

Behaviour, Physiology, and Ecology of Antimicrobial Resistance in wild Baboons

Project ID: 215

Supervisory team

Lead supervisors: Dr Ines Fürtbauer (Swansea University) and Dr Xavier Harrison (University of Exeter)

Other supervisors: Prof Andrew King (Swansea University), Dr Neeltje Boogert (University of Exeter)

Collaborators: Dr Cécile Sarabian (Swansea University), Prof Justin O'Riain (University of Cape Town / Institute for Communities and Wildlife in Africa), Dr Tamsyn Uren-Webster (Swansea University)

Host institutions: Swansea University / University of Exeter (Penryn)

Project description: The expansion of human activities brings wildlife closer to people, leading to transmission of antimicrobial resistance (AMR) at the human–wildlife interface. This is problematic because AMR compromises both animal and public health, with various knock-on effects on the wider ecosystem. Research into AMR in this context is challenging as it requires high-resolution data on spatial and social behaviour combined with frequent physiological and environmental sampling. As highly adaptable generalists and social primates, chacma baboons (*Papio ursinus*) offer a striking model system - they forage in croplands, plantations, and urban areas. This not only drives human–baboon conflict but also increases opportunities for exposure to and transmission of AMR. This studentship will study AMR as part of a larger research programme investigating baboon behaviour and physiology across different sites in South Africa. We hypothesise that the baboons' i) behaviour, ii) social relationships, and iii) energetic and health status will determine exposure to and transmission of AMR in human-modified landscapes. Specifically, this project will test if AMR carriage and richness increase with baboons' interaction with human-changed landscapes ('Exposure hypothesis'), if socially central individuals have higher AMR colonisation and facilitate dissemination of resistant strains and genes ('Amplification hypothesis'), and if individuals in poorer energetic/health status have higher AMR ('Compromised host hypothesis'). State-of-the-art tracking collars (GPS and accelerometers) will provide data on baboon behaviour, social network dynamics, and space use. Energetic and health status will be assessed through non-invasive sampling of urine and faeces (immune and reproductive status, metabolic hormones). Faecal and environmental sampling will provide microbiology and genomics data. Individual-level factors, including age, sex, and dominance rank will also be accounted for. We expect this project to provide a detailed picture of how AMR emerges and spreads at the human–baboon interface, informing both ecological theory and practical management. The student will join a supervisory team with world-leading expertise spanning behavioural ecology and endocrinology (Fürtbauer), microbial ecology (Harrison), social behaviour (King), and animal cognition (Boogert). Fieldwork in South Africa is supported by established collaborations with the University of Cape Town (O'Riain) and Swansea Research Fellow (Sarabian), giving the student the opportunity to conduct high-quality research on wild baboon populations. This combination of supervisors and collaborators guarantees unique training in cutting-edge field and laboratory techniques, state-of-the-art analytical approaches, and professional development within friendly, supportive, and highly productive research groups.



Our aim as the SWBio DTP is to support students from a range of backgrounds and circumstances. Where needed, we will work with you to take into consideration reasonable project adaptations (for example to support caring responsibilities, disabilities, other significant personal circumstances) as well as flexible working and part-time study requests, to enable greater access to a PhD. All our supervisors support us with this aim, so please feel comfortable in discussing further with the listed PhD project supervisor to see what is feasible.