Project title: Evolution of asynchronous senescence in natural populations

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Project background
Senescence, or ageing, appears to be universal across nearly all known forms of life. Whilst it is most dramatically manifested as an increase in mortality risk with advancing age, it is also exhibited in many and diverse traits affecting reproduction, behaviour, and physiology. However, whilst evolutionary theory successfully explains why senescence should occur, fundamental gaps exist in our conceptual understanding of why some traits senescence faster than others (asynchronous senescence). This gap in our understanding is compounded by the lack of high quality within-population comparative studies of ageing across traits. This project will contribute to resolving this deficiency by combining the development of new evolutionary theory and analyses of existing data from wild animal population.

Key research questions

(1) How does evolutionary theory explain how natural selection acts to create among-trait variation in ageing rates?

(2) What traits do we measure, and how do we measure traits these, in order to test this theory?

(3) What do the relevant measures taken from natural populations tell us about the potential for asynchronous senescence.

Methodology
Demographic, population genetic, and quantitative genetic theory will be combined with existing wild animal population data to assess and improve upon existing evolutionary theory.

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 mathematical modelling, quantitative genetics, life history theory, evolutionary ecology, and demography.

Requirements
The successful applicant will need to demonstrate a history of quantitative training or experience, however we are quite flexible as to the nature of this experience.
Furthermore, we emphasize that an evolutionary, or even a biological, background is not required so long as the applicant is interested in developing skills to address evolutionary questions.

Further reading


Project summary

This project aims to develop and test evolutionary theory relating to among-trait variation in ageing rates.