BayCEER Kolloquium

Lectures in Ecology and Environmental Research

Summer 2024

UNIVERSITÄT BAYREUTH

Thursday
27.06.2024
12:15 in H6, GEO

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Who takes the risk? Patterns and consequences of individual variation in landscapes of fear

Natural selection via predation is a fundamental evolutionary force. Ultimately, the intrinsic risk of falling prey to a predator determines individual fitness. Moreover, the mere presence of a predator can lead to changes in prey morphology, physiology, life-history and behaviour. Perceived predation risk by prey determines the type and strength of these indirect predation effects, which involve energetic trade-offs and, thus, affect prey fitness indirectly. Today indirect predation effects are recognized as an important aspect of predator-prey interactions. Perceived predation risk varies in space and time creating landscapes of fear. Hitherto, landscapes of fear have been studied as species-specific layers, assuming that each individual of a species perceives the same risk. However, individuals of the same population, sex and age class consistently differ in risk-taking behaviour; these differences are moderately heritable and affect fitness. Consequently, spatial and temporal distribution of perceived predation risk should differ among individuals of a population, creating individual landscapes of fear.

In this talk, I will present results of empirical studies in which we manipulated spatial and temporal predation risk to test whether individual landscapes of fear exist, developed tools to quantify and compare them effectively, and tested whether among-individual differences in perceived predation risk can be predicted by personality differences. Furthermore, I will explore how such among-individual variation in foraging under perceived risks leads to predictable cascading effects on the biodiversity of their food resources.

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