Should I stay or should I go?

Breeding dispersal decisions in a young avian hybrid zone

Jakub Rybinski

How many species inhabit our planet? Over 1.7 million species are described in the scientific literature and a recent "best guess" is that there are 8.7 million species in total. A central question then becomes: What is the origin of such amazing biodiversity?

Answers are provided by the study of the speciation process, which is now a cornerstone to research in evolutionary biology. Very briefly, speciation is all about how species are formed and how they become independent evolutionary units. When talking about species, reproductive isolation, which is a collection of mechanisms preventing distinct species from interbreeding and producing offspring, holds a special place, as it creates a barrier to gene flow. But how can reproductive isolation between once very similar populations evolve? And how can we ever answer this question, when most processes of speciation last thousands of years?

Sometimes recently diverged species meet again during secondary contact and interbreed. This process is called hybridization and results in creation of hybrid zones, where hybrid offspring is frequent. Such zones provide us with an opportunity to observe the speciation machinery in action. The aim of my study was to investigate dispersal patterns in a young avian hybrid zone on the Swedish island Öland, where native pied flycatchers (*Ficedula hypoleuca*) and colonizing collared flycatchers (*F. albicollis)* co-occur and hybridize. I analyzed breeding data collected over the past 10 years.

As animal dispersal is a very extensive topic, in my analyses I focused only on breeding dispersal, which can be defined as a permanent movement from the site where an animal bred in the previous season to an area where it reproduces in the following season. I modeled dispersal between study plots with a nominal logistic model. My model explained 12% of the variation in the dataset what is a satisfying results for a unique natural study system. I found that an animal's sex, reproductive success, and age were of significant importance for its dispersal decision. In short females, less successful individuals, and younger individuals were more likely to disperse. These results are in accordance with the ones found in the literature. However several predictors significant in other studies were not of importance on Öland. Whether they really play no role in my study system is still to be investigated with the use of more accurate spatial data.

What role does dispersal have in *Ficedula* hybrid zone dynamic? On Öland competitive exclusion of pieds from rich habitats was driven by interspecific interactions and hybridization. Therefore it is surprising that I did not discover any differences in dispersal propensity between the two species. Further analyses are required to ensure the lack of distinct dispersal strategies. On the other hand, sex difference in dispersal partially explains the patterns of hybridization on Öland. High site fidelity in both flycatcher species promotes stability of the investigated hybrid zone.

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Biology Education Centre and Department of Ecology and Genetics, Animal Ecology, Uppsala University

Supervisor: Anna Qvarnström