Project title
State-dependent cooperation among parents

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Project background
Most prior work on the evolution of biparental cooperation has focused on how each individual adjusts its contribution in response to changes in the amount of care provided by its partner. In contrast, there has been little interest in how each individual adjusts its contribution in response to its own state and its partner’s state. For example, we might expect parents to provide less care when their own state deteriorates, but provide more care when their partner’s state deteriorates in order to compensate for any detrimental impact on their offspring. Furthermore, we might expect parents to respond differently to different components of their own state depending on whether they are reversible (e.g., nutritional state) or permanent (e.g., inbreeding state) given that reversible states could be improved by reducing back effort whilst permanent states cannot. Finally, we might expect parents to respond differently to different components of their partner’s state depending on whether they can be assessed directly or indirectly through focal individual’s behaviour. This project will examine how each parents responds to variation in different components of its own state and their partner’s state in the burying beetle *Nicrophorus vespilloides*. In this species, male and female parents cooperate to provide care for their dependent offspring, and it is relatively straightforward to experimentally manipulate different components of each parent’s state, such as their nutritional state, health state, body size, inbreeding state, and age.

Key research questions
(1) How do parents respond to changes in their own state? Do parents respond differently and/or independently to changes in different state components?
(2) How do parents respond to changes in their partner’s state? Do parents respond differently and/or independently to changes in different state components?

Methodology
The project will involve controlled experiments conducted under laboratory conditions and the development of methodology to manipulate different state components in focal individuals and record subsequent consequences for the behaviour and fitness of the focal individual and its partner.

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 behavioural data, and statistical analyses.

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

Further reading

**Project summary**
This project aims to examine state-dependent cooperation in the burying beetle *Nicrophorus vespilloides*. 