Oppenheimer Scholarships to study fine scale remote sensing of rangelands at the Botswana University of Agriculture and Natural Resources, in collaboration with the University of Exeter (fully funded)

Studentship

The Botswana University of Agriculture and Natural Resources (BUAN) is inviting applications for two fully funded "Oppenheimer Scholarships" to support talented individuals to undertake a two-year Master's of Science (MSc) in Animal Science (Animal Management Systems Stream), with dissertation projects focused on fine scale remote sensing of rangelands with Unoccupied Aerial Vehicle (UAV) systems, also known as drones. This studentship is part of the Oppenheimer Programme in African Landscape Systems (OPALS; https://opals-exeter.org/), jointly funded by the University of Exeter, the Oppenheimer Generations Research and Conservation, and BUAN. The studentship will commence from the 1st of August 2023 and will be based in the Department of Range and Forest Resources (RFR), BUAN, Gaborone.

Budget:

Each studentship has a total value of £15,788 (ca. 248,000 Botswana Pula), including domestic tuition fees, accommodation, a stipend, and a research training support grant. In addition, the student projects will benefit from access from substantial new investment in a UAV facility for environmental research at BUAN.

Dissertation focus

These scholarships aim to advance the use of fine scale remote sensing to deepen scientific understanding of rangeland ecosystems and their management to support the sustainable utilisation of rangeland ecosystems. Dissertation projects might focus on "Using remote sensing to assess the effects of livestock grazing-induced land degradation on rangelands health in Botswana" or similar topics. The primary focus will be on using targeted remote sensing observations from UAVs for plant-scale understanding of rangelands subjected to different management practices. These observations will be analysed to strengthen understanding of how land management practices affect ecosystem health, productivity, and resilience. This work may include the use of open access satellite data and is intended to help improve the interpretation and accessibility of information to land managers.

Data processing and analysis will be undertaken using the computer software Agisoft Metashape, Pix4D, QGIS and the R statistical environment with the RStudio integrated development environment. All data collected and collated by all this project will be contributed to open access databases, to ensure their long-term availability to the global scientific community

Commitments

The successful candidates will be required to sign a tripartite contract with The Botswana University of Agriculture and Natural Resources and the University of Exeter, agreeing to the following:

- Be an active member of the wider Oppenheimer Programme in African Landscape Systems (OPALS) community, and to fully engage with weekly online activities as part of the Programme, and to join one-to-one sessions with the Exeter Supervisor as required.

- Ensure that their dissertation topic has been approved by all three named Supervisors.

- Ensure that they are enrolled on the following modules (or similar with the agreement of all supervisors) on the MSc Animal Sciences; ELB330: Introduction to Remote Sensing (3 credits) and ELB440: Geographical Information System (3 credits).

- To return all equipment to BUAN at the completion of the programme unless explicitly authorised.

- To ensure that all data and research outputs are made publicly available, as set out by the Exeter Supervisor, subject to a maximum embargo of one year to allow for publications to be made.

- Agree that their photograph, name, and brief overview of their research topic, can be made available online, on the overarching research programme websites.

- To undertake any required training, including in research ethics and integrity and academic honesty, as directed by their supervisors.

- To undertake comprehensive risk assessments and to make best efforts to ensure that they comply with all necessary health and safety precautions throughout their programme of study.

- Undertake fieldwork excursions in Botswana as necessary to collect field observations and samples in support of their dissertation projects as well as projects undertaken by other OPALS scholars, which may include travel to and overnight stays in remote areas.

- To remain engaged with their studies and make satisfactory progress on the programme.

The successful applicant will be a member of a large team of 20 scholars through the Oppenheimer Research Programme in African Landscape Systems, a £2.3M six-year programme of foundational and applied research activity led by the University of Exeter working with Oppenheimer Generations Research and Conservation and other partners across the African continent. They will be supported to engage with the broader OPALS activity, such as online events, presenting their findings at research conferences, contributing to reports on project activity, and ensuring that all outputs (data, models, publications etc.) are ultimately made available open access for wider benefit.

Entry requirements:

The candidate should have a passion to learn about how fine-scale remote sensing techniques can inform understanding of environmental change and management in rangelands, with a good understanding of ecological processes in African landscapes and a foundation in Range Science, Ecology, Environmental Science, Geography or Agronomy or Similar subjects. Candidates should be prepared to develop skills in quantitative analysis,

and contribute to a positive work environment, supporting best practice in equality, diversity, and inclusivity.

Applicants intending to study for the Master of Science Degree in Animal Science (Animal Management Systems Stream) should have a degree from the BUAN or any other equivalent institution, attaining at second class, second division (2ii), or equivalent (3.0 GPA, on a 5-point scale) in Range Science or related field.

Candidates must hold citizenship of an African Nation to be eligible for this funding. Note that non-Botswana nationals will be required to contribute the difference between domestic and international tuition feeds.

Academic Supervisors:

Dr Lawrence Akanyang, Lecturer in Range Ecology, Botswana University of Agriculture and Natural Resources

Dr Andrew Cunliffe, Oppenheimer Senior Research Fellow, University of Exeter

Dr Jeremy Perkins, Associate Professor in Environmental Science, University of Botswana

How to apply

To apply for this scholarship, please send the following documents in a single email to graduateadmissions@buan.ac.bw and cc A.Cunliffe@Exeter.ac.uk.

- Letter of application (2-page max. outlining your motivation to undertake this project, academic interests, and prior research experience).
- Completed application form
- CV (2-pages max)
- Transcript(s)
- Written references from two professional/academic referees

Deadline

The closing date for applications is midnight on the 19th of July. Interviews will be held virtually on the 28th of July (applicants invited to interview will receive two days' notice).

Application Process

The successful candidate will be required to apply to the Botswana University of Agriculture and Natural Resources (BUAN) for admission onto the MSc in Animal Science (Animal Management Systems Stream). Before applying, familiarize yourself with the BUAN requirements. The information is available at this website: https://www.buan.ac.bw/index.php/buan-admissions-details/id/172/August-2022-Intake-for-Graduates:-Applications-Open/.

For enquiries about the Application process

Email: graduateadmissions@buan.ac.bw or

Telephone: 3650117/3650304

For enquiries about the Funding Programme/Project-specific queries:

Dr Lawrence Akanyang

Email: lakanyang@buan.ac.bw

Telephone: 3650155