Wien: PhD - seasonal acclimatization of red deer

University of Veterinary Medicine Vienna, Research Institute of Wildlife Ecology

Application deadline: 01.03.2017

[printable version http://www.dzg-ev.de/de/stellenboerse/ausschreibungen/2017/phd_wien2017.pdf]

The Research Institute of Wildlife Ecology, Department of Integrative Biology and Evolution, University of Veterinary Medicine Vienna, invites applications for a

PhD position (f/m) on polyunsaturated fatty acids and seasonal acclimatization of red deer

Many small mammals cope with coldand limited food supply during winter by abandoning the energetically costly maintenance of a high body temperature (Tb) and entering hibernation or daily torpor. We found similar reactions in several non-hibernating ungulates, except that Tb changes were substantial only in peripheral body parts. Hibernators prepare for life at low Tb by increasing the proportion of omega-6 linoleic acid (LA), an essential polyunsaturated fatty acid (PUFA),in phospholipids (PL). The calcium pump of the sarcoplasmatic reticulum (SERCA)works faster in such membranes.Therefore, cold-induced retardation of SERCA is diminished in LA-richmembranes and sufficient pumping power for normal muscle function is maintained despitelow Tb. In contrast, high contents of highly unsaturated omega-3 fatty acids in phospholipids slow SERCA activity down, but may boost that of key enzymes forsupplying energy to the cell in theform of ATP. These specific effects of PL-PUFA on membrane-bound proteins suggest seasonal changes of fatty acid composition of membranes that is largely independent of direct dietary intake.

The proposed study shall investigate effects of PUFA on seasonal acclimatization in red deer, a model species for large seasonal non-hibernating mammals. We will, for the first time, disentangle experimentally the role of dietary and photoperiodic origin onchanges in membrane PL composition and its effect on membrane-bound enzymes. We expect to find profound consequences of seasonal acclimatization at this molecular level on thermoregulation and energetics of the whole organism. Our approach is a longitudinal study on a herd of red deer kept under close to natural conditions, but subjected to a feeding experiment manipulating availability of food, of dietary supply of PUFA, and of photoperiodic control of seasonal acclimatization. Analyses of the fatty acid composition of membranes, expression and activity of key membrane-bound enzymes in muscle cells sampled repeatedly from winter and summer acclimatized deer will be combined with continuous measurement of heart rate as an indicator of metabolic rate, core and peripheral Tb, and locomotor activity of the deer with an approved telemetry system.

Your profile: We are looking for a highly motivated candidate for a PhD project studying seasonal acclimatization at the molecular and organismic level of red deer. We welcome

candidates holding a masters or equivalent degree at the point of enrollment in biology or similar backgrounds (e.g. veterinary medicine, biochemistry). We expect good knowledge of animal physiology/biochemistry, of English, and writing skills. We welcome experience and training in analytical methods of biochemistry, of experimental work with animals, an independent and thorough working style, and the ability to work in a team.

Our offer: The PhD position is fully funded for 3 ½ years and available from April 1st, 2017. The salary will be paid according to a level of employment of 30 hours per week, i.e. EUR 2045.10 gross per month, plus two bonus months making 14 payments per year. The candidate will enroll within thePhD program of the University of Veterinary Medicine Vienna that offers a dedicated teaching program. The project is located in a stimulating high quality research environment with outstanding research facilities. The research will be undertaken at the Research Institute of Wildlife Biology under the supervision of Prof. Dr. Walter Arnold.

Application: Please submit applications with two names of references and contact information via e-mailto walter.arnold@vetmeduni.ac.at. Application deadline is March 1st, 2017.

The University of Veterinary Medicine Vienna is an equal opportunity employer and iscommitted to increasing the participation of women in its research activities and to employing more individuals with disabilities and especially encourages them to apply. As a family-friendly institution, we are committed to further the compatibility of work and family life and prefer disabled applicants when qualification is equal.

Hull, UK: 2 PhD projects on the evolution of parental care in insects and fish

We are advertising a cluster of projects on the evolution of parental care funded by University of Hull including two PhD studentships and a postdoctoral position supervised by Drs Isabella Capellini, Lesley Morrell and James Gilbert. For details about the postdoctoral position, soon to be open, please contact I.Capellini@hull.ac.uk.

To be considered for the shortlist, interested applicants are strongly advised to contact the relevant lead supervisor well in advance of application. Please enclose a CV and a brief explanation of why this position interests you, and any questions you have. Applicants should have at least a 2.1 undergraduate degree in Biology, Ecology, or related discipline, together with relevant research experience. A 1st class undergraduate degree or Masters level qualification is anticipated.

There are astonishing differences in whether, how, and for how long, animals care for their offspring. In most species, such as many marine fishes, parents abandon their fertilized eggs, which are mostly eaten by predators. By contrast, parents of other species, as in humans, provide protection and substantial amount of resources to their eggs or offspring.

PhD 1: Evolution of parents feeding offspring. Lead Supervisor: Dr James Gilbert, james.gilbert@hull.ac.uk

Parental feeding is rare among animals. The studentship will focus on this crucial but little-understood behaviour. Insects are excellent for asking evolutionary questions about parental care: strategies are diverse, and often differ among related species. The student will first complete and publish a large reproductive trait database for insects, begun by Dr Gilbert, and second, in a broad comparative analysis across many species, address the following questions: (1) What ecological factors favour the evolution and/or maintenance of parental provisioning? Does provisioning evolve with harsh or stable environments; scarce, specialized resources; or predation? Is loss of offspring self-sufficiency a key precondition for the evolution of parental provisioning? (2) What are the evolutionary consequences of a food-provisioning strategy? Is optional (or partial) food provisioning behaviour inherently unstable? The project will deepen our understanding of an extremely important group, insects, and provides key comparisons not available in groups like mammals who uniformly feed offspring.

Further requirements: experience essential with at least one out of: database management, phylogenies, insect behaviour studies; two or more desirable. Experience with R desirable.

How to apply: Application is online at the following link:
https://www.findaphd.com/search/ProjectDetails.aspx?PJID=82439&LID=624.

PhD 2. Laterality and parental care in fish. Lead Supervisor: Dr Lesley Morrell, l.morrell@hull.ac.uk

Long thought to be unique to humans, lateralisation (or handedness) is now recognised as widespread in vertebrates. Animals show lateralisation in a wide range of organs and behaviours, and it is hypothesised that cerebral lateralisation can enhance cognitive abilities, particularly through the ability to attend to multiple tasks at one time (multitasking). For fish, this might be the ability to simultaneously forage and remain vigilant for predators, for example. In this project, we will investigate the potential link between lateralisation, parental care and other ecological factors in fish. More specifically, the project seek to address the following questions: 1). Within and across species, are individuals that provide care more likely to be lateralised than individuals that do not? 2) How does laterality link to the ability to multitask in caring and non-caring situations? 3) How do environmental conditions shape laterality, and how does this link to the ability to multitask? Experimental work on the behaviour of fish in the Universitys aquarium facilities will be a key component of this project.

Further requirements: essential to the project are good skills and
experience with experimental work, preferentially in behavioural ecology and/or with fish; experience with R desirable.

How to apply: Application is online at the following link:
https://www.findaphd.com/search/ProjectDetails.aspx?PJID=82441&LID=624.
□ □ **Application deadline: Tuesday, February 28, 2017**

Positions will start on the 25th September 2017. Full-time K/EU PhD Scholarships will include fees at the home/EU student rate
and maintenance (pounds 14,121 in 2016/17) for three years, depending on satisfactory progress. Full-time International Fee PhD Studentships will include full fees at the International student rate for three years, dependent on satisfactory progress.