



Candidate Brief

Research Assistant OR Research Fellow in Economic Analysis of Wetland Ecosystem Services

Vacancy reference: 2517

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Section 1

Job Overview

Job title:	Research Assistant (if close to completing PhD) or Research Fellow (if PhD obtained) in Economic Analysis of Wetland Ecosystem Services
Vacancy reference:	2517
School/department:	School of Water, Energy and Environment / Environment and Agrifood / Centre of Resilient Futures
Job type:	Full time Fixed term – 18 months
Hours of work:	37 hours per week, normally worked Monday to Friday
Salary details:	<p><u>Research Assistant</u> (if close to completing PhD) Salary level 4 – range £23,837 to £27,304 per annum, with additional performance related pay up to £32,094 per annum</p> <p><u>Research Fellow</u> (if PhD obtained) Salary level 5 - £32,094 per annum</p>
Responsible to:	Dr Anil Graves – Senior Lecturer in Land Use Systems
Start date:	As soon as possible
Closing date for applications:	17 September 2017
Interview date:	4 October 2017

Section 2

About Cranfield University

Cranfield is an exclusively postgraduate university that is a global leader for education and transformational research in technology and management.

Corporate Plan 2014 – 2019

Our Corporate Plan, which everyone can contribute towards, will allow us to meet the challenges ahead in a rapidly developing global higher education marketplace. Our ethos is very much defined by our people, our staff, our learners, our alumni and friends.

Strategic Priorities

We have four strategic priorities which are our primary focus over the next five years.

- To provide a premier learning experience that enhances the capabilities of individuals and their organisations.
- To be recognised for outstanding transformational research that meets the needs of business, government and wider society.
- To grow an efficient, effective, and sustainable enterprise.
- To be renowned for our impact and influence – regionally, nationally and internationally.

Plan 415i

Each priority above includes a core goal resulting in Plan 415i.

400	Towards 400 fully research active staff
10	Towards a UK top 10 postgraduate learning experience
5	5% operating surplus
i	Impact, influence, internationalisation

Section 3

About School of Water Energy and Environment

This post will sit within the Cranfield Institute for Resilient Futures, one of three centres within the Environment and Agrifood Theme, which is one of three themes within the School of Water Energy and Environment.

The School of Water, Energy and Environment

The School of Water, Energy and Environment leads in delivering Cranfield's Mission for the themes of Water, Energy and Power and Environment and Agrifood. The School is committed to leading in its areas of expertise through investing in world class staff and facilities over the long term.

Cranfield's excellence in the three themes is recognised internationally. Industrial-scale facilities underpin our research and development in energy technologies, including biofuels, biomass for energy, carbon capture and offshore oil and gas. Our environment activities include internationally recognised centres of excellence in Environmental Risk and Futures, and Water Science. Agrifood has been a core area since taking over the National College of Agricultural Engineering in the 1970s and we own the soil map for England and Wales.

We are known for our excellence in research that transforms external organisations and for our powerful industry links and real world focus. Key research funders include the UK Department of Environment, Food and Rural Affairs (DEFRA), energy companies, the Engineering and Physical Sciences Research Council (EPSRC), European Union, Natural Environment Research Council (NERC) and UK water utilities.

A key strength is our academic staff who are actively engaged in transformational research, consultancy and innovation; they are closely in touch with the needs of business and government. They are also committed to practicality, which means they bring not only experience, but rigour to taught programmes.

The School is housed in several buildings across the campus. These include newly refurbished, open-plan offices for academics, support staff and researchers. Niche large-scale facilities and resources include:

- Algal growth tanks
- Combustion rigs in energy technology
- Environmental analytical laboratories
- Flow and pump rigs
- Glasshouses
- Soil maps for England and Wales
- Soil preparation and characterisation laboratories
- Water and wastewater process pilot-hall.

Our Masters programmes are centred on Design, Energy, Environment, Offshore and Water and are offered part-time and full-time. A key feature of all courses is a technical project dealing with a real problem, supported by industry, and undertaken by groups of students.

