'FOREST - Reimagining relations with nature' - Two PhD Studentships available

An exciting new multi-disciplinary project is seeking to recruit 2 new PhD students. Students will work as a team to examine native woodland afforestation, which has become perceived as a key strategy to address climate and biodiversity challenges, and is attracting investment from public and private actors. However, the ecological, social, and financial risks of this are not always well considered. This project, FOREST, will use the increase in forestry in Ireland as a model system to explore the challenges associated with addressing climate and biodiversity issues, and examine potential solutions from a multi-disciplinary perspective. The aim is to develop socially just, ecologically sound and economically viable options.

Phd 1: **Blending nature-based & technology solutions** - primary supervisor Professor McCormack (Engineering), co-supervisor Professor Stout (Botany). To examine optimisation of a blended approach, addressing the compatibility of nature-based solutions (long-term forestry) and technological solutions (e.g. solar farms) at different spatial and temporal scales in order to determine options for optimum climate action for Ireland.

PhD 2: **Quantitative analysis/integration of metrics** - primary supervisor Professor Brophy (Statistics), co-supervisor Professor Stout (Botany). To develop a statistical approach to exploring impacts of native afforestation, including a meta-analysis of ecological data (e.g. role of forests for pollinators in Ireland), integration of different metrics for value (monetary vs quantitative vs qualitative metrics) and methods for scaling individual actions to societal level. This project will also collaborate with the other four FOREST PhD students to develop a multivariate statistical analysis to jointly assess outcomes across the FOREST project.

PhD students will work as a team and so excellent team working and communication skills are required. Each candidate will produce an independent piece of research in the form of a PhD thesis based on this research project.

Project	Primary supervisor	Contact	Requirements
1. Blending nature-based & technology solutions	**Sarah McCormack**	**mccorms1@tcd.ie**	**Master's degree in engineering or natural sciences or a relevant area of study**
2. Quantitative analysis/integration of metrics	**Caroline Brophy**	**Caroline.Brophy@tcd.ie**	**Bachelors (upper second class or higher) or Master's degree in Statistics, Mathematics or similar quantitative field; experience or interest in addressing environmental challenges desirable.**

This project is part of the Kinsella Challenge-Based E3 projects at Trinity College Dublin, and PhD students will have the opportunity to work alongside the other successful projects, particularly in terms of team-building and dissemination events.

The PhDs are all 4-year structured programmes, with an anticipated start date of September 2021.

Application Process

Applications can be made by clicking here…

Late applications will not be accepted. Informal enquiries should be made to the primary supervisor. Completed applications should be submitted to via the above link and will require :

1. A curriculum vitae (including the names of two referees, one of which must be an academic referee).
2. A cover letter (maximum 1000 words) outlining the applicant's research interests and why they are suitable for this project. Applications will be jointly reviewed by project supervisors. Shortlisted applicants will be invited to video-interview. The successful

applicant will subsequently apply to register as a PhD student through the Trinity College Dublin central portal but must meet all requirements for registration in order to be eligible for this funding award. Postgraduate admission requirements are available here: https://www.tcd.ie/study/apply/admission-requirements/postgraduate/. The successful applicant will be required to provide evidence of English language competence following the award offer and before registering.

About the Project

FOREST brings together research leaders across Botany, Economics, Engineering, Finance, Geography and Statistics to **reimagine our relations with nature.** People and nature are not separate – we are dependent on nature as our life support system. The systematic failure of economic, political, and financial systems to take nature into account has resulted in climate and biodiversity crises. Ireland is now seeking to transition away from highly carbon-dependent social and economic practices, towards sustainable practices, systems and behaviours that support the coexistence of flourishing human systems and natural environments.

This project will investigate how to assign value to the natural world to create investment initiatives with ecological benefits, to encourage investors to actively invest in assets with environmental and societal benefits. It will examine the behavioural aspects and financial investment incentives that can be linked to the protection or restoration of forests. However, placing a financial value on nature is not enough to preserve it, there must also be policy initiatives, and stronger legal mechanisms which recognise the multiple benefits of forests such as carbon capture, biodiversity habitat, and recreation. The financial industry is beset by a focus on short term gains, caused by performance metrics, remuneration incentives and incomplete measures of value. Policy supports can to some extent address these market failures by creating incentives which incorporate the long term non-market and socio-cultural benefits of nature.

To correctly design incentives, an understanding of different perspectives on the values and benefits of nature in the widest sense is key, particularly in terms of impacting on individual and collective action. Actions taken have consequences for environment, people, and economies, but are often only assessed through a single lens. Implementing the right action in the right place urgently requires a new kind of multi-disciplinary dynamic, and a way of integrating data measured on different scales. This research challenge is inherently multidisciplinary in nature and will be conducted in conjunction with researchers across a range of relevant disciplines.

FOREST will use the increase in forestry in Ireland as a model system to explore the challenges associated with addressing climate and biodiversity issues, and examine potential solutions through a multi-disciplinary lens. It will recruit a team of PhD candidates to study as part of an interdisciplinary team to address complex human-nature relations and the social economic-ecological challenges and opportunities associated with transitioning away from unsustainable to sustainable development pathways.