mediate sexual interactions
- sounds are often costly to produce and can impose substantial fitness costs at the individual level.
- when humans alter natural processes, the selection load generated by the evolution of mating signals via sexual selection may rise above natural levels and may impact population viability, increasing the risk of extinctions

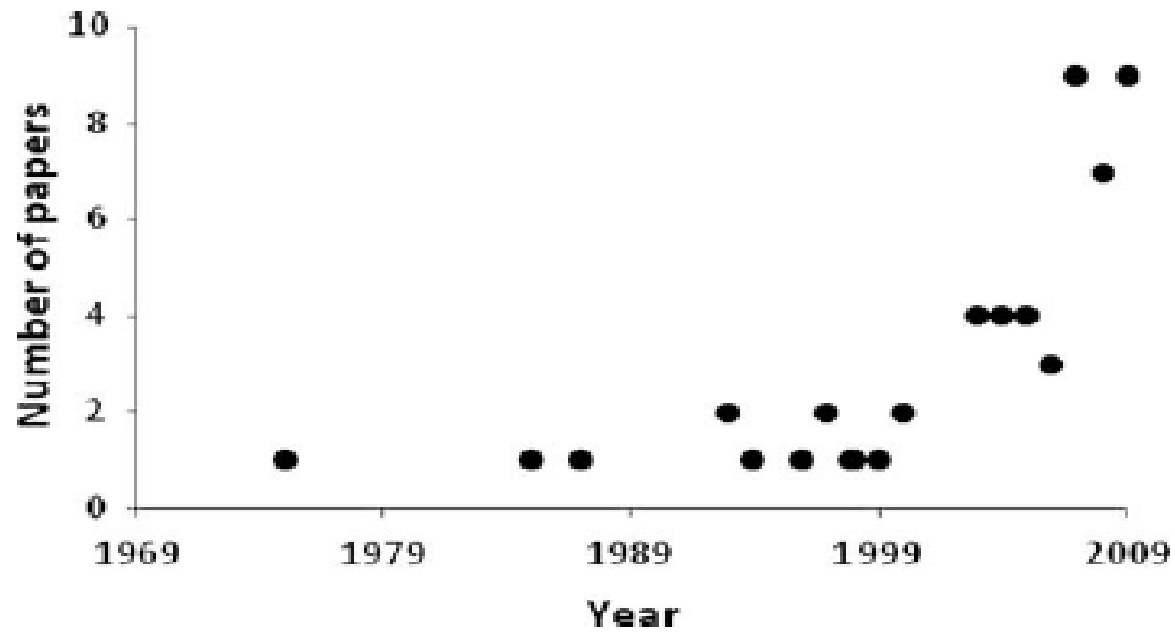


Fig. 1. The total number of papers on animal communication that studied variation in relation to anthropogenic impact ('Conservation Bioacoustics' studies) increased exponentially since the year 2000.

(Laiolo 2010)

...some kind of human intervention to explain acoustic variation

Anthropogenic effect	Environmental, demographic or physiological mechanism	Potential consequences
Noise pollution	Impediment to communication and masking natural sounds	Deleterious (reduced territory defense and mating)
Habitat isolation	Reduced dispersal and patch connectivity	Neutral or deleterious (gene flow reduction)
Habitat loss	Reduced population size	Neutral or deleterious (genetic or demographic effects)
Transformation of the habitat matrix (logging, agricultural rotation and fire)	Constraints to recruitment, alteration of age-classes distribution, density variations	Neutral
Human intrusion	Switch in territory establishment	Neutral or deleterious (reduced breeding success)

