

Research Associate in River Ecology

Job Ref: REQ260561

School/Department Summary

The School of Social Sciences and Humanities is a diverse and inclusive School delivering excellence in learning and teaching, research, and enterprise across the Social Sciences and Humanities. Inter-disciplinarity and international encounters are fostered across six departments: Communication and Media; Criminology, Sociology and Social Policy; English; Geography and Environment; International Relations, Politics and History and Law. Geography and Environment is consistently ranked within the top 10 of UK university rankings, and has a thriving, inclusive, research community and culture housed within the new 'Morag Bell' Building. Geography and Environment is internationally recognised for its research in geographies of children, youth and families.

Geography and Environment: [Geography and Environment | Loughborough University](https://www.loughborough.ac.uk/schools/school-of-social-sciences-and-humanities/geography-and-environment/)

Project Description

This post provides an exciting opportunity for someone with a strong background in freshwater ecology (including interests in macroinvertebrate fauna, ecosystem engineering or biogeomorphology) to work on the 3-year NERC-funded Pushing the Frontiers Project "The impact of cohesive material on critical shear stress in gravel bed rivers".

Many rivers, including >50% of UK channels, have gravel beds. Managing these channels requires predictions of when, and how much of, the riverbed will move, for applications including designing infrastructure, mitigating flood risk and river restoration. Sediment transport is underpinned by estimates of critical shear stress, yet large uncertainties remain in current predictions; in particular, estimates neglect the effects of commonly occurring cohesive material that sticks gravel particles together. This includes clay (often alongside sand and silt), biological secretions such as Extracellular Polymeric Substances (EPS) produced by bacteria and biofilms, and silk threads produced by caseless caddisfly larvae. Combined fieldwork and physical modelling will provide new insights and quantification of cohesive effects on critical shear stress, supporting the development of a revised predictive model.

Job Description

Job Family and Grade: Specialist and Supporting Academic Grade 6

Job Purpose

To develop best-practice protocols for generating and incorporating caddisfly silk into laboratory flume experiments that will quantify silk's impact on critical shear stress, ultimately contributing to the overall delivery of the objectives of the NERC-funded project. To support colleagues with fieldwork aimed at understanding where and when cohesive materials are present in riverbeds.

Job Duties

- To undertake field collection of Hydropsychid caddisflies and maintain a healthy population in the laboratory, taking charge of their husbandry.
- Harvest silk nets to quantify relationships between caddisfly abundance and silk mass under different environmental conditions.
- Via experimentation with caddisfly larvae in artificial laboratory channels, determine the flow conditions, sediment substrates and water temperatures that yield consistent quantities and quality of caddisfly silk.
- Establish a protocol for including caddisfly silk into experimental sediment beds.
- To evaluate how the properties of silk and nets influence sediment binding.
- To identify freshwater macroinvertebrates from field samples.
- To write research papers suitable for publication in high quality academic journals

- To manage datasets produced during the project and work with relevant data repositories to ensure the data can be used by future researchers
- To formulate detailed plans for the project based on broad guidance from the wider project team
- To regularly feedback to the project team orally and/or in writing on progress, to make recommendations for next steps.
- Travel to attend and contribute to relevant conferences, workshops and other meetings as appropriate.
- Engage in training programmes in the University (or elsewhere) that are consistent with the needs and aspirations of the project and the individual's personal development.
- Undertake other duties as may be reasonably requested and that are commensurate with the nature and grade of the post.

Points To Note

The purpose of this job description is to indicate the general level of duties and responsibility of the post. The detailed duties may vary from time to time without changing the general character or level of responsibility outlined in the document.

Special Conditions

All staff have a statutory responsibility to take reasonable care of themselves, others and the environment and to prevent harm by their acts or omissions. All staff are therefore required to adhere to the University's Health, Safety and Environmental Policy & Procedures.

All staff should hold a duty and commitment to observing the University's Equity & Diversity policy and procedures at all times. Duties must be carried out in accordance with relevant Equity & Diversity legislation and University policies/procedures.

Successful completion of probation will be dependent on attendance at the University's mandatory courses which include Respecting Diversity and, where appropriate, Recruitment and Selection.

Organisational Responsibility

Reports to the primary investigators.

Person Specification

Your application will be assessed based on the essential and desirable criteria listed below.

Applicants are strongly encouraged to explicitly demonstrate how they meet each essential (and desirable) criteria at the application stage. The criteria that you need to demonstrate in your application will be listed as Stage 1 in the table below.

