

## Swansea University/College of Science PhD Scholarship 2016/2017:

### Prescribed fire: trade-offs between ecosystem health and pollution risk reduction in contrasting water supply catchments

#### **Project Supervisors:**

Prof. Stefan Doerr (Geography, Swansea University)  
Dr Cynthia Froyd (Biosciences, Swansea University)  
Dr Cristina Santin (Geography, Swansea University)  
Mr Paul Chapman (Brecon Beacon National Park)  
Dr Gary Sheridan (Melbourne University)

**Closing date for applications: 31<sup>st</sup> of January 2016**

#### **Project description:**

Prescribed (planned) burning can be an important tool for maintaining ecological health, biological diversity and ecosystem services, and for wildfire risk reduction. It is widely used in many ecosystems, but has declined in recent decades in UK uplands. The Brecon Beacon National Park (South Wales) aims to reintroduce fire in order to maintain the health of upland heather and grassland, offsetting the impacts of reduced grazing, and reducing the risk of severe wildfires by reducing fuel loads.

The aim of this PhD project is to elucidate trade-offs between prescribed burn practices, ecological function, biodiversity, provision of ecosystem services and water supply catchment needs. It focuses primarily on UK upland habitats, but is set into a global context. The results will inform management strategies in the Brecon Beacon- and other UK National Parks and will have implications for the role of prescribed fire in other ecosystems globally, in terms of optimising trade-offs between pollution risk, ecosystem health and wildfire management.

Field data acquisition and modelling across the landscape will determine how changes in burn use-intensity (i.e. fire recurrence, severity, seasonality) affect ecosystem services such as water quality, biodiversity or carbon storage in the context of other management practices including grazing and peatland restoration. Fieldwork quantifying and characterising species diversity and performance, carbon storage (in both vegetation and soils) and water pollutants will be complemented with geospatial analysis and modelling using GIS and remote sensing tools. It is envisaged that the results obtained in the Brecon Beacon National Park will be compared to the fire-adapted eucalypt forests of SE Australia where the use of prescribed fire is well established, in order to assess generalities and enhance impact. This interdisciplinary project will pioneer examination of multiple ecosystem services in contrasting fire-affected landscapes and will be unique in its intercontinental comparisons and end-user involvement.

#### **Requirements:**

Candidates must have a first, upper second-class honours or a Masters degree with Merit (or a European equivalent), in Biology, Geography, Environmental Sciences, Ecology or a related discipline. They must also hold a driving license. Experience in the fields of wildland fire, botany, remote sensing or GIS are not essential, but will be of advantage. Informal enquiries before the formal application are welcome by emailing (Prof. Doerr, [s.doerr@swansea.ac.uk](mailto:s.doerr@swansea.ac.uk)).

#### **Funding:**

This is a three year fully-funded Swansea University scholarship, open to UK/EU candidates. The student will receive an annual stipend of £14,057 (2015/2016 stipend; 2016/2017 stipend to be confirmed), plus full UK/EU tuition fees.

**How to apply:**

Applicants must complete and submit the following documentation by the stated deadline.

To apply for this studentship, please download the [research scholarship application form](#) and return it 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](mailto: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.
- A recent CV
- Applicants 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](mailto:science-scholarships@swansea.ac.uk) or post them to:

Recruitment and Marketing Team  
College of Science  
Wallace Building  
Swansea University  
Singleton Park  
Swansea SA2 8PP