



Recruitment at the Mediterranean Institute of Advanced Studies (IMEDEA, CSIC-UIB)

As part of the [Mediterranean Institute of Advanced Studies](http://www.travesetlab.com/), the Global Change Research Group, more specifically the Terrestrial Ecology Lab (<http://www.travesetlab.com/>) which focuses its research on the effects of global change on island biodiversity, community structure, and ecosystem functioning, is seeking:

A PhD contract in Terrestrial (Island) Ecology. The applicant will focus on the connection between network structure and ecosystem function, focusing on plant-pollinator interactions and their consequences on plant reproduction. Field work will be carried out in the Seychelles archipelago (Contract duration: 4 years).

This position is part of the ERC Advanced Grant *IslandLife “Determinants of island ecological complexity in the context of global change”* led by Anna Traveset. The project will combine direct observations during intense fieldwork, automated video monitoring and deep-learning, cutting-edge molecular techniques, and newly developed coextinction models to predict persistence and resilience of island biota to disturbances. For more information on the project, [click here](#).

We seek highly motivated and creative individuals with a strong command of the English language and with expertise in the study of biodiversity. Candidates will join an interdisciplinary research center, recently accredited as a Center of Excellence María de Maeztu by the Spanish Ministry of Science and Innovation, where terrestrial and marine ecologists, physical oceanographers, chemists, and evolutionary biologists work in collaborative projects.

To apply, follow the application instructions of each job offer.

Review of applications will start immediately until the positions are filled.

About the project: [ERC AdG *IslandLife –Determinants of island ecological complexity in the context of global change*](#)

PI: [Anna Traveset. Mediterranean Institute of Advanced Studies \(IMEDEA, CSIC-UIB\)](#)

Biodiversity is declining globally at an unprecedented rate. Representing ~30% of the biodiversity hotspots, islands are particularly vulnerable to anthropogenic activities, indeed 80% of reported extinctions are island species. Yet, unique island biodiversity – which includes not only the species but also the myriad of interactions among them – is still greatly unknown. It is thus urgent to describe it and forecast the consequences of its annihilation so we can mitigate the effect of further losses. Detecting ecological interactions and understanding their complexity is, however, one of the big challenges in the natural sciences. The

advent of new theories and analytical tools, such as critical transition theory and complex network analysis, provides hope to reach that goal. As relatively simple systems with well-defined borders, islands have a great potential to advance our comprehension of nature complexity.

The *IslandLife* project will provide the most comprehensive and quantitatively sophisticated study of multilayer networks to date in any terrestrial ecosystem. We will focus on five archipelagos encompassing four oceans and a wide latitudinal gradient, comparing for the first time the food web structure of 'pristine' (little-disturbed) islands (of a few km²) with areas of similar size in nearby disturbed (human-inhabited) islands. The objective is to unveil the unique biodiversity of these ecosystems, understand their complexity, and evaluate their fragility to global change drivers, such as biological invasions. We will combine direct observations during intense fieldwork, automated-video monitoring and deep-learning, cutting-edge molecular techniques, and newly developed coextinction models to predict persistence and resilience of island biota to disturbances. The project will represent a major breakthrough towards understanding the effects of global change on these valuable ecosystems, of great relevance to both theoretical ecologists and applied conservationists.

[PhD contract in Ecology](#)

Job description: The [Mediterranean Institute of Advanced Studies \(IMEDEA\)](#) offers a PhD position to support the research activities in the context of the European Research Council (ERC) project *IslandLife* (ID: 101054177), led by Prof. [Anna Traveset](#). This is a 5-year research project funded by the ERC that will be developed at the Terrestrial Ecology lab, within the Department of Global Change and Oceanography of IMEDEA.

The tentative title of the PhD thesis will be:

"The connection between network structure and ecosystem functioning: a mechanistic approach to understand the role of the pollinator community in assisting with plant reproduction"

Pollinators provide critical ecosystem functions by pollinating plant species and structuring plant communities, especially in the tropics. Plant-pollinator interactions at the community level can be studied with network approach, which provides insights into how the mutualistic interactions are structured across the community. These structural properties of networks are relatively well-studied, yet we have little understanding how network structure translates into ecosystem functions. This PhD project will aim to understand the contribution of pollinator species towards plant reproductive performance thereby shaping plant community composition. We propose to use a multi-pronged approach including plant and pollinator traits, phylogenies and abundances at the community level to improve our understanding of how network structure (global, meso-, and micro-level properties) explain functional performance of pollinators, and how this performance varies over time.

