Heritability of social information use: an experimental approach in a wild bird population

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Abstract

Social information use for habitat selection is considered as an important behaviour that may structure multi-guild populations. Importantly, the meaning of social information itself is likely to depend on both individual and environmental factors. In this context, information use is certainly partly flexible depending on environmental conditions. However, we expect individuals to consistently differ in their use of social information and those differences to be heritable. We used an experimental approach to quantify the heritability of heterospecific information use in collared flycatchers (*Ficedula albicollis*). This migratory bird species has been shown to use social information from heterospecific competitors (great tits, *Parus major*) for their nest site selection. We created an apparent preference of great tits for a novel nest site characteristic by attaching an artificial white plastic feature (circle or triangle) to their nest boxes. Upon arrival, c.a. two weeks later, the flycatchers had the choice to settle in nest boxes with the same plastic feature as the nest boxes occupied by great tits or the other feature. We recorded the nest box choice of flycatchers and captured them later in the season for identification. Based on the long-term pedigree available for this population, and using quantitative genetics animal models, we estimated the heritability of the binary nest box feature choice at 0.06 (CI=[0;0.25]) for both males and females. This is coherent with many estimates of heritability for behavioural traits, which typically show high environmental variation. I will also discuss the role of individual past experience in social information use.

Keywords: social information use, eavesdropping, behaviour, collared flycatcher, heritability

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