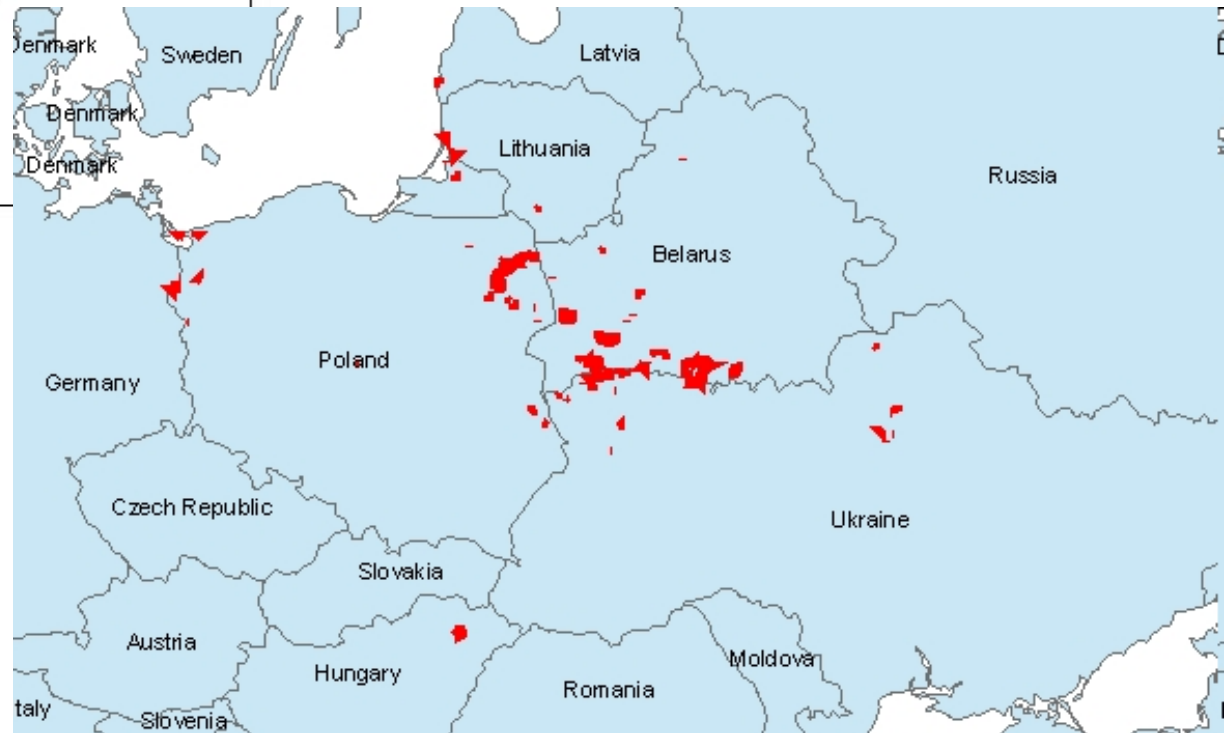
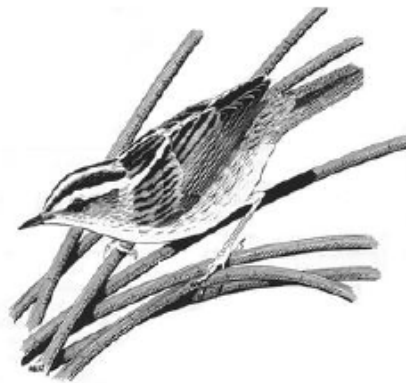
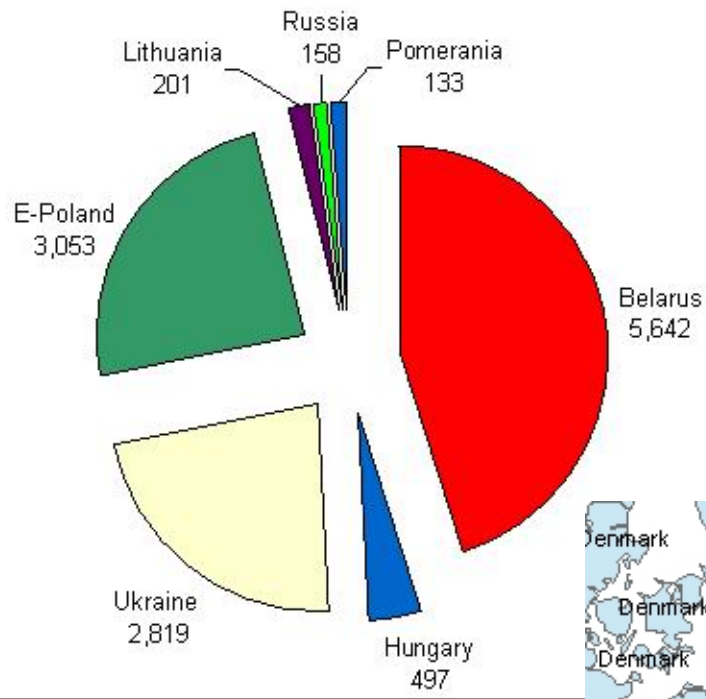
Acrocephalus paludicola



