



UNIVERSITY OF LEEDS

CANDIDATE BRIEF

Research Fellow in Tropical Peatland and Forest Mapping, Faculty of Environment



Salary: Grade 7 (£41,064 – £48,822 p.a. depending on experience)

Reporting to: Professor Simon Lewis

Reference: ENVGE1282

Fixed term for 21 Months, to complete specific time limited work.

Location: University of Leeds (with scope for hybrid working)

We are open to discussing flexible working arrangements

Research Fellow in Tropical Peatland and Forest Mapping, School of Geography, Faculty of Environment

Overview of the Role

Do you want to expand our understanding of the peatlands and forests of the Congo Basin? Do you have skills in ecosystem mapping? Do you want to further your career in one of the UK's leading research-intensive Universities?

The Ecology and Global Change research cluster at Leeds conducts world-leading research in tropical ecology and environmental change. We are looking to recruit a highly skilled Postdoctoral Research Fellow to map the wetlands and peatlands of the central Congo Basin, and the wider forests of the Congo Basin.

The successful candidate will contribute to two projects. The first is a large project on the central Congo peatlands, led by UNEP (United National Environment Programme). As part of this project, you will lead the production of new maps of the central Congo peatlands for use by policy makers to define areas of peatland for conservation and community use. The mapping will make use of extensive ground data collected over the past decade and publicly-available remotely sensed data. The new mapping will build on the first map of the central Congo peatland (Dargie et al. 2017 Nature) and a more recent update we produced (Crezee et al. 2023 Nature Geoscience).

The second project you will contribute to is the CongoFor1.5 project, which aims to understand the carbon balance and ecology of the forests of the Congo Basin over time. Field data from approximately 400 inventory plot locations, as part of the African Tropical Rainforest Observatory Network (AfriTRON), provide long-term changes in the carbon balance of structurally intact tropical forests. We are looking for a motivated researcher who can assist in producing maps of the carbon dynamics of intact central African forests between 1985 and 2025.

You will join a vibrant team, led by Professor Simon Lewis, and will benefit from the support of UNEP who coordinate the Congo Peatlands project, and the Central African Forest Initiative (CAFI), who fund the CongoFor1.5 project.



You will be responsible for producing updated landcover and carbon (above- and below-ground) maps of the central Congo peatlands and assist in the production of maps of the carbon dynamics of the forests of the whole Congo Basin. The maps should be a step up in accuracy from previous landcover and carbon maps due to increased field data, satellite data, and analytical tools. The expectation is that the mapping will be done using cloud-based mapping tools such as Google Earth Engine or Microsoft Planetary Computer, and it is likely that developments such as satellite data embeddings and GeoAI will offer potential for increasing the accuracy and speed of the development of these maps. Satellite datasets expected to be used will include NASA datasets (GEDI, Landsat, NISAR), ESA datasets (BIOMASS, Sentinel-1, Sentinel-2) and potentially JAXA datasets (ALOS-2 PALSAR-2, ALOS-3 PALSAR-4).

This is a desk-based position with no fieldwork. You will work closely with the Leeds-based post-doctoral research fellows who know the relevant field data, one for the peatlands, and one for the terra firme forests, alongside the AfriTRON International Data Officer. The successful candidate is expected to lead on publishing the peatland maps, and to contribute to other high-impact papers, based on the CongoFor1.5 project and their interests.

The successful candidate will be expected to contribute to the Congo peatlands and CongoFor1.5 projects in other ways, including helping early career researchers in central Africa with analyses. You will be based in the UK, but will interact with colleagues in Central Africa, and will have the opportunity to travel to meetings in Central Africa. You will have excellent remote sensing skills, creativity, a self-starter with a willingness to collaborate, as well as a developing track-record of publishing high-quality papers from your previous research.

What does the role entail?

As a research Fellow, your main duties will include:

- Producing a third-generation landcover maps of the central Congo peatlands (seasonally inundated swamp forest), using our standard definition of peat, and the now more extensive ground data, newly available space-borne remotely sensed data, and state-of-the-art mapping techniques;
- Producing a map of the central Congo peatlands to the legal specification of peat/peatlands, given by the governments of the Republic of the Congo and the Democratic Republic of the Congo for policy purposes;



- Assist the CongoFor1.5 team in producing maps of the carbon balance of structurally intact terra firme forest in the Congo Basin;
- Publish your work in internationally peer-reviewed journals;
- Contribute to producing regular project update reports for the funders;
- Participate in, and contribute to, project meetings;
- Contribute, as appropriate, to the successful implementation of Congo peatlands and CongoFor1.5 projects;
- Contribute to manuscripts led by other members of the research group.

