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Causes and consequences of personality in the Seychelles warbler

Deadline: Applications welcome at any time

'Personality' describes consistent differences between individuals in their behaviour. For example, some individuals may explore novel environments consistently more than others – resulting in different personalities along an exploration–avoidance axis. Why personality differences exist is intriguing – if individuals were more flexible in their behaviour, individuals could adapt their behaviour to variable natural environments. Theoretically, personalities may evolve if individuals have different future fitness expectations. Risk-avoiding individuals should therefore have higher future fitness expectations than riskier explorative individuals.

This PhD will investigate life-history strategies associated with different personalities, and the genetic basis of personality using genomic markers. Seychelles warblers show repeatable and heritable variation in personality, and are studied on an isolated island where fitness can be measured accurately. The student will have access to the exceptional long-term dataset and genetic pedigree, gaining skills in fieldwork, genomics, quantitative genetics and statistics. For example, the genetic pedigree will be used to study the fitness consequences and life-history trade-offs associated with personality. Next-generation sequencing will be used to investigate genomic regions associated with personality. Bioinformatics and statistical skills are an advantage, but training will be provided. The student will benefit from interactions with members of Seychelles Warbler Project (<http://seychelles-warbler-project.group.shef.ac.uk>) and a vibrant academic environment at the University of Leeds, including support from LeedsOmics (<http://www.leedsomics.org>).

The successful student will work with researchers at the Universities of Leeds, East Anglia, Sheffield and Groningen to investigate the causes and consequences of personality in a natural population. The student will address the following fundamental questions in evolutionary biology:

1. Does personality predict dispersal and helping behaviour?
2. What are the fitness consequences of personality – do risk-averse individuals have higher early-life reproductive success than risk takers?
3. Which genomic regions explain variation in personality?

Applicants must hold a First Class Honours or Masters degree with a distinction in a relevant subject, and have a keen interest in molecular ecology and evolution. Previous experience of bird ringing, fieldwork in harsh environments, Access databases, bioinformatics and statistics would be beneficial; however, excellent training will be provided (e.g. www.fbs.leeds.ac.uk/postgraduate/professionaldev.php). The student will be required to conduct fieldwork for a minimum of three seasons (up to 3 months per season).

The student will be supervised by Dr Hannah Dugdale (Leeds), Prof Terry Burke (Sheffield) and Prof Jan Komdeur (Groningen), in collaboration with Prof David S Richardson (East Anglia).

Funding Notes

Applicants must contact Dr Dugdale in the first instance. They may then be invited to apply online for a research degree position at Leeds (http://www.leeds.ac.uk/info/130206/applying/91/applying_for_research_degrees). Bench fees are £1,500 per year, to cover fieldwork costs.

References

Edwards HA, Burke T & Dugdale HL. 2017. Repeatable and heritable behavioural variation in a wild cooperative breeder. *Behavioral Ecology*, *In press*
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Edwards HA, Dugdale HL, Richardson DS, Komdeur J & Burke T. 2016. Exploration is dependent on reproductive state, not social state, in a cooperatively breeding bird. *Behavioral Ecology*, 27(6):1889-1896.

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Edwards HA, Hajduck GK, Durieux G, Burke T & Dugdale HL. 2015. No association between personality and candidate gene polymorphisms in a wild bird population. *PLoS ONE*, 10(10): e0138439.

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Edwards HA, Winney IS, Schroeder J & Dugdale HL. 2013. Do rapid assays predict repeatability in labile (behavioural) traits? A reply to Biro. *Animal Behaviour*, 85(3): e1–e3.

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Patrick SC, Chapman JR, Dugdale HL, Quinn JL & Sheldon BC. 2012. Promiscuity, paternity and personality in the great tit. *Proceedings of the Royal Society, B* 279(1734): 1724–1730

<http://dx.doi.org/10.1098/rspb.2011.1820>