We will study these detailed mechanistic relationships between plants and pollinators in a relatively small community on the tropical island of Frégate in the

Seychelles, where we have detailed pre-existing knowledge of the plant and pollinator community. The research will consist of strong empirical and theoretical components, which require a keen interest in field work and modelling.

This PhD will be co-supervised by project partner Dr Christopher Kaiser-Bunbury, Centre of Ecology and Conservation, University of Exeter, Penryn, UK. Part of the PhD may involve extended visits to the UK to work closely with Dr Kaiser-Bunbury.

Main tasks:

- Develop research objectives and detailed proposal for the PhD project
- Conduct an extensive literature review
- Conduct extensive field work under potentially physically and mentally challenging conditions, including sampling of plant-pollinator interactions, measuring plant and pollinator traits, monitoring plant community composition, evaluating plant reproductive success, identifying plants and pollinators in the field, etc.
- Laboratory work, including sorting and processing samples, species identification, potentially repetitive diagnostic work and measurements of seeds, pollen grains, etc.
- Analyze and visualize data, including modelling in R.
- Publish manuscripts in peer-reviewed journals and disseminate results.
- Actively engage in the research group and support the organization in project meetings and conferences throughout the project.

Main requirements/skills:

- Candidates must hold a Master's degree in Biology or Environmental Sciences.
- Experience in sampling biological communities, conducting field work in the tropics, and knowledge of plant-animal interactions are desirable but not essential. Ability to withstand harsh field conditions like heavy rain, heat and extensive sun.
- Willingness and ability to take responsibility for independent data collection and processing.
- Very good statistical skills, including programming in R, are highly desirable but not essential. Ideally, the candidate should have experience with analyzing and interpreting interaction networks.
- The applicant must have excellent interpersonal and communication skills, and proficiency in communicating complex information, orally, in writing and electronically in English. Good command of Spanish is not essential but desirable because the applicant will be part of a research and social community that primarily uses Spanish as their main language.
- Ability to work collaboratively and liaise with colleagues and students. Sampling will involve being part of a research team.

- Ability to build contacts and participate in internal and external networks for the exchange of information and collaboration.
- An understanding of the importance of equality and diversity within an organization and a commitment to help create an inclusive culture.
- Willingness to work flexibly to achieve project demands and engage in continuous professional development.
- A valid driver's license.

IMPORTANT: Applications including links to previous works/projects/initiatives that show how the applicant meets these requirements will be given priority.

Benefits and work environment:

- Interdisciplinary and inspiring work environment. Researchers will join a vibrant interdisciplinary team and will work in an interdisciplinary research center, recently accredited as Center of Excellence María de Maeztu by the Spanish Ministry of Science and Innovation (<https://imedea.uib-csic.es/en/>).
- Combination of field and lab work in two different countries (Spain and Republic of Seychelles).
- Possibility of participating in internal training, learning, and corporate social responsibility activities at IMEDEA.
- Possibility of participating in field work in other archipelagos studied within the ERC project.
- 37.5-hour work week calendar.
- 20 days of vacation per year.

Term of contract: Starting in Spring 2023, the position will be for a maximum of 4 years.

Salary: The position will carry competitive salary, matching the academic and professional profile of the applicant, and excellent work conditions. The annual salary of a PhD contracted by CSIC is 23,064€.

Location: Mediterranean Institute of Advanced Studies, Mallorca, Spain

Additional information: IMEDEA is committed to conciliating research-academic requirements and family duties. Being a center of CSIC, it is particularly concerned with creating equal opportunities for people independently of gender, culture, and race. Anyone with relevant qualifications is therefore strongly encouraged to apply for the position.

Application procedure: Applicants should send one PDF document with the following information: Letter of application / motivation, a CV, and the names and email addresses of two referees to the following email address: IslandLife.ERC@gmail.com, noting in the subject of the message "JOB TITLE"

The deadline for applications is **January 30th 2023**; candidate interviews will start as applications are received.

All applicants will receive an answer before **February 15th 2023**.