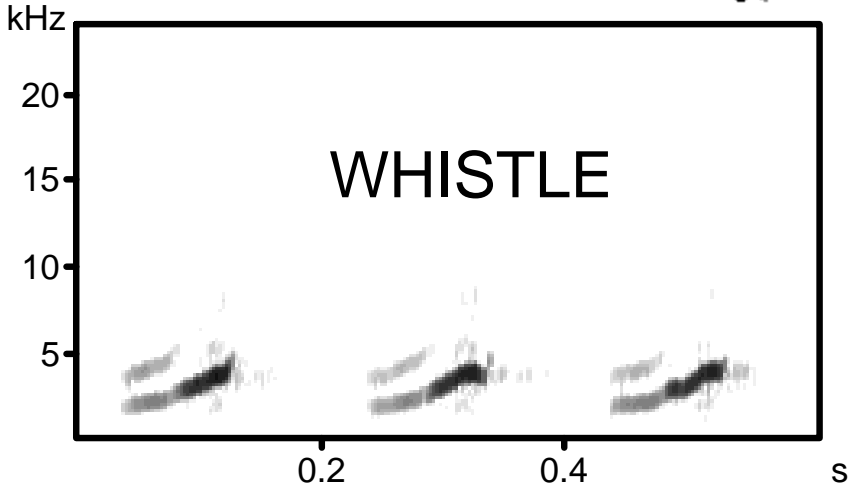
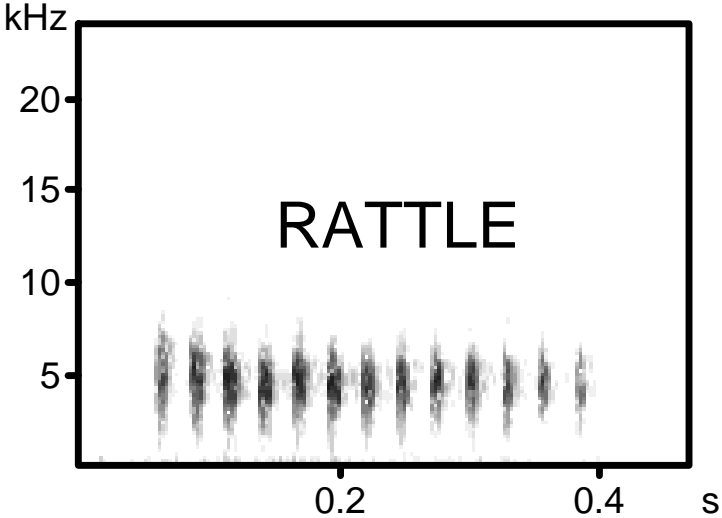
- *Acrocephalus* – 31 species



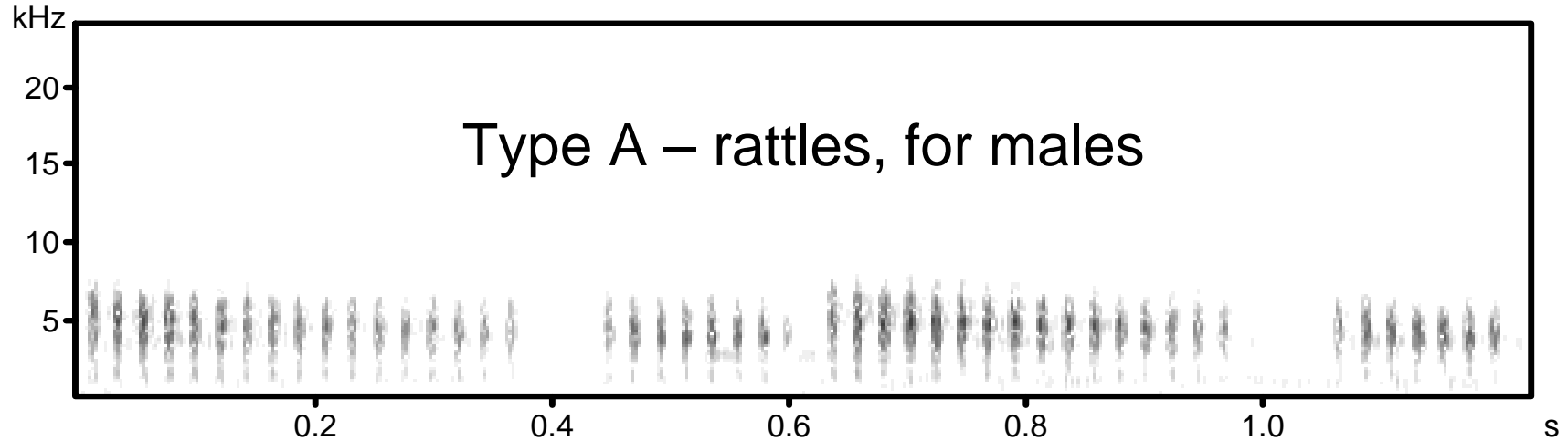
**Aquatic Warbler: average global population
1996-2007 (singing males)**



