

Fully funded PhD Opportunity

Palaeomycology Research Group
Botany Department, School of Natural Sciences,
Trinity College Dublin, the University of Dublin

Fungi and other microorganisms as indicators of Irish peatland response to climate change, health, and restoration

Applications are invited from suitably qualified candidates for a full-time PhD (Structured PhD programme) on “*the use and application of non-pollen palynomorphs (NPPs) in Irish peatland ecology*”. The project is funded by iCRAG, the SFI Research Centre in Applied Geosciences.

Project background and description

Peatlands are culturally, economically, and ecologically important ecosystems in Ireland. However, the extraction and draining of peatlands over several centuries have become the sources of CO₂ rather than carbon sinks. Climate change has led to a need for new practices and novel approaches focusing on the protection and restoration peatlands. Moreover, our understanding of the microbial diversity and ecology in peatlands is limited. Reliable proxies to measure the effect, and progress, of peatland restoration is complicated and difficult, especially without a comparable ‘baseline’ of biodiversity. This project will examine the diversity of Quaternary and modern-aged non-pollen palynomorphs (NPPs), especially fungi, of established, undisturbed, and restored peatland (e.g., blanket bog, raised bog, fen) habitats to document the microbial diversity – in order for us to compare, and contrast, past microbial diversity to the diversity of microbes in restored peatlands. Approaches will include standard NPP extraction and identification techniques, application of ¹⁴C radiocarbon, and advance microscopy. Results from this project will contribute to our understanding of how microbes responded and adapted to past climate change events, as well as provide insight into the future. Moreover, results will provide examples of target microbial restoration communities and development of a proxy for evaluating peatland restoration progress in Ireland.

The successful candidate will:

- Work independently and collaboratively in their PhD Programme
- Attend and present at national and international conferences, publish in international peer-reviewed journals, participate in public outreach activities
- Communicate their research effectively with professionals, stakeholders, and the public
- Demonstrate and exemplify all Trinity College Dublin, the University of Dublin, postgraduate attributes and expectations

Further enquiries:

Dr. Carla J. Harper (charper@tcd.ie)

<https://www.tcd.ie/Botany/people/charper/>

Requirements

Essential:

- A 1 or 2-1 (or equivalent) undergraduate degree in mycology, or botany, or another discipline directly relevant to the topic
- Excellent communicative (written and oral) competence in English
- Excellent research, protocol design, and organisational skills
- Ability to work and drive to field locations (ability to drive in Ireland, and/or start license exam by start of PhD position)
- Be a self-directed individual and able to work in a collaborative, structured environment

Desirable:

- Demonstrable experience of field work, preferably peatland ecology
- Demonstrable experience of working with non-pollen palynomorphs (NPP) (field and laboratory settings) – especially identification of fungal spores
- Demonstrable experience of statistical analysis, pollen chart software
- Familiarity with transmitted light microscopy image capture
- Familiarity with image manipulation and editing software (e.g., Adobe Creative Suite)
- Evidence of publication (or in press) in international peer-reviewed journals
- Willingness to the activities of the Botany and Geology Departments, and Trinity Geology Museum

Award

The successful candidate will be enrolled for a 48-month (Structured) Research PhD programme in Botany in the College of Natural Sciences, Trinity College Dublin, the University of Dublin. The Fellowship provides University fees and a stipend of **€18,500 per annum over four years**. Funds for project costs are also provided.

Application deadline: 15 August 2022 by 5pm (Irish local time)

Start date: 12 September 2022 (Fall Semester; Michaelmas Term)

Application Procedure

Interested applicants should submit, within a single PDF document, a CV with educational background, transcripts of degree results, list of publications and conference presentations, a short (1–2 page) letter of motivation and contact details for 2 referees submitted directly to Dr. Carla Harper (charper@tcd.ie). The motivation letter should clearly state how the applicant's research interests and skills relate to the research project outlined above. Applications will not be considered complete until referees have submitted their references. If the successful candidate does not have English as a first language, they will also be required to submit evidence of English language competence at this stage.

The position holder will be located at Trinity College Dublin's attractive Dublin city centre campus and the [College of Natural Sciences postgraduate application portal can be found here:](#)

Please select: [Doctor in Philosophy, Botany \(Full-Time\) – 4 Years – Full-Time](#)

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Closing date: 15 August 2022 at 5pm (local) Irish time