Stages of assessment are as follows:

- 1 – Criteria measured at Application
- 2 – Criteria measured at Presentation
- 3 - Criteria measured at Interview

Essential Criteria:

Area	Criteria	Stage
Experience	Current or recent work experience at post-graduate level involving fieldwork and physical experiments associated with freshwater habitat and/or ecology	1,2,3
	Proven track record of designing, undertaking, and analysing complex datasets from fieldwork and physical experiments in a relevant scientific discipline (e.g. freshwater ecology, physical geography, environmental science, biogeomorphology)	1,2,3
	Authoring and/or contributing to original work for academic journal papers, conference papers or technical reports	1,2
Skills and abilities	Excellent working knowledge of freshwater macroinvertebrate sampling, sorting and genera level identification	1,2,3
	Good working knowledge of software packages including for data analysis, presentation and report writing.	1,2,3
	Ability and willingness to work away from home at remote field sites lasting several days, with overnight stays, carrying equipment and collecting samples, including in inclement weather.	1,2
	Self-motivated with ability to meet deadlines	1,3
	Ability to work independently and as part of a team	1,3
	Excellent written and oral communication skills	1,2,3
	Excellent interpersonal, and organisational skills	1,3
Qualifications	PhD (or near completion) in a relevant subject	1
Other	Willingness and ability to be based in Manchester, while conducting physical experiments at MMU.	1,3
	Commitment to observing requirements of the project risk assessments and following all relevant Health and Safety protocols.	1,3
	Commitment to observing the University's Equal Opportunities policy at all times.	1,3

Desirable Criteria:

Area	Criteria	Stage
Experience	Background in freshwater ecology, physical geography, environmental science, or geomorphology	1,2,3

	Good working knowledge of ecosystem engineering or biogeomorphology in river ecosystems	1,2,3
	An excellent working knowledge of the ecology and identification of freshwater insect larvae	1,2,3
	Experience of working with experimental flow channels (flumes)	1,3
	Experience of microscopy	
	Working in a high-quality academic research environment	1
Skills and abilities	Skilled in using hand and power tools to construct, maintain and modify experimental hardware	1,2
	A strong publication track record	1
	Confident using R, MATLAB, C/C++, Python or similar	1,2
Other	Valid licence for driving in the UK	1

Conditions of Service

The appointment will be subject to the [University's Terms and Conditions of Employment](#) relevant to the job grade.

Shared University Responsibilities

As a member of the Loughborough community, you are expected to:

- Take reasonable care of yourself, others and the environment, and to prevent harm by your acts or omissions. All staff are therefore required to adhere to the University's Health, Safety and Environmental Sustainability Policies & Procedures.
- Support and contribute to the University's commitment to Equity, Diversity, and Inclusion (EDI), while carrying out all duties in a way that respects these principles and upholds the right to free expression. Further information about EDI at Loughborough and our strategic aims is available on our website

Our Purpose, Vision, and Values

Our purpose, Vision and Values underpin all that we do and shape how we work together at Loughborough.

We're proud to promote our values: **Adventurous, Collaborative, Creative, Authentic** and **Responsible**. Our people bring these values to life every day, and they are central to the positive and supportive culture that makes Loughborough unique.

If you join us, you'll be encouraged to bring these values to life in your own work and contribute to the positive, supportive culture that makes Loughborough unique.

Read more about our [vision and values](#).

Our Accreditations



We strive to create a culture that supports equality and celebrates diversity throughout the campus. The University holds a [Bronze Athena SWAN award](#) which recognises the importance of support for women at all stages of their academic career.



We are proud to be a [Race Equality Charter Member](#). The Charter aims to improve the representation, progression and success of all minority ethnic staff and students within higher education and address issues of racism within higher education institutions (HEIs).



We are proud to be a Disability Confident Employer and have adopted a proactive approach to employing disabled people and to creating a more diverse workforce. We ensure that our recruitment processes are inclusive and accessible. We guarantee to offer an interview to all applicants who have declared themselves with a disability, provided they meet the essential criteria for a role. We proactively anticipate and provide reasonable adjustments and support existing employees who acquire a disability or long-term condition to thrive in the workplace.



We are a real living wage employer, and our Living Wage Employer Mark shows our commitment to paying our staff according to the cost of living.



We are proud supporters of the [City of Sanctuary movement](#) and delighted to be recognised as a University of Sanctuary. This national network brings together, university staff, lecturers, academics and students, who together work to make Higher Education institutions place of safety, solidarity and empowerment for people seeking sanctuary.

As part of the University's ongoing commitment to redeployment, please note that this vacancy may be withdrawn at any stage of the recruitment process if a suitable redeployee is identified.