

(Biosciences) Fully-funded College of Science-Faculty of Science and Engineering PhD Scholarship 2021/22

Keeping pace with climate change: A global assessment of range shift dynamics of birds of prey

Project Supervisors:

Supervisor 1: Dr Miguel Lurgi

Supervisor 2: Professor Emily Shepard

Supervisor 3: Dr Konstans Wells

Closing date: Wednesday 31st March 2021

Start date: 1 October 2021

Project description:

Climate change and land use intensification have caused geographical range shifts in many species worldwide. In the case of birds of prey (“raptors”), which tend to track the distribution of their prey, this can result in them moving to sub-optimal environmental conditions (in terms of temperature or flight conditions). Raptors are predicted to be particularly susceptible to these changes, as the occurrence of their prey is highly sensitive to environmental change. Range shifts have also been shown to impact the assembly of ecological communities and species interactions. An urgent challenge is therefore to understand how climate-driven range shifts impact birds of prey and the networks of ecological interactions they are embedded within.

The successful candidate will address this by creating a comprehensive picture of the range shift dynamics of raptors and their prey across the globe. The central goals of this project are (1) to understand changes in the distributions of raptors at large spatial scales and how these relate to environmental change; and (2) to unveil the effects of these biogeographical range shifts on food web structure and the consequences of this for raptor conservation. This work builds on previous work by Dr Lurgi on the effect of warming on trophic ecological interactions and food webs (Lurgi et al. 2012a,b).

The candidate will adopt an interdisciplinary approach incorporating food webs, raptor ecology, and biogeography. This will take advantage of the supervisory team’s expertise in the analysis of large datasets and food webs (Dr Lurgi), raptor ecology (Prof. Shepard), and species co-occurrence modelling (Dr Wells).

The candidate will join the Computational Ecology Lab and the Swansea Lab for Animal Movement at Swansea University; two thriving groups both undertaking interdisciplinary research. Additionally, they will have the opportunity to conduct part of their research in Grenoble with project collaborator Dr Wilfried Thuiller, an expert in biogeography (University of Grenoble Alpes / CNRS in France).

This project will help develop the candidate’s skills in critical thinking, data management and analysis, writing and communication. Potential applications emanating from the project are diverse, ranging from raptor ecology and conservation to the effects of species ranges shifts on ecological interactions. The candidate would therefore be well prepared for a future career in research within academia, government and non-government conservation agencies.

Competitive applicants should have:

- A BSc with a First or Upper Second Class (2:1) Honours, or a Master’s degree with Merit in quantitative ecology, computer science or a related discipline.

- An interest in ecological modelling, data analysis (including geospatial approaches) and conservation science.
- Strong time and data management and interpersonal skills.
- Evidence of good verbal and written communication skills.

In addition to the above, it is desirable that applicants also have:

- Experience with large dataset analysis and modelling (mechanistic and/ or statistical).
- Knowledge of programming languages such as R or Python, including the use of libraries for GIS data manipulation and analysis.

References:

1. **Lurgi M**, López BC & Montoya JM (2012a). Novel communities from climate change. *Phil. Trans. Roy. Soc. B*, 367(1605), 2913-2922.
2. **Lurgi M**, López BC & Montoya JM (2012b). Climate change impacts on body size distribution and food web structure in mountain ecosystems. *Phil. Trans. Roy. Soc. B*, 367(1605), 3050-3057.

Requirements:

Candidates must have a First, Upper Second Class Honours or a Master's degree with Merit, in a relevant discipline. Informal enquiries, including more information on the post and the research environment, and also submission of expression of interest before the deadline for formal applications are welcome by emailing Dr Miguel Lurgi (miguel.lurgi@swansea.ac.uk)

For candidates whose first language is not English, we require IELTS 6.5 (with 6.0 in each component) or equivalent. Please visit our website for a list of [acceptable English language tests](#). We prefer candidates to have already met the English Language requirements at the point of application, although this is not a requirement.

Funding:

This is a three-year fully-funded College of Science scholarship, which covers UK tuition fees at home rate and an annual stipend of £15,285 (2021-22). The studentship also includes a Research Training Support Grant allocation of £1,000 per annum for three years.

Eligibility:

The call is open to students who are eligible to apply for postgraduate research tuition fees at home rate. For EU students, please notice the PGR Transitional Bursary Scheme for EU Students 2021/22 Entry:

<https://www.swansea.ac.uk/international-students/my-finances/international-scholarships/pgr-eu-bursary/>

How to apply:

Candidates must complete and submit the following documentation by the stated deadline. To apply for this studentship, please download and complete the [research scholarship application form](#) and [Equality, Diversity & Inclusion Form](#) and return them to the College of Science with the following:

- Academic References – all scholarship applications require two supporting references to be submitted. Please ensure that your chosen referees are aware of the funding deadline, as their references form a vital part of the evaluation process. Please either include these with your scholarship application or ask your referees to send them directly to science-scholarships@swansea.ac.uk

- Academic Transcripts and Degree Certificates – academic transcripts and degree certificates must be submitted along with the scholarship application by the funding deadline. We will be using these to verify your academic qualifications.
- An up-to-date CV
- Candidates should use the ‘Supplementary Personal Statement’ section of the application form to explain why the award they are applying for particularly matches their skills and experience and how they would choose to develop the project.

Please email the documents to science-scholarships@swansea.ac.uk and put ‘ECR BIOL 01/02 SCHOLARSHIPS 2021-2022’ in the email subject header.