Environment and Agrifood Theme

This post is based within the Environment and Agrifood Theme within the School of Water Energy and Environment. For 50 years, Cranfield has been contributing to enhancing natural capital and ensuring that global food systems are more resilient for the future. We are recognised worldwide by industry, government and academe for our research and teaching in plants, soil, water and air.

Our strengths range from environmental governance and risk, to food security. We work with global and domestic agriculture and food companies, environmental agencies, and governments to ensure that our research benefits all in society. We believe that environmental problems can be alleviated through technological innovation and risk management.

Cranfield experts are using our unique soil datasets and sensor-based diagnostics to provide new solutions for improving precision agriculture and soil health. We are investigating atmospheric emissions to understand their impact on the environment. We create innovative plant breeding and food storage solutions to better utilise resources and reduce waste. We lead strategic thinking to help identify risks and opportunities in our environment and across food supply chains.

Our postgraduate Environment and Agrifood programmes, including national doctoral programmes and specialist masters courses, give the leaders of the future the skills and vocational experience with industry they need to make a difference.

Our near-industrial scale research facilities are unparalleled. These are combined with continual and substantive investment in our students, staff and infrastructure.

The post holder will join an interdisciplinary team in the Cranfield Institute for Resilient Futures, one of three Centres within the Environment and Agrifood Theme.

[Learn more about Environment and Agrifood](#)

Cranfield Institute for Resilient Futures

The Cranfield Institute for Resilient Futures is a hub for leading-edge research, teaching and consultancy that helps individuals, businesses and policy makers to prepare, adapt, and grasp the opportunities offered by change.

Our work is based on analyses of future technologies and change, sound science, and an understanding of the processes that affect natural capital stocks and the flow of ecosystem goods and services and how we make these resilient and sustainable.

We work closely with UK and international governments, industries, and charities using a transdisciplinary approach to improve organisational and environmental resilience. We seek to link environmental, social, economic, political and technical aspects to help inform decision-making at local, regional and global scales. We apply this approach in our research, our consultancy, and with our postgraduate student community.

