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Room: Seminar Room

Ongoing adjustment of flycatcher phenology in response to climate change: evolution in action?

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Long-term nest box studies have illuminated how populations have been responding to climate change over the past half century. Most attention has been on breeding phenology, and across Europe, populations of tits and flycatchers varied in trends in laying date, which is partly related to local trends in spring temperature. These responses were not in all cases sufficient, most notably leading to trophic mismatches in Dutch populations of tits and pied flycatchers. In this talk I concentrate on how pied flycatchers have been able to respond to ongoing warming. As a long-distance migrant, they lack information while on their African wintering ground on the progress of spring at the breeding grounds. Despite this lack of information, flycatchers have progressively advanced both arrival date at the breeding grounds, and their breeding dates. Individually plasticity in spring arrival dates is very small, as is plasticity of laying date to temperature. This individual plasticity is unable to explain the population trend in laying dates over the years, and flycatchers lay at present earlier with the same temperatures than 30 years ago. This suggests an evolutionary response. The past directional selection for earlier arrival likely comes from the increased mismatch with the caterpillar peak, but also from increasingly beneficial conditions encountered upon arrival. We show that local survival of females increased over the years, and is correlated with spring temperatures in the year of arrival. Yet it is unclear whether this is linked to (genetic) variation in arrival dates. Relatively colder springs during the 10 years seem to have enabled flycatchers to catch up with the food peak, reducing selection for early breeding, and stabilizing population numbers.