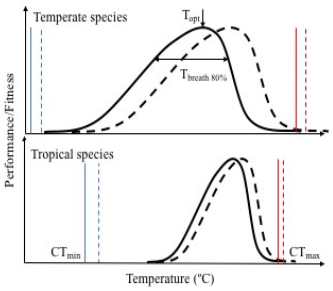
Seminars in Zoophysiology at Aarhus University

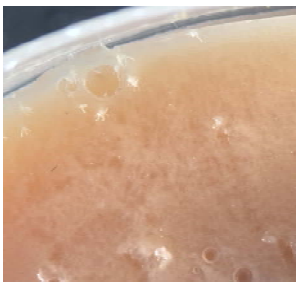
Assessing the role of acclimation and adaptation in thermal performance curves

Heidi MacLean

Zoophysiology, Aarhus University

Thermal performance curves (TPC) of ectotherms, are often used to infer species responses to changes in temperature including long-term responses to climate change. Nonetheless, there are still many aspects of thermal plasticity in fitness that are poorly studied and only little empirical work have investigated theories about the evolution, shape, and plasticity of TPC's. Here we measure thermal tolerance limits and TPCs of fitness components; specifically, in 22 species of Drosophila reared at a common temperature. For 10 of these species, we also measured thermal capacity and thermal performance following developmental acclimation to three additional temperatures. We find support for the idea that thermal tolerance limits have evolved in response to extreme environmental conditions that limits species persistence. In contrast, we find limited variation in optimal thermal performance suggesting selection by the temperatures in the growing season. Ultimately, these data suggest that the thermal performance of fitness traits in Drosophila species are temporally and spatially stable..





Wednesday April 11th 2018 at 10.15
Seminar room at zoophysiology