

Postdoctoral Fellowship

UFS-QQ Risk and Vulnerability Science Centre / Afromontane Research Unit

Towards Water Security for Phuthaditjhaba and the Greater Maloti-a-Phofung Local Municipality (Free State, South Africa): Monitoring High-elevation Wetland Health using Bio-acoustics and Diversity Indices

The [Afromontane Research Unit](#) (ARU) is a strategic research hub at the University of the Free State (UFS), and the flagship research group of the Qwaqwa Campus (UFS-QQ). The vision of the ARU is to become ‘a continental leader in African mountain research, with an immediate focus on the sustainable development of the Maloti-Drakensberg’.

Fresh water is a critical resource for all life, but global change is already severely disrupting existing freshwater supplies. Human-driven landscape degradation, coupled with more frequent and intense weather events due to climate change, are affecting the hydrology and physico-chemical characteristics of [strategic water source areas in Southern Africa](#). One of the indicators of these disturbances is the local and regional extinction of key freshwater biodiversity in strategic water source areas. As the physical maintenance of water-production ecological infrastructure is supported by diverse functional communities, reduced aquatic biodiversity further exacerbates the threats posed by global change. Traditional assessments of water quality and habitat health require intensive fieldwork and expert knowledge, making for consistent monitoring. At the same time, scientists emphasise the need for better monitoring of our watersheds, particularly in the highlands where much freshwater originates, and in isolated, vulnerable habitats, such as islands.

Through its [Risk and Vulnerability Science Centre](#) (RVSC), the ARU seeks to develop an [acoustic water quality index](#) using passive bio-acoustic monitoring to assess the quality of high-elevation wetlands in the Maloti-a-Phofung Local Municipality (Free State Province). As the acoustic landscape of montane / high-elevation wetlands remain poorly documented and understood, this research will yield highly original biological data, while also creating a novel monitoring paradigm that has the potential to improve the resilience and management of our strategic water source areas.

This project is part of a collaboration with [BirdLife South Africa](#) (Dr Kyle Lloyd – Rockjumper Fellow of White-winged Flufftail Conservation), the [Leibniz Institute for the Analysis of Biodiversity Change](#) (Dr Nicholas Friedman – Curator of Ornithology), and the [National University of Lesotho](#) (Dr Peter Chatanga – Senior Lecturer and Head of the Department of Biology and Biotechnology).

The ARU is seeking a self-led, physically fit, postdoctoral fellow to coordinate the High-elevation Wetlands Bio-acoustics programme, by

- managing existing field sites and expanding to new suitable sites in Maloti-a-Phofung Local Municipality;
- being the primary actor between the four partners;
- developing an acoustic water quality index;
- supervising postgraduate students; and
- contributing to funding proposal applications.

In addition to the above, the fellow will also have the opportunity to be exposed to and contribute to the wide range of world-class mountain-related activities being driven by the ARU.

Fellowship details

- One year with the option of renewing for a second year, depending on performance.
- The fellowship is valued at ZAR220 000 for one year (12 months), with R50 000 for running costs.

Eligibility criteria

- A PhD degree in a relevant background discipline (e.g., Ecology, Zoology, or motivated other).
- Applicants must have obtained their doctoral degree within the past five (5) years or be able to show proof of pending graduation in 2021.
- Applications from South African and international candidates are welcomed.
- Candidates may not hold full-time salaried employment during the tenure of the award.
- Valid passport (as this is a transboundary area).
- Valid driver's licence.
- Proficiency in English, both verbal and written, is required.
- The following intellectual/experiential background will be an advantage:
- Analyses of complex data sets using multivariate statistics in the R-statistical environment, and use of Kaleidoscope software, machine learning, and passive acoustic monitoring equipment.
- Conversational in Sesotho and Afrikaans.
- Familiarity with Southern African grassland and wetland bird diversity.

Application requirements

- Motivation letter (one page).
- Full curriculum vitae (CV) (including a list of academic outputs to date).
- Full transcripts of academic record.
- Copy of degree certificates.
- Copy of South African identity document or passport (international candidates).
- Signed letters of recommendation from three academic references.

Shortlisted candidates will be interviewed by telephone/MS Teams. Applicants who have not received a response to their application by **30 October 2022** can accept that they were not successful. The UFS reserves the right to re-advertise for this post if a suitable candidate is not found.

Application deadline: 30 September 2022

Contact person:

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