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Summary

Overview: Maternal and early-life effects in ecology, evolution and epidemiology

My research focuses on how variation in environmental and maternal conditions shapes offspring development, behaviour and life history, and the consequences of this individual plasticity for ecological and evolutionary processes. A key theme of my work is to investigate how transgenerational and developmental effects drive population responses to environmental change. I use a variety of approaches, including mathematical models, comparative analyses and empirical tests on an important disease vector – the tsetse fly (*Glossina* spp.).

Current opportunities to join my group: I am keen to support early-career researchers to develop a proposal for fellowship applications to work with me and my excellent colleagues at the School of Biological Sciences, University of Bristol. Please [contact me](#) if you'd like to discuss this further.

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Current research: tsetse as a model of maternal effects

My current research, [funded by the Royal Society](#), investigates how maternal effects in tsetse influence offspring responses to environmental change. Specifically, I am testing whether mothers experiencing warmer temperatures produce offspring who are better or worse adapted to such environments. I am also leading a [BBSRC-funded](#) collaborative project on the role of reproductive senescence in shaping the ecology and epidemiology of tsetse and tsetse-borne disease, involving experts in vector biology ([Steve Torr](#), [Lee Haines](#) and [Jennifer Lord](#) at the Liverpool School of Tropical Medicine, [Glyn Vale and John Hargrove](#) at Stellenbosch University) and mathematical modelling ([Matt Keeling](#) and [Kat Rock](#) at the University of Warwick, and [Mike Bonsall](#) at the University of Oxford). Tsetse are an ideal model to investigate maternal effects owing to their unusually high maternal investment: females give birth to single, fully developed larvae that match their mothers in size. Tsetse are not the only flies which exhibit such viviparity, and, to further understand the evolutionary causes and consequences of pregnancy, I have started a comparative analysis of viviparity across Diptera.

Previous and related research: early-life effects in cooperative and other systems

My previous research on wild meerkats has highlighted how early-life conditions constrain later development, as individuals follow distinct behavioural and growth trajectories from an early age. In spite of such long-term trajectories being relatively fixed, we have recently shown that individuals have the capacity to adjust their growth in response to social competition. I am continuing to test how social influences shape developmental trajectories using a range of systems, through current and planned co-supervision of PhD projects on meerkats, zebra finches and viviparous cockroaches.

Biography

2017-present Royal Society Dorothy Hodgkin Fellow & Proleptic Senior Lecturer, School of Biological Sciences, University of Bristol

2015-2017 Royal Society Dorothy Hodgkin Fellow, Department of Zoology, University of Cambridge

2012-2015 Postdoctoral Research Associate, Department of Zoology, University of Oxford (PI Tobias Uller)

2009-2012 Postdoctoral Research Associate, Department of Zoology, University of Cambridge (PI Tim Clutton-Brock)

2010 PhD "Individual variation in cooperative behaviour in meerkats", supervisors: Tim Clutton-Brock and Joah Madden, University of Cambridge

2004 MSc in Integrative Biosciences, University of Oxford

2001 BA Natural Sciences (Zoology), University of Cambridge

Keywords

- vector ecology
- developmental plasticity
- evolution
- ecology
- cooperative breeding

Memberships

Organisations

[School of Biological Sciences](#)

Research groups

- [Evolutionary Biology](#)
- [Animal Behaviour and Sensory Biology](#)
- [Ecology and Environmental Change](#)

Recent publications

- English, S & Bonsall, M, 2019, '[Physiological dynamics, reproduction-maintenance allocations and life history evolution](#)'. *Ecology and Evolution*., pp. 9312-9323
- Hargrove, J, English, S, Torr, SJ, Lord, J, Haines, LR, Van Schalkwyk, C, Patterson, J & Vale, G, 2019, '[Wing length and host location in tsetse \(Glossina spp.\): implications for control using stationary baits](#)'. *Parasites and Vectors*, vol 12.
- De Gasperin, O, Duarte, A, English, S, Attisano, A & Kilner, R, 2019, '[The early life environment and individual plasticity in life history traits](#)'. *Ecology and Evolution*, vol 9., pp. 339-351
- Hargrove, JW, Muzari, MO & English, S, 2018, '[How maternal investment varies with environmental factors and the age and physiological state of wild tsetse Glossina pallidipes and Glossina morsitans morsitans](#)'. *Royal Society Open Science*, vol 5., pp. 171739
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- Dixit, T, English, S & Lukas, D, 2017, '[The relationship between egg size and helper number in cooperative breeders: a meta-analysis across species](#)'. *PeerJ*, vol 5.
- Heuvel, JVD, English, S & Uller, T, 2016, '[Disposable soma theory and the evolution of maternal effects on ageing](#)'. *PLoS ONE*, vol 11.
- Huchard, E, English, S, Bell, MB, Thavarajah, N & Clutton-Brock, T, 2016, '[Competitive growth in a cooperative mammal](#)'. *Nature*, vol 533., pp. 532-534
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- English, S & Uller, T, 2016, '[Nutrition, epigenetics and health: Evolutionary perspectives](#)'. in: *Nutrition, Epigenetics and Health*. World Scientific Publishing Co., pp. 177-199

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