

## EUROPEAN EXPERTISE IN RESEARCH ON THERMAL ADAPTATION

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General scope of the group's research: Adaptation of life histories (especially growth and development) to variable environments using ecological, genetic and physiological tools.

Topics & Questions: Latitudinal clines in growth and development, phenotypic plasticity, physiological mechanisms of adaptation along latitudinal clines, adaptation to environmental stress, conservation genetics of small populations.

Organisms: Primarily temperate amphibians, especially their larval stages.

Methods & Expertise we use: Ecological laboratory and field experiments, microsatellite and AFLP analyses for genetic population structure, quantitative genetic methods, skeletochronology for age estimation, flow-thru respirometry, ELISA and real-time PCR for measuring hormone levels (under development).

Methods & Expertise sought: Methods to assess energetics of small aquatic invertebrates (snails).

### 3-5 Sample publications:

Laugen AT, Laurila A & Merilä, J. 2003. Latitudinal variation and temperature-dependency of embryonic development and growth in *Rana temporaria*. *Oecologia* 135: 548-554.

Laugen, A.T., Laurila, A., Räsänen, K. & Merilä, J. 2003. Latitudinal countergradient variation in common frog (*Rana temporaria*) development rates – evidence for local adaptation. *Journal of Evolutionary Biology* 16: 996-1005.

Laugen, A.T., Laurila, A., Jönsson, K.I., Söderman, F. & Merilä, J. 2005. Do common frogs (*Rana temporaria*) follow Bergmann's rule? *Evolutionary Ecology Research* 7: 717-731.

Lindgren, B. & Laurila, A. 2005. Proximate causes of adaptive growth rates: growth efficiency variation among latitudinal populations of *Rana temporaria*. *Journal of Evolutionary Biology* 18: 820-828.

Laurila, A., Pakkasmaa, S. & Merilä, J. 2006. Population divergence in growth rate and antipredator defenses in *Rana arvalis*. *Oecologia* 147: 585-595.