

Date: Tuesday 31 October, 2017
Time: 10:55 – 11:15
Room: Seminar Room

Diurnal patterns of the production and use of food-related information in Parid flocks

Presenting author: **Friederike Hillemann**

Authors: **Friederike Hillemann¹, E. F. Cole¹, S. C. Keen^{1,2}, B. C. Sheldon¹, D. R. Farine^{1,3,4}**

Affiliations: ¹Edward Grey Institute of Field Ornithology, Department of Zoology, University of Oxford, Oxford, United Kingdom
²Bioacoustics Research Program, Cornell Lab of Ornithology, United States
³Department of Collective Behaviour, Max Planck Institute for Ornithology, Konstanz, Germany
⁴Chair of Biodiversity and Collective Behaviour, Department of Biology, University of Konstanz, Konstanz, Germany

Wintering songbirds have been widely shown to make economic decisions when foraging. Recent studies have also shown that songbirds manage predation risk on the one hand and resource uncertainty on the other by switching from prioritizing food discovery in the morning to exploiting known patches later in the day. In this study, we ask whether the communication of food availability and the use of social information to find food also differ throughout the day. First, we assessed temporal variation in food-related vocal information in foraging flocks of tits (Paridae) using audio recordings at feeding stations. Vocal activity was highest in the morning and decreased into the afternoon, and calling behaviour was inversely correlated with foraging flock size. Next, we experimentally tested the underlying causes for the diurnal calling pattern. We set up bird feeders with or without a playback of calls from tit species, either in the morning or in the afternoon, and compared latency until feeder discovery, accumulation of flock members, and total number of birds visiting the feeder. Irrespective of time of day, playbacks had a strong effect on all three response measures, compared to silent control trials, demonstrating that tits will readily use vocal information to improve food detection throughout the day. We suggest that, as the day progresses and foraging group sizes increase, the costs of producing calls at the food source (competition and attraction of predators) outweigh the benefits of recruiting group members (e.g. safety in numbers), causing the observed decrease in vocal activity into the afternoon.