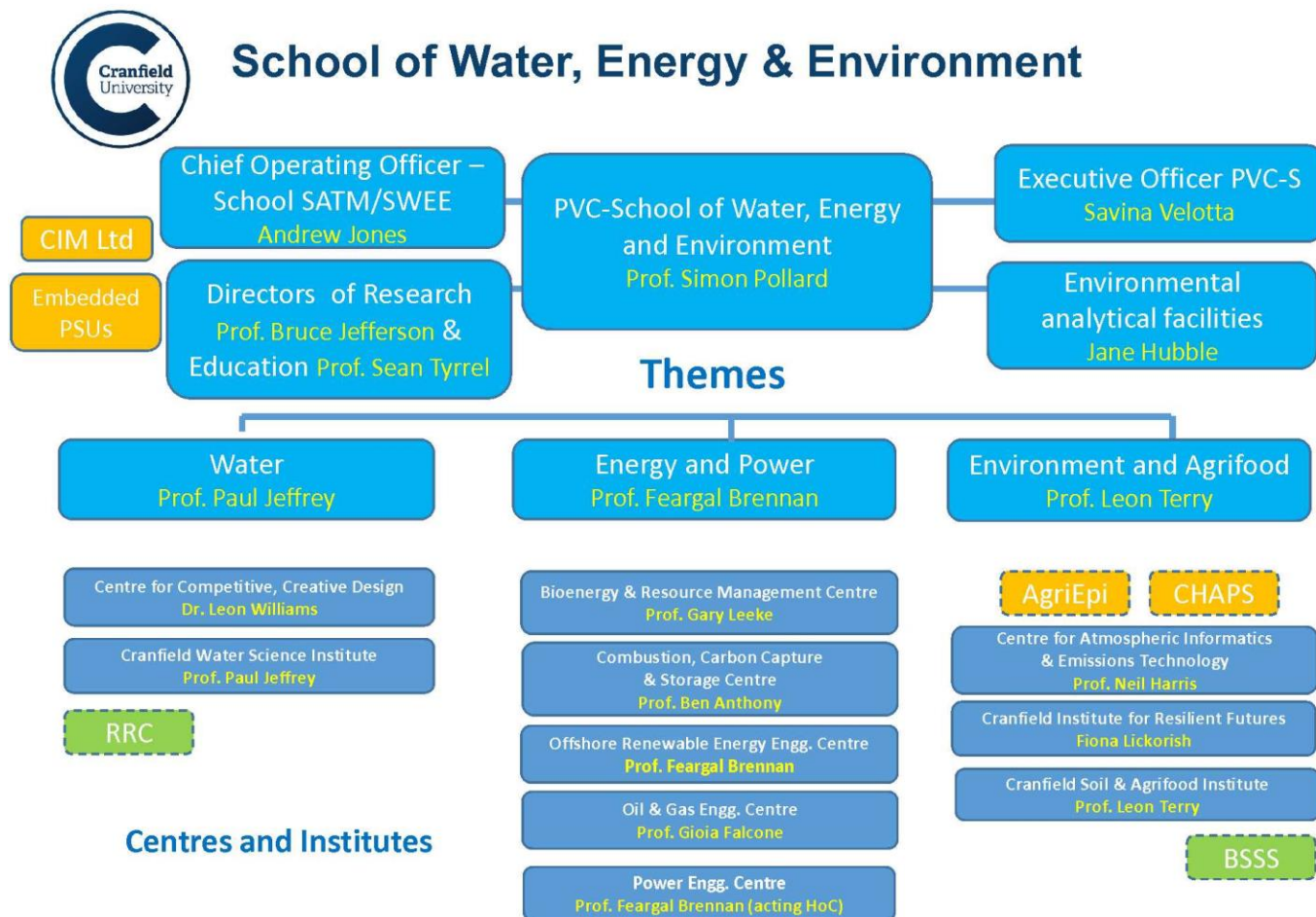
Our work is focused on ensuring the resilience and balancing the competing demands on our environment such as food, timber, bioenergy, clear air and water, habitats for wildlife, and opportunity for recreation. We use tools such as horizon scanning, strategic foresight research, scenario building, visioning, risk assessment, life cycle assessment (LCA), cost-benefit analysis (CBA), stakeholder engagement, whole farm and bio-economic modelling, and environmental econometrics to help inform better decisions.

We are a world leader in developing new approaches to measuring and understanding the biology of the soil and terrestrial ecosystems across a range of urban, natural and farmed environments.

By integrating expertise in foresight, environmental modelling and regulation, knowledge exchange, toxicology and ecological restoration, we can identify emerging risks and opportunities and offer management solutions.

[Learn more about the Cranfield Institute for Resilient Futures](#)

