Trinity College Dublin
Coláiste na Tríonóide, Baile Átha Cliath
The University of Dublin

Fully funded PhD Opportunities

Plant Ecophysiology Research Group

Discipline of Botany
School of Natural Sciences
Trinity College Dublin, The University of Dublin
Supervisor: Dr Matthew Saunders

Candidate requirements for all positions:

- Applications are invited from graduates holding a first or 2.1 class honours degree or M.Sc. in Environmental Sciences, Plant Biology/Botany, Soil Science, Agricultural Science, Atmospheric Physics Biochemistry or related discipline.
- The successful candidates should be practically and technically minded, and interested in using state-of-the-art technology and sensors to measure terrestrial C/GHG dynamics.
- The candidates should be self-motivated, prepared for extensive field-based and laboratory work and someone who enjoys data analysis, writing and communicating/disseminating their work.
- Prior knowledge or experience in measuring carbon and greenhouse gas dynamics of terrestrial systems or soil based analyses would be advantageous.
- A full, clean Irish/European driving licence and fluency in English are essential.
- Candidates should all be eligible for EU fees

Award:

All positions are 48-month structured research PhD programmes in Trinity's Discipline of Botany, School of Natural Sciences. The Fellowship provides full **EU University fees** and a stipend of **€25,000 per annum for a duration of four years**. Funds for project costs are also provided.

Application Procedure:

Interested applicants should submit, within a single PDF document, a CV with educational background, transcripts of degree results, a short (1–2 page) letter of motivation and contact details for 2 referees submitted directly to **Dr. Matthew Saunders (saundem@tcd.ie).** The motivation letter should clearly state how the applicant's research interests and skills relate to the research project outlined above. **Please include the project title in your email to identify the project you are interested in and please only apply if you have a full clean EU/Irish driving licence and are eligible for EU fees.**

Trinity is committed to policies, procedures and practices which do not discriminate on grounds such as gender, civil status, family status, age, disability, race, religious belief, sexual orientation or membership of the travelling community. On that basis we encourage and welcome talented people from all backgrounds to join our staff and student body. Trinity's Diversity Statement can be viewed in full at https://www.tcd.ie/diversity-inclusion/diversity-statement

Position 1: Modelling and measuring agricultural management on peat soils to enhance removals and sequestration of carbon (MAPSERS-C)

- **Funding agency:** Department of Agriculture Food and the Marine.
- **Start date:** January 2025
- **Project scope:** This position will contribute to the MAPSERS-C project by providing enhanced in-situ greenhouse gas emission data from agricultural peat soils in Ireland. This research will utilise the NASCO network of towers to measure the ecosystem atmosphere exchange of carbon dioxide and methane from selected sites using eddy covariance techniques. One further key aspects of the MAPSERS-C project is to foster research excellence and development of early career researchers through succession and exchange of expertise and skills between Ireland and New Zealand.

Position 2: Carbon sequestration from Agricultural soils from different Land-uses, Managements and Soil types (CALMS)

- **Funding agency:** Department of Agriculture Food and the Marine.
- **Start date:** January 2025
- **Project scope:** This project and the PhD candidate appointed will assess the carbon stocks and fluxes across a range of grasslands ecosystems on mineral soils and will investigate how differences in soil type, drainage status, planting mixtures and nitrogen inputs influence the carbon sequestration potential of these systems. This research will utilise the NASCO network of towers to measure the ecosystem atmosphere exchange of carbon dioxide from selected sites using eddy covariance techniques.

Position 3: Investigating the role of peatland rehabilitation in providing healthy, biodiverse and climate smart ecosystems.

- **Funding agency:** Science Foundation Ireland – Biorbic Centre.
- **Start date:** January 2025
- **Project scope:** This project and the PhD candidate appointed will assess the impacts of peatland rehabilitation on the ecology, ecohydrology, carbon and greenhouse gas dynamics as well as fluvial carbon losses from a blanket bog in the Wicklow mountains. The project will capture pre- and post rehabilitation data using eddy covariance techniques as part of the NASCO network, as well as chamber-based assessments of CO_2, CH_4 and N_2O emissions. Regular ecological surveys as well as water samples to assess fluvial C losses will also be taken.

Position 4: Assessing the role of land-use and management on carbon and greenhouse gas dynamics – developing new technological approaches to link measurements and projections across multiple temporal and spatial scales.

- **Funding agency:** Co-Centre for Climate + Biodiversity + Water.
- **Start date:** January 2025/April 2025
- **Project scope:** This project and the PhD candidate appointed will work within the carbon spoke and the projections platform of the co-centre, as well as with industry partners to develop and test new analytical approaches to measure carbon and greenhouse gas dynamics from priority ecosystems (e.g. peatlands and their associated land-use/rehabilitation status) and to link this with projections across multiple temporal and spatial scales. This project provides an opportunity for the successful candidate to be directly involved with the research direction that aligns with their interests and to work across several organisations and research sites associated with the co-centre as well as gaining additional technical expertise through industry engagement.

Position 5: Management of peatland forests for climate, biodiversity and water quality (PeatFor)

- **Funding agency:** Department of Agriculture Food and the Marine.
- **Start date:** January 2025/April 2025
- **Project scope:** This project and the PhD candidate appointed will investigate the C/GHG dynamics of two afforested peatland sites of varying productivity using a range of techniques including eddy covariance and chamber based GHG measurement. An assessment of aquatic C losses will also be made. This work will also integrate with Earth observation techniques to enhance our capability to predict and upscale the C/GHG source/sink strength of these ecosystems. The eddy covariance towers will be installed over established forest stands as so the candidate should be comfortable, after appropriate training, to work at height on these towers.