

EUROPEAN EXPERTISE IN RESEARCH ON THERMAL ADAPTATION

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General scope of the group's research: From the thermal adaptation viewpoint we are interested in studying different aspects of thermoregulatory behaviour using mainly reptiles as models. It is interesting as accurate and effective thermoregulatory behaviour can result in maintaining high and stable body temperature during activity even at climatic extremes. This has various consequences from optimized physiological performance to inhibited physiological evolution.

Topics & Questions: Thermal opportunities and thermoregulatory behaviour at climatic extremes, experimental tests of the cost-benefit model of lizard thermoregulation, priorities between thermoregulation and other behavioural and physiological traits.

Organisms: Primarily widely distributed reptile species that are faced with various thermal environments within their distribution range (common lizard *Zootoca vivipara*; common adder *Vipera berus*).

Methods & Expertise we use: Different field and lab methods for measuring body temperatures (using cloacal and noncontact infrared thermometers, thermal gradients) or environmental temperatures (e.g. physical lizard models, data-loggers).

3-5 Sample publications:

Herczeg G, Kovács T, Hettyey A, Merilä J (2003): To thermoconform or thermoregulate? An assessment of thermoregulation opportunities for the lizard *Zootoca vivipara* in the subarctic. *Polar Biology* 26: 486-490

Herczeg G, Kovács T, Tóth T, Török J, Korsós Z, Merilä J (2004): Tail loss and thermoregulation in the common lizard *Zootoca vivipara*. *Naturwissenschaften* 91: 485-488

Herczeg G, Gonda A, Saarikivi J, Merilä J (2006) Experimental support for the cost-benefit model of lizard thermoregulation. *Behavioral Ecology and Sociobiology* 60: 405-414.

Herczeg G, Saarikivi J, Gonda J, Perälä J, Tuomola A, Merilä J (2006) Suboptimal thermoregulation in male adders (*Vipera berus*) after hibernation imposed by spermiogenesis. *Biological Journal of the Linnean Society* in press.

Herczeg G, Gonda J, Perälä J, Saarikivi J, Tuomola A, Merilä J (2006) Ontogenetic differences in the preferred body temperature of the European Adder *Vipera berus* (Serpentes: Viperidae). *Herpetological Journal* in press.