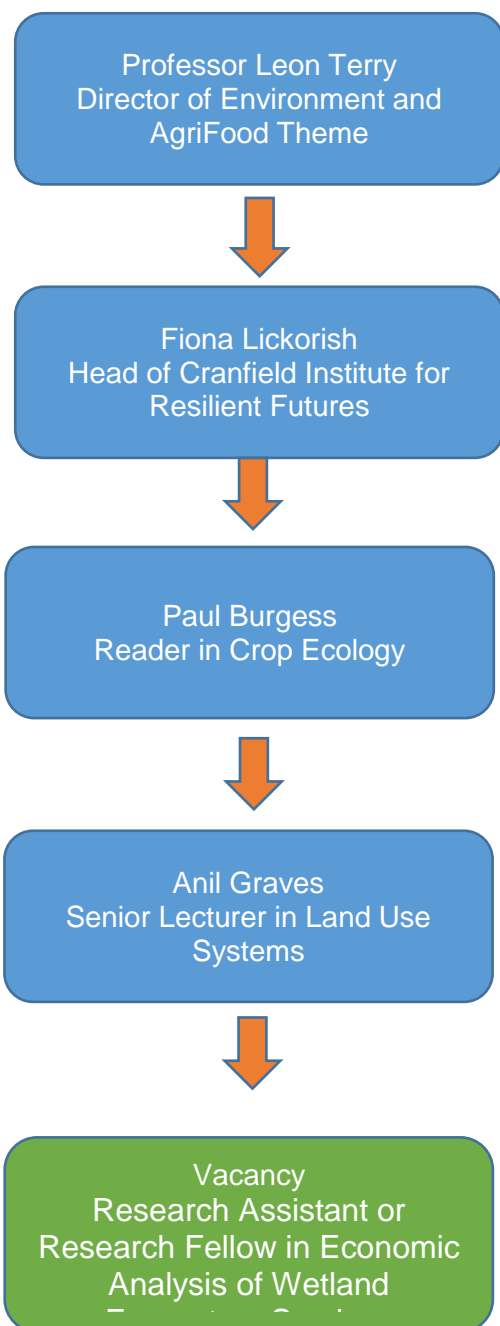
Organisational chart



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8 March 2017

Line management



Section 4

Job Details

Job Purpose

The overall aim of WetlandLIFE is to show how positive socio-cultural and ecological values of wetlands can be maximised for wellbeing, while simultaneously addressing concerns relating to public health, especially relating to potential mosquito nuisance and disease risk. WetlandLIFE responds to a need for an increased knowledge of wetland valuation given the desire to substantially increase the area of wetlands under the Wetland Vision for England. WetlandLIFE will use an interdisciplinary place-based approach to wetland valuation to produce practical guidance for end-users to manage mosquito related risks that is transferable to a range of wetlands types and resource management situations.

Working from Cranfield University, you will be appointed to contribute, under supervision, to the following five components of work focusing on economic aspects of the research, namely

- **Economic valuation framework:** You will support construction of a matrix of ecosystem services to link existing wetland properties, functions and flows of ecosystem services with social and economic benefits and costs. The post holder will apply this for case study sites, drawing on semi-structured interviews with key informants, local assessments and values 'transferred' from research literature.
- **Scenario analysis:** You will undertake interviews with key informants (as above) to elicit perceptions of risk associated with different scenarios of wetland 'drivers' of mosquito prevalence, wetland features and management options. Assessment of the effect of actual and perceived risk on the type and value of wetland service flows will be made.
- **Economic Impact assessment:** Drawing on the preceding analysis, you will undertake assessments of the effect of variations in actual or perceived mosquito related risks on economic indicators such as incomes, expenditures, employment, trade and gross value added at the scale of the individual wetland, with implications for the local economy and distribution of effects, will be made.
- **Appraisal of response measures:** With key informants, you will use multi-criteria analysis to explore and facilitate adaptation to and mitigation of mosquito induced health risks under alternative scenarios.
- **Guidance:** You will assist the project team in the preparation of guidance for decision makers.

There may be a combination of research and teaching, with appropriate organisation and management in support of these activities.

Key Deliverables

		% of time spent
1	Research <ul style="list-style-type: none">• Take responsibility for developing and carrying out a research plan as per the needs of the project and with the help of your line manager to contribute as a research team member to WetlandLIFE.	90%

	<ul style="list-style-type: none"> • Carry out the work programme, using the methodologies and techniques appropriate to the area of research, in order to: <ul style="list-style-type: none"> ○ Produce investigations leading to the discovery of new knowledge ○ analyse and illuminate data, interpret and bring new insights through integration of knowledge ○ apply knowledge out of which new intellectual understanding emerges • Produce written reports and communicate the results in meetings, workshops and conferences • Investigate models and approaches to test and develop them • Write up research findings for publications and dissemination. • Produce and deliver high quality presentations/reports for conferences and project meetings. • Plan and produce independent original research • Author and submit academic journal articles to high quality journals for publication and dissemination • Develop linked project bids and work with colleagues in responding to research calls, as appropriate and as requested by the line manager 	
2	<p>Teaching</p> <ul style="list-style-type: none"> • Supervise practical work where it is part of a course, and advise students on techniques. • Contribute to supervision of PhD students as agreed. 	5%
3	<p>General</p> <ul style="list-style-type: none"> • Support colleagues in research, student supervision, teaching and grant proposal writing • Take responsibility for organising resources and effective decision making in support of research and teaching • Contribute to the effective operation of the Theme. • Carry out other activities as directed by your line manager • Ensure that Environmental, Health and Safety policies are adhered to as required by the School and University. 	5%

Please be advised that the percentages allocated for the key deliverables may be adapted to take into account the needs of the School and /or University.

