DEPARTMENT OF BIOLOGY | UNIVERSITY *of* WASHINGTON

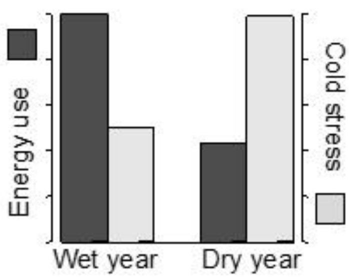
Faculty Search
Biology Seminar

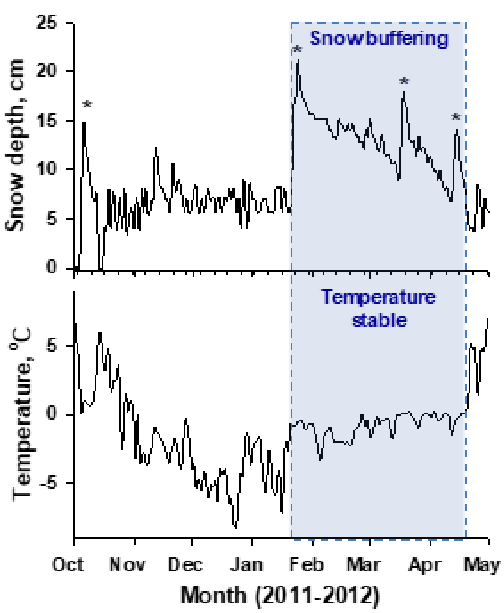
Speaker: **Caroline Williams**

University of California, Berkeley | Assistant Professor, Department of Integrative Biology

http://www.cmwilliamslab.com/

Evolutionary impacts of winter on terrestrial ectotherms





Monday, March 12, 2018 | 12:45pm
HCK 132 Refreshments at 12:30pm

Climate change research historically focused on summer, and winter climate change was considered mostly beneficial due to amelioration of damaging cold. It is now becoming increasingly apparent that variation in winter conditions drives responses of many terrestrial organisms to climate change in complex ways, and that a mechanistic understanding of the impact of winter conditions is essential to identify vulnerabilities to climate change. Winter warming negatively impacts many butterflies and moths by increasing metabolic rates and energy drain, which can reduce subsequent reproduction. Winter conditions drive local adaptation of insect populations, suggesting that changes in winter conditions may cause population declines across the range. Using *Drosophila melanogaster*, I demonstrate that cold adaptation increases metabolic costs due to increased flux through central metabolic pathways, allowing cold hardy flies to synthesize protective molecules more rapidly. This suggests a mechanism through which cold stress shapes evolution of metabolic pathways, possibly contributing to large-scale biogeographic patterns in life histories previously attributed to selection on growing season performance. My current research focuses on the role of snow in driving ecology and evolution of insects, and elucidating the biochemical and metabolic origin of life history trade-offs.

Seminar Speaker Hosts: Lauren Buckley & Michael Kennedy