



Keeping balance: Ionoregulation and the susceptibility of insects to low temperatures

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Temperature limits the geographic range of many terrestrial ectotherms and understanding the mechanisms that underlie this limitation will allow for both predictions regarding species' sensitivity to climate change and novel targets for the control of insect pests. By using an integrative and comparative approach, I aim to determine the physiological mechanisms that set critical thermal limits to insect survival.

In the cold, most insects enter a reversible state of chill coma, and prolonged cold exposure causes injury and death. Evidence from a range of insect species show that coma is related to loss of neuromuscular function. In this seminar, I will discuss how integrative study of crickets, locusts and *Drosophila* has revealed that thermal tolerance traits are directly related to a cold-induced loss of ion and water balance.

Finally, I will discuss how a comparative approach has revealed that differences in ion gradients and the ability to maintain them underlie both phenotypic plasticity and variation in cold tolerance among insect species.



Monday February 2nd
at 10.15 at Zoophysiology
(1131-127)