Planning and organising

You must adhere to delivering the research work within the time-scales set by your line manager and demanded by the WetlandLIFE contract which requires 6-monthly review meetings and summary presentations and planning for the next 36 months schedule.

The role will involve short-term responsibilities such as day-to-day project management, interaction with the wider project team and organising project meetings. As different tasks will require different time periods for planning, flexibility and good coordination skills will be important.

Work will need to be clearly documented on a day-to-day basis, showing a clear development path for the project. On an ad-hoc basis you may be required to assist with other related projects where your skills may be relevant.

Communicating and influencing

You will collaborate with other research institutions and with project partners in the UK. You will need to be able to demonstrate excellent inter-personal skills to communicate with staff from all organisations across a wide range of disciplines to discuss project methodologies and to interpret results.

You will be expected to be able to articulate information about your work in a clear and concise manner and to discuss problems constructively with your line manager and colleagues.

You will also need to be confident in engaging with stakeholders and key informants from the land, water, and public health sectors. An active and collegiate team mentality is the expected norm at Cranfield.

You will be expected to communicate scientific results effectively through reports and presentations at national and international meetings/conferences. You will need to prepare articles suitable for publication in high-impact peer-reviewed journals. There is an expectation that at least two peer reviewed journal papers will be published from this project.

There will be opportunities to present project outputs at industry and science conferences through oral presentation and a need to be able to actively contribute to workshops, technical meetings and seminars. A confident approach to presentation and delivery is required.

Problem solving

You will be expected to think through and solve problems which may be encountered in terms of methodology, the analyses, and development of models and interpretation of results.

Most problems will be solved through experience and through the guidance and mentoring available. You will be expected to discuss problems constructively with the line manager or other colleagues.

You will be expected to be a confident and independent researcher, able to work independently for most of the time, with reference to your line manager and with other Institute colleagues for points of clarification.

You will be responsible for ensuring that appropriate risk assessments are carried out for any new procedures to meet the University specification.

Decision making

I) Decisions you will take without reference to others

- Day-to-day management and planning of on-going research within the overall specifications provided by the project terms of reference / proposal.
- Draft delivery of high quality research and reports to deadline and quality.
- Writing draft journal and conference papers.

- Active participation in the implementation of health and safety procedures in the areas in which you work.
- Drafting reports, minutes, actions and papers.
- Identifying, collating and communicating associated research papers and reports
- Preparing material for jointly authored papers and conference presentations (Research Fellow)

II) Decisions you will refer to your manager/colleagues

- Developing new research ideas, proposals, consultancy work and identifying sources of funding.
- Balancing ongoing research commitments, project management and publication/proposal-related activities.
- Activities to enable the dissemination and exploitation of research results.
- Aspects potentially affecting the operation of the project or the outcome of the results, such that they will have influence on the success of the project meeting the goals.
- Budgetary issues related to research contracts.
- Decisions that involve modifications to contracted deliverables.
- Writing journal and conference papers – final submission.
- Research support for PhD and MSc students.

Guiding framework

The guiding framework for this role is the University's [Corporate plan](#) – 415i.

The SWEE Strategy is the principal reference point for all our activity and sets out our School ambitions, operating strategy and tone of delivery. It supports the University's Corporate Plan which is focused on the application of scientific excellence in a financially viable operating environment.

Our performance and development review scheme provides a set of objectives agreed with the line manager for the year ahead and expected SMART targets.

You can expect close support from the line manager in research, career development, mentoring, project management and publications/proposals.

All staff must conform to the requirements of the Financial Manual. The role will be subject to normal school and university systems and procedures. A very high emphasis is placed in particular on conformity with health and safety, environmental and ethical policies of the university.

There may be occasions when existing procedures may not cover new circumstances and where you need to work collaboratively with the Head of Department, academic staff and the Department administrators to develop new processes for the future.

