**Parentally-induced developmental effects on ageing trajectories**

**Supervisors**
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**Project background**
Parental care is expected to enhance offspring fitness, often by increasing development rate and offspring size. At the same time, the survival of offspring to late-age may have little to do with their fitness when populations have overlapping generations (as is the case with many organisms). In these cases, fitness trade-offs that favour fast development and large size can evolve that promote senescence and reduce lifespan. Such life-history trade-offs form part of the conceptual foundation of the evolutionary theory of ageing, but the role that social interactions (such as between parent and offspring) play in these trade-offs are poorly understood. This project will exploit the facultative nature of parental care in a burying beetle species, *Nicrophorus vespilloides*, to experimentally manipulate various aspects of development in order to assess effects on ageing rates for various life history traits. This project should increasing our ecological and evolutionary understanding of both the cost and benefits of parental care.

**Key research questions**
(1) What are the early-life determinants of ageing rates in the burying beetle? How much natural variation exists for these determinants?

(2) How are ageing rates associated with early-presented life history traits?

(3) How do genetic constraints affect how maternal traits and offspring ageing evolve?

**Methodology**
The project will involve controlled experiments conducted under laboratory conditions and will involve established methodology to measure parental and offspring phenotypes, reproductive performance and survival. Some demographic and quantitative genetic analyses will be done by the student.
Training
A comprehensive training programme will be provided comprising both specialist scientific training and generic transferrable and professional skills. Project-specific training will be provided on experimental design, animal breeding and husbandry, recording of survival, morphometric, and behavioural data, and genetic and statistical analyses.

Requirements
This project is suitable to a student with training in ecology or evolutionary biology, experimental design, and statistical analyses.

Further reading

Project summary
This project aims to identify causes of parentally-induced changes in the development and ageing of the burying beetle *Nicrophorus vespilloides.*