EUROPEAN EXPERTISE IN RESEARCH ON THERMAL ADAPTATION

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General scope of the group's research: We seek to understand the ecological and evolutionary processes by which temperature affects the physiological performance and life histories of these organisms.

Topics & Questions: thermoregulatory behaviour; thermal sensitivity of energetics and performance; evolution of life histories; thermal acclimation

1) Which environmental conditions influence the degree of behavioral thermoregulation?
2) How does geographic variation in body temperature affect the evolution of the thermal sensitivity of performance?
3) How does the thermal sensitivity of performance affect the evolution of the life history?

Organisms: primarily lizards of the genus *Sceloporus*, but some work with other animals

Methods & Expertise we use: respirometry; calorimetry; operative temperature modelling; computer simulations; phenotypic engineering; phylogenetic comparative methods; meta-analysis

Methods & Expertise sought: methods for assessing anabolism of small organisms (e.g., insects) on short time scales; methods for phylogenetic comparative analysis of intraspecific variation

3-5 Sample publications:

Angilletta, M. J., C. E. Oufiero, and A. D. Leaché. 2006. Direct and indirect effects of environmental temperature on the evolution of reproductive strategies: an information-theoretic approach. *The American Naturalist* 168: E123-E135.

Oufiero, C. E. and M. J. Angilletta. 2006. Convergent evolution of embryonic growth and development in the eastern fence lizard (*Sceloporus undulatus*). *Evolution* 60: 1066-1075.

Angilletta, M. J., A. F. Bennett, H. Guderley, C. A. Navas, F. Seebacher, and R. S. Wilson. 2006. Coadaptation: a unifying principle in evolutionary thermal biology. *Physiological and Biochemical Zoology* 79: 282-294.

Angilletta, M. J., P. H. Niewiarowski, A. E. Dunham, A. D. Leaché, and W. P. Porter. 2004. Bergmann's clines in ectotherms: illustrating a life-history perspective in sceloporine lizards. *The American Naturalist* 164: E168-E183.

Angilletta, M. J., T. D. Steury, and M. W. Sears. 2004. Temperature, growth rate, and body size in ectotherms: fitting pieces of a life-history puzzle. *Integrative and Comparative Biology* 44: 498-509.