You must respect the fundamental code of conduct for academic and scientific work. You may be privy to confidential information relating to staff and students and it is imperative that absolute discretion and confidentiality is shown at all times.

For specific projects, there will likely be documentation which will outline the tasks, milestones and deliverables related to the project. If applicable, the specific responsibilities of each of the

participants in the consortium would also be outlined in a consortium agreement / grant agreement.

Impact

The role will be focused on meeting the aims and objectives of the project.

It is very important to conduct high quality research to maintain and enhance the reputation and performance of the institute and School. This will have impact on colleagues in related areas of research and could facilitate further internal and external collaborations.

No direct responsibility for budget or other staff / students is associated with this role. However, opportunities to co-supervise PhD / MSc students will be provided, and we expect all our post-doctoral researchers to take an active role within the Institute and more widely within the School to both inform others of their on-going work and to make best use of existing knowledge and expertise. There will also be scope to develop linked project bids and to work with colleagues in responding to research calls, as appropriate. The successful candidate will be expected to present work at national and international meetings/conferences and to write peer reviewed journal papers.

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Facts and Figures

Cranfield is one of the UK's top five research-intensive universities, alongside Cambridge, Oxford, Imperial College and University College London. The Research Excellence Framework 2014 (REF) has assessed that 81% of the research at Cranfield University is world leading or internationally excellent. Cranfield is renowned as a postgraduate only teaching institution:

- Student/staff ratio – 3:1
- Our £5 million annual bursary fund supports students from across the globe.
- We graduate over 75% of the UK's postgraduate aerospace engineers.
- We deliver the UK Ministry of Defence's largest educational contract.
- Almost half of our students study whilst in employment.
- We provide professional development to 20,000 individuals annually

Section 5

Am I suited to this role?

Criteria	Essential	Desirable
Education / Qualifications	PhD (obtained or near completion) in applying economic analysis in any of the areas of land use and ecosystem services, or related discipline	BSc and/or MSc or equivalent qualifications and experience focusing on economics, environmental economics, natural resource economics and related disciplines, natural resources, environmental sciences
Experience	<p>Research management associated with studies including:</p> <ul style="list-style-type: none"> (i) Demonstrable applied experience in quantitative economic research preferably related to the area of land use systems or similar (ii) Presentation of work in meetings and conferences (iii) Preparing, editing and submitting high quality research outputs 	<p>Work with multi-disciplinary research teams (natural scientists, ecologists, economists, and social scientists) using the ecosystems approach</p> <p>Running of interviews and workshops with the public and other stakeholders</p> <p>Peer reviewed journal publication record.</p>
Knowledge	<ul style="list-style-type: none"> (i) Demonstrable knowledge in quantitative data methods, data analysis and management (ii) Knowledge in application of interview techniques and methods 	<p>Understanding of rural context, including knowledge and understanding of wetland systems, agricultural systems, biodiversity, environment, ecosystems services, and public health issues.</p> <p>Knowledge and use of environmental valuation data</p> <p>Broad knowledge of environmental, policy, and health issues.</p> <p>Broad knowledge of physical, ecological, environmental, and health dimensions of the environmental sector</p>

<p>Skills / Aptitudes</p>	<p>Good project and time management skills, ensuring that milestones and deliverables are achieved to time and to high quality</p> <p>Good oral and written communication skills and presentation skills, and excellent technical writing skills in English</p> <p>Good team-working and inter-personal skills</p> <p>Proven ability to undertake original research</p> <p>Ability to find appropriate solutions to academic and technical problems</p> <p>Qualified to drive in UK</p>	
<p>Personal Qualities</p>	<p>High degree of personal motivation and the ability to work with minimal supervision.</p> <p>Dedicated and flexible approach to work.</p> <p>Creative, research driven.</p> <p>Willing to take personal responsibility for meeting project objectives.</p> <p>Show initiative in identifying and realising opportunities</p> <p>Confidence in dealing with people in a variety of situations</p>	
<p>Other</p>	<p>The willingness and ability to travel to sites throughout the UK</p>	