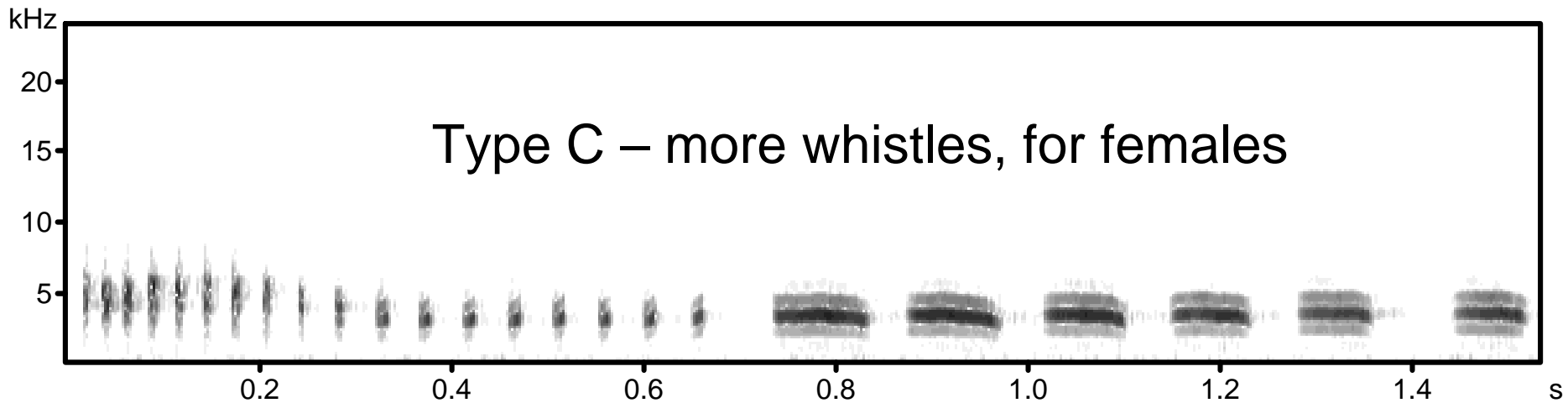
Song types



Song types - function

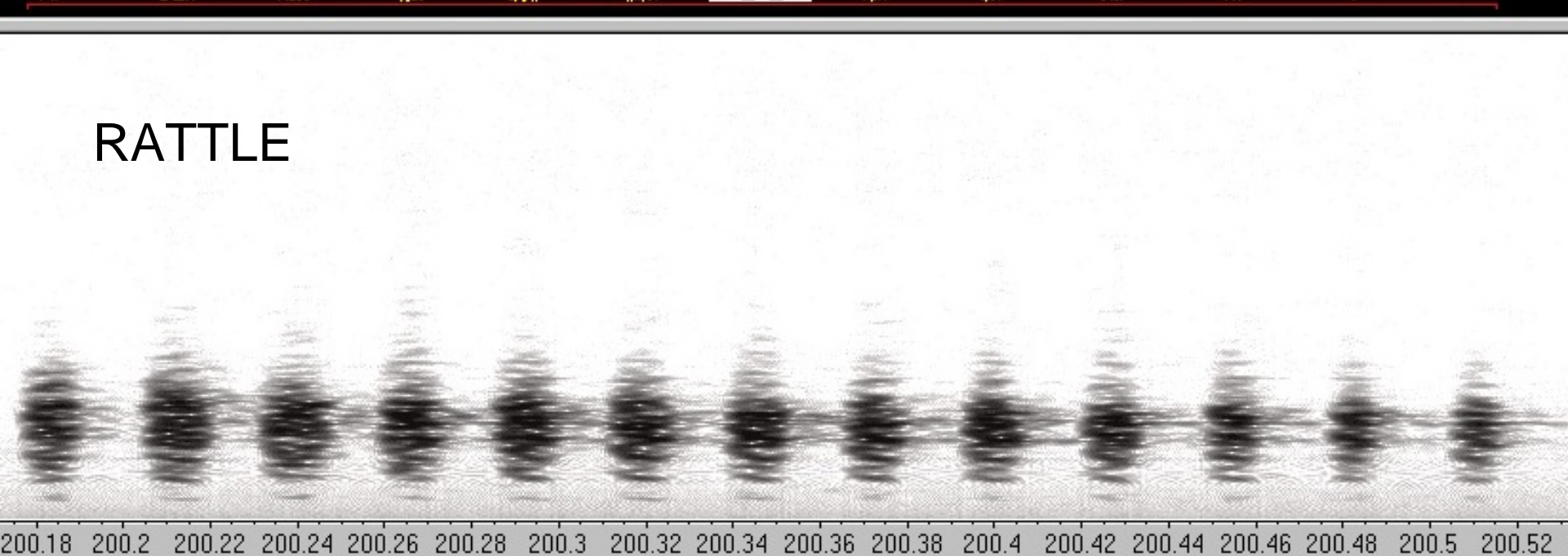


(Type B – between A and C)

