

Session 5: Movement

Date: Wednesday 1 November, 2017
Time: 10:05 – 10:25
Room: Seminar Room

Advancement of spring arrival in a long-term study of a passerine bird: sex, age and environmental effects

Presenting author: **Luis Cadahia**

Authors: **Luis Cadahía¹, Antonieta Labra^{1,2}, Endre Knudsen¹, Anna Nilsson¹, Helene M. Lampe¹, Tore Slagsvold¹, Nils Chr. Stenseth¹**

Affiliations: ¹Centre for Ecological and Evolutionary Synthesis, Department of Biosciences, University of Oslo, Oslo, Norway
²Instituto de Ciencias Biomédicas, Facultad de Medicina, University of Chile, Santiago, Chile

In migratory birds, mistimed arrival might have negative consequences for individual fitness, causing population declines. This may happen if arrival time is not synchronized with breeding time, especially when earlier springs favour earlier reproduction. We studied spring arrival time to the breeding areas in a pied flycatcher *Ficedula hypoleuca* population in southern Norway during a 30-year period (1985–2014). We investigated trends in arrival both for the entire population and for different population fractions (e.g., early vs. late arrivals). We also studied sex and age class differences, along with repeatability of arrival. Finally, we explored how arrival is influenced by environmental conditions at the areas birds use throughout the year, using mixed-effects models and quantile regressions with individual-based data. Spring arrival advanced over five days, at a similar rate through the entire population. Males and adult birds arrived earlier than females and yearlings. Arrival was significantly repeatable for males and females. Birds arrived earlier in years with high temperature and rainfall at the breeding grounds, and low NDVI both on the Iberian Peninsula and in central Europe. Later fractions of the population showed a steeper response to these environmental variables. This intra-population heterogeneity in the responses to the environment probably stems from a combination between the different selection pressures individuals are subject to and their age-related experience. Our results highlight the importance of studying how migration phenology is affected by the environment not only on the breeding grounds but also on the other areas birds use throughout the year.