These duties provide a framework for the role and should not be regarded as a definitive list. Other reasonable duties may be required consistent with the grade of the post.

What will you bring to the role?

As a research fellow you will have:

Essential

- A PhD in ecosystem mapping, remote sensing or allied disciplines;
- Strong quantitative data analysis skills using remotely sensed optical and/or SAR datasets for landcover mapping or applications closely related to the subject area;
- Experience using cloud computing tools for creating large mapping datasets, for example Google Earth Engine, Microsoft Planetary Computer, or significant experience with open toolkits to run your own remote server cluster (e.g. experience running Xarray on Dask clusters on the UK's JASMIN cluster to process large amounts of satellite data).
- Strong skills in python, including experience with using relevant geospatial packages (e.g. Rasteria, Xarray, geopandas), evidenced through publicly available code on, for example, github;
- Experience of working independently;
- Initiative to explore new ideas and contribute to the development of the research, both conceptually and in practice;
- A developing track record of peer-reviewed publications in international journals related tropical ecology, vegetation mapping, or closely related fields, with highlighted links in your application to code and spatial datasets from these publications that have been made available to the scientific community.



Desirable

- Experience of combining remotely-sensed and ground-based data;
- Strong statistical skills and experience;
- Peatland mapping experience;
- Tropical forest mapping experience;
- Experience of fieldwork in African tropical forests or peatlands;
- Ability to communicate in French.

Additional information

Please note: If you are not a British or Irish citizen, from 1 January 2021 you will require permission to work in the UK. This will normally be in the form of a visa but, if you are an EEA/Swiss citizen and resident in the UK before 31 December 2020, this may be your passport or status under the EU Settlement Scheme.

Please note that this post may be suitable for sponsorship under the Skilled Worker visa route but first-time applicants might need to qualify for salary concessions. For more information please visit: www.gov.uk/skilled-worker-visa

For research and academic posts, we will consider eligibility under the Global Talent visa. For more information please visit: <https://www.gov.uk/global-talent>

Find out more about the [Faculty of Environment](#)

Find out more about our [School of Geography](#)

Find out more about our [Research and associated facilities](#)

Find out more about [Equality in the Faculty](#)

Working at Leeds

We are a campus-based community and regular interaction with campus is an expectation of all roles in line with academic and service needs and the requirements of the role. We are also open to discussing flexible working arrangements. To find out more about the benefits of working at the University and what it is like to live and work in the Leeds area visit our [Working at Leeds](#) information page.



Our University

As an international research-intensive university, we welcome students and staff from all walks of life and from across the world. We foster an inclusive environment where all can flourish and prosper, and we are proud of our strong commitment to student education. Within the Faculty of Environment, we are dedicated to diversifying our community and we welcome the unique contributions that individuals can bring, and particularly encourage applications from, but not limited to Black, Asian and ethnically diverse people; people who identify as LGBT+; and people with disabilities. Candidates will always be selected based on merit and ability.

The Faculty of Environment has received a prestigious Athena SWAN silver award from [Advance HE](#), the national body that promotes equality in the higher education sector. This award represents the combined efforts of all schools in the Faculty and shows the positive actions we have taken to ensure that our policies, processes and ethos all promote an equal and inclusive environment for work and study.

Information for candidates with disabilities

Information for disabled candidates, impairments or health conditions, including requesting alternative formats, can be found under the 'Accessibility' heading on our [How to Apply](#) information page or by getting in touch by [emailing HR via hr@leeds.ac.uk](mailto:hr@leeds.ac.uk).

Criminal record information

A criminal record check is not required for this position; however, all applicants will be required to declare if they have any 'unspent' criminal offences, including those pending.

Any offer of appointment will be, in accordance with our Criminal Records policy. You can find out more about required checks and declarations in our [Criminal Records](#) information.