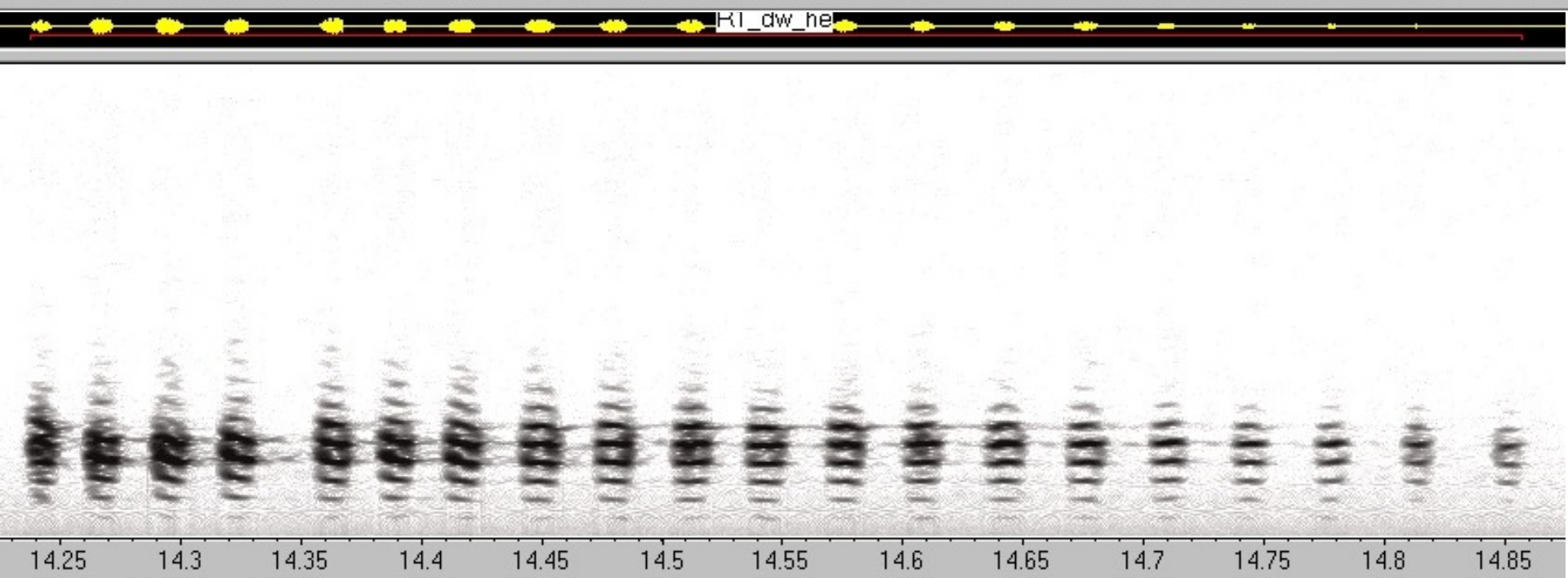


R1_a_ho

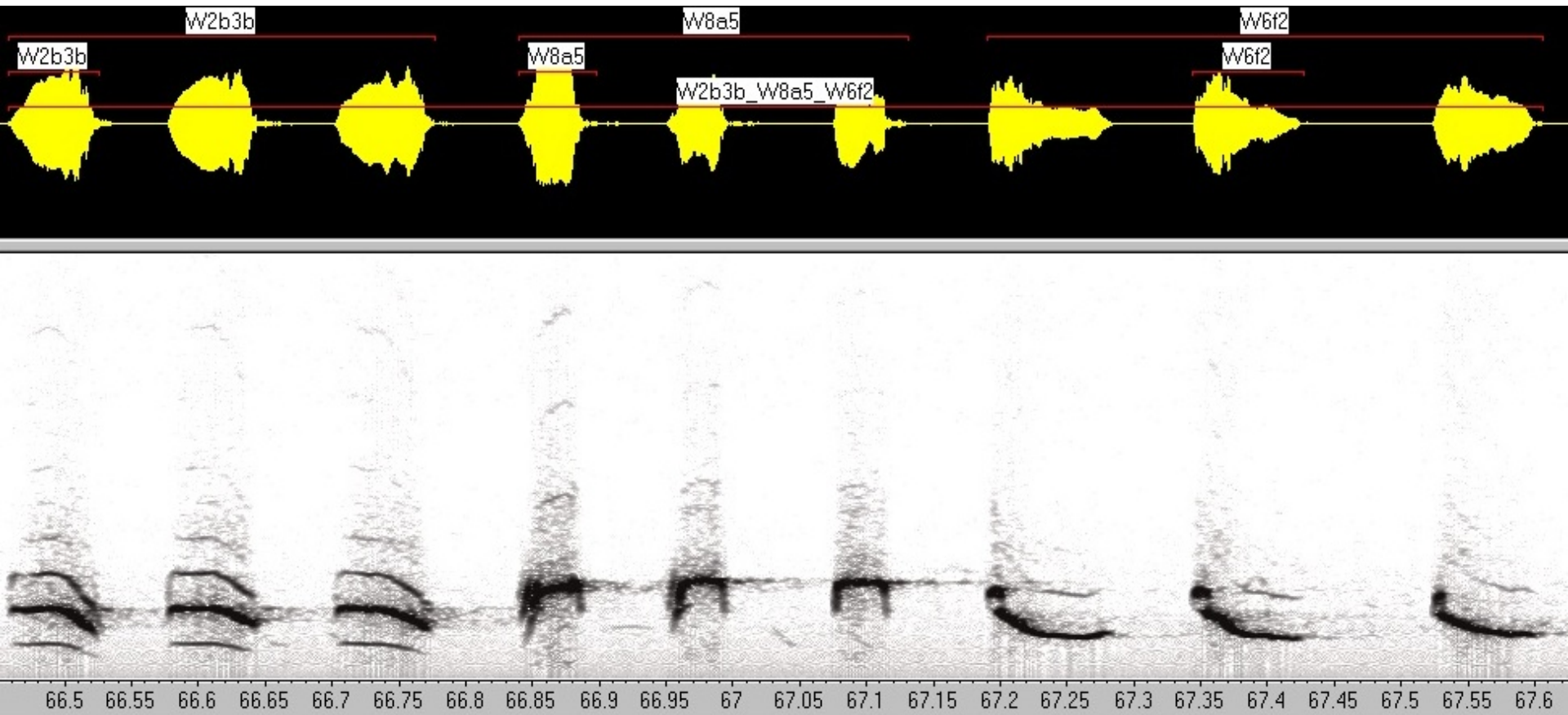
RATTLE



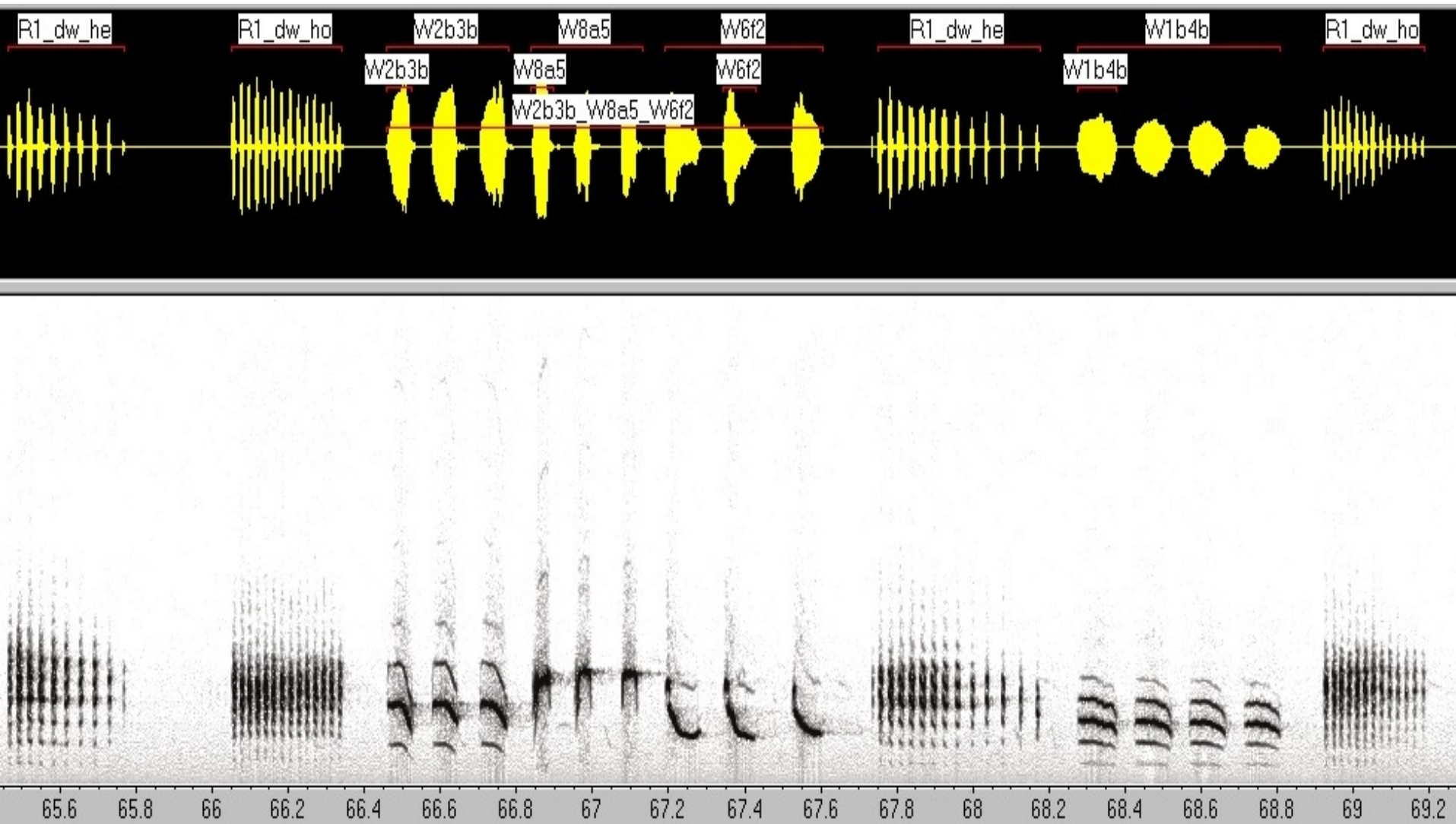
R1_dw_he



WHISTLE



Methods



Results

- Whistles – 9 classes, 119 types (N=15, Belarus)
- Rattles – several basic types

Repertoire – individual variation (rattles and whistles),
variation between males inside population

Geographic variation – Yes, but.... (in the course of
action)

Plans/Soon

- comparison between populations (larger sample size). **Is relation between song and character of population (size, fragmentation, ephemeral)?**
- playback experiments – **Do males discriminate between song of neighbour and stranger?**
- **From 2010**
- 3 study area - populations (Pomerania, Hortobagy NP. and Biebrza NP).
- needed more recordings from small, local populations (Marina Dmitrenok, Ania Wiśniewska